



# **Inquiry-based Learning and its Impact on Teaching and Learning of the Humanities**

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# Inquiry-based Learning and its Impact on Teaching and Learning of the Humanities

*Sima Aghazadeh*

## **Abstract**

*The value of inquiry has long been recognised and there is growing evidence of the efficacy of this approach in education. To that end, educational systems have begun to incorporate inquiry into their curriculum as a key to raise disciplinary standards and principles. However, it seems that the curricular emphasis on inquiry, while necessary, is not sufficient for the effective enactment of inquiry practices. The critical ingredient required to enact a successful inquiry-based learning (IBL) in classrooms is an inquiry culture and mind-set which should be cultivated for both teachers and students in K-12 classrooms. This paper aims to focus on and explore the implementation of IBL in the context of the K-12 humanities subjects. It seeks to provide insights to the nature of inquiry in the learning and teaching of the humanities by highlighting the related concepts, complexities, and impacts, found in local and international literature. To achieve that, this paper consists of 3 sections. Section 1 offers the philosophical and theoretical backgrounds of IBL. It discusses the essential constituents of a disciplined inquiry in the humanities with some examples of international curricula. In section 2, IBL will be elucidated in the context of the humanities subjects and its impact on learning (developing student knowledge and skills) and teaching (inquiry-related pedagogical strategies, activities, teachers' role, and assessment). Section 3 follows with some implications and suggestions for policymakers, educators and future researchers in this area.*

## **Introduction**

Inquiry-based learning (IBL), rooted in a constructivist pedagogical philosophy, aims to enhance the quality and effectiveness of learning, promote learners' agency and motivation, and connect in-school engagements to the real world and future possibilities, thus supporting 21st century skills education. It intends to engage learners actively in a knowledge-building process through the investigation of questions (Harada & Yoshina, 2004b). The value of inquiry has long been recognised, and there is growing evidence of the efficacy of this approach in education. To that end, educational systems have begun to incorporate inquiry into their curriculum as a key to raise disciplinary standards and principles.

However, it seems that the curricular emphasis on inquiry, while necessary, is not sufficient for the effective enactment of inquiry practices. Although teachers seem to be receptive to IBL, it is not widely and effectively used as they may find it challenging to juggle a host of competing purposes, new responsibilities, and implementation issues—from carving out the time needed for activities to classroom management (Barton & Levstik, 2003). Perhaps the critical ingredient required to enact a successful IBL in classrooms is an inquiry culture and mind-set which should be cultivated for both teachers and students. In teachers' minds and hands, inquiry has a real chance to grow and become the norm in K-12 classrooms.

This paper aims to focus on and explore the implementation of IBL in the context of the K-12 humanities subjects—History, Geography, Social Studies (civics/government in some curricula) and Economics. It seeks to provide insights to the nature of inquiry in the learning and teaching of the humanities by highlighting the related concepts, complexities, and impacts, found in local and international literature. To achieve that, the paper consists of 3 sections. Section 1 offers the philosophical and theoretical backgrounds of IBL. It discusses the essential constituents of a disciplined inquiry in the humanities with some examples of international curricula. In section 2, IBL will be elucidated in the context of the humanities subjects and its impact on learning (developing student knowledge and skills) and teaching (inquiry-related pedagogical

strategies, activities, assessment, and teachers' role). Section 3 follows with some implications and suggestions for policymakers, educators, and future researchers in this area.

## **Section 1: Philosophical and Theoretical Background of IBL**

This section presents the philosophical and theoretical backgrounds of IBL to help us understand the root, objectives and significance of inquiry in general. When inquiry is philosophically and theoretically conceived, it shapes our thoughts on its effectiveness as an educational practice.

### ***Philosophical background***

Curiosity and inquiry are natural to human experience but they can be systematically guided to foster meaningful learning experiences (Scardamalia & Bereiter, 2010). Perhaps the closest philosophical association is to the Socratic dialogue/method in which students are guided and encouraged to seek truths (which are always tentative and disputable) through a series of questions and answers. In the Socratic method, there should be no hierarchical relationship between teachers and students as both are responsible for pushing the dialogue forward through questioning to clarify the basic assumptions underpinning a particular thought (Ross, 2003). The influence of Socratic method can be seen in the early modern philosophers (from Bacon to Kant and Locke) who, in short, viewed inquiry as a process in which Nature is subjected to a series of questions (Sintonen, 1990). Individuals should actively question, explore, and examine a particular claim rather than simply accepting it, and through this process develop their identity as independent thinkers and informed citizens. Thus, and philosophically, inquiry is a fundamental element in the development of our consciousness of who we are and how we understand the world. In this sense, learning through inquiry is not just a pedagogical approach but a way of life.

IBL, in its modern conceptualisation, has roots in the constructivist theories of education namely in the works of Dewey and Vygotsky,

among others<sup>1</sup>, who view learning as a situated, active and social process where students are able to construct their own knowledge. Dewey was the main advocate for the notion that student learning ought to be through active engagement in the process of critical examination, inquiry and reflection. In simple words, learning should be by doing or what he called *experiential learning* (1910, 1933). For Dewey, students' attitude to find inquiry-based solutions for authentic problems is fundamental not only to education but also to the cultivation of individuality, reflection and ethical citizenship. This can be done if IBL focuses on the quality of students' experiences as the key element, and provides deeper and more expansive learning experiences (Dewey, 1938). Dewey (1985), like Socrates, saw inquiry not only as an approach to gain knowledge, but also a way to learn how to live, strengthen democracy and promote the common good.

Similarly, Vygotsky (1987) stressed the importance of providing learners with opportunities for meaningful learning, which can develop learners' metacognitive skills through inquiry, exploration, and interactions<sup>2</sup>. In presenting leading questions and developing inquiry skills, Vygotsky emphasised the importance of collaboration and the role of mentors as the key ingredients in his notion of *zone of proximal development*. He believed educators would best facilitate student learning within their range of ability and by presenting students with activities that are challenging enough. This leads to the important role of teachers as mentors to scaffold student learning which is central to inquiry-based pedagogy (the importance of scaffolding in IBL will be discussed further in this paper).

The above-mentioned philosophical perspectives towards the concept of inquiry and its potential in the transformation of education highlights that IBL is not merely a pedagogy. It aligns with a learner's natural inclination for curiosity, questioning and exploration. It calls for a

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1 Of other influential educational constructivist theories, we can name Piaget's (1973) concept of autonomous learning through activities of interest, and Bruner's act of discovery (1961).

2 Although there is a general difference between Vygotsky and Dewey in the relationship between the process and goals in learning and development of inquiry, both share similar ideas concerning the importance of inquiry and every day activities in the educational process. For the differences of their perspectives, see Glassman (2001).

change in teaching and learning habits, but above that, a deep change in the mind-set and values embodied within education. Therefore, it should encompass a range of philosophical, curricular, and pedagogical approaches altogether.

### ***Theoretical/conceptual framework***

While the ability to ask questions and direct learners' pursuit of probing questions towards active investigation and analysis of data is the foundations of IBL, the conceptualisation of IBL can vary based on different models, frameworks and disciplines. Therefore, it resists a precise or commonly accepted definition (Wilhelm, 2007). In order to unpack the meanings of IBL and the different perceptions of what constitute IBL, this section focuses on the theoretical/conceptual background by offering the definitions, cycles and phases, essential constituents of the disciplined inquiry in the humanities, and some examples of international frameworks of IBL in the humanities. Clarifying and discussing these concepts might be helpful for educators who inevitably confront them.

### **Defining IBL**

IBL can be defined differently in a variety of forms, contexts and disciplinary fields. This was highlighted by the experts from the European Commission that the main problem in discussing the approaches to the inquiry-based instruction is a lack of clarity in terminology (Forsthuber, Motiejunaite, & de Almeida Coutinho, 2011). It is clear that for a better understanding of the term IBL, we first need to understand the notion of inquiry in education. The National Science Education Standards (NSES) (NRC, 1996) defined inquiry as "a multifaceted activity that involves making observations; posing questions; examining books and other sources; planning investigations; using tools to gather, analyse, and interpret data; proposing answers, explanations, and predictions; and communicating the results. Inquiry requires identification of assumptions, use of critical and logical thinking, and consideration of alternative explanations" (p. 23). On the other hand, Mills and Donnelly (2001) viewed inquiry "as a philosophical stance rather than a set of strategies, activities, or a particular teaching method" (p. xviii). Parker (2007) also viewed inquiry as "a way of looking at the world, a questioning stance we take when we seek to

learn something we don't yet know" (p. 1), and believed that to achieve this in the classroom, curricular planning is necessary. Perhaps one powerful summary of inquiry conceptions is by Cochran-Smith and Lytle (2009) who characterised inquiry as content, outcome, pedagogy and stance. The latter views inquiry not just as a classroom project, a series of steps, or a teaching methodology in which teachers and students develop a questioning and critical perspective on educational problems, but rather a constructive notion and goal that extends beyond all these to transform teaching, learning, leading and schooling.

Levy and Petruilis (2007) differentiated inquiry as **discovery-oriented** (building new knowledge) or **information-oriented** (exploring existing knowledge). In the former, students experience inquiry to contest an existing knowledge and build a new one whereas in the latter, they experience inquiry to explore and acquire existing disciplinary knowledge. It is noteworthy that inquiry as information and discovery are both important parts of a continuum, reinforcing each other. Engaging students in a discovery mode of inquiry in order to construct new knowledge has to be firmly anchored to existing knowledge and students' ability to gather and examine it.

Another dimension which makes a difference in the perception of inquiry is to look at it as educational means or ends. **Inquiry as means** is perceived as a vehicle or a process that helps students develop an understanding of the concepts and core ideas of a particular subject; but more importantly, it serves to develop the inquiry skills in the process of understanding the subject matter (e.g., carrying out investigations, interpreting data, engaging in arguments, communication, reflection, etc.). However, **inquiry as ends** helps students develop understanding of content knowledge as the main goal or product while the development of inquiry skills (abilities/skills necessary to conduct a disciplined inquiry) remains in the background. While these concepts are elaborated more in relation to science education (Abd-El-Khalick et al., 2004; Hackett, 1998), one way to look at it is that process is more important than product. This brings us (as educators) to understand inquiry, not just a tool to use in the classroom as an end in itself, but as a stance or a disposition that should underpin teaching and learning processes. As such, it should be perceived as a

vital means, ensuring that students develop deep and engaged learning as well as keep up the culture of inquiry and reflection.

Based on how inquiry is defined, IBL is an inquiry cycle or process which is formed and organised by the connection of smaller inquiry units or phases. Throughout the literature, various terms are used for different inquiry phases and there is diversity in the sequencing of the phases, which results in various inquiry cycles (e.g., Kuhlthau et al., 2015; Pedaste et al., 2015; Kath Murdoch's integrated inquiry model, 2010). For instance, in their systematic literature review (a total of 32 articles from 1972 to 2012), Pedaste et al. (2015) identified and summarised five general inquiry phases that can be used across disciplines: Orientation; Conceptualisation; Investigation; Conclusion and Discussion. Some examples of IBL cycles (or models), in the context of humanities, is summarised in Appendix 1. As the table in Appendix 1 shows, while there is an underlying commonality at the core of all inquiry cycles and phases, there is a variety of terms and connections between them. What is important is that the process cannot be rushed from one phase to the next as it takes time, reflection, and persistence (Maniotes, 2013). Careful and thorough planning is essential to the flow of the inquiry process so that each phase is completed in a timely manner.

In the most general sense, IBL centres on learning through an inquiry cycle, providing students opportunities to answer questions through the exploration, investigation and analysis of gathered data. Educators, like Dewey (1996), Vygotsky (1962), and Gilbert (2009), considered IBL grounded in the philosophy of constructivist education, applied to classrooms and the world. Levy et al. (2011) defined IBL as a set of learning, assessment strategies, and standards where student learning is driven by questions and problems relevant to the course and learning objectives. Alberta Education (2004) defined it as a "process where students are involved in their learning, formulate questions, investigate widely and then build new understandings, meanings, and knowledge. That knowledge is new to the students and may be used to answer a question, to develop a solution or to support a position or point of view. The knowledge is usually presented to others and may result in some sort of action" (p. 1). Bacon and Matthews (2014) offered

a similar conception of IBL as an active and serious learning experience which engages learners with the social and physical environment to make sense of the world, reflect on the connections between the experiences and the information gathered, and take a thoughtful action.

As shown in the above-mentioned literature, it can be claimed that there is no clear-cut definition of IBL, agreed by all, as both inquiry and IBL are multifaceted concepts. Therefore, the wide-ranging flexibility of IBL allows it to be contextualised to a variety of learning situations and be applied to any course in any discipline at any level (Wankel & Blessinger, 2013). However, it is a fallacy to assume that conducting inquiry is generic and uniform across all disciplines. The unique nature of each discipline and its core knowledge, combined with the unique nature of the inquiry skills within that discipline, shifts IBL to become more discipline-specific (Lupton, 2014). Moreover, the skills associated with and integrated into the inquiry (e.g., questioning, collaboration, self-direction, communication and reflective thinking) are discipline-specific as they can be interpreted and conducted differently (Kidman & Casinader, 2017).

Based on the literature (e.g., The Galileo Educational Network Association, 2008; Kidman & Casinader, 2017; Justice et al. 2009; Kahn and O'Rourke 2004), a number of essential features of a disciplined inquiry can be consolidated and outlined as:

- it is question-driven, and the nature and types of questions/problems, determined by the discipline, should connect students to the world beyond the school;
- it is student-centred where students are expected to understand existing knowledge and ideally create new knowledge, rather than memorising it, through meaningful activities and interacting with peers as well as experts in the field;
- it promotes self-directed learning, with students taking increasing responsibility for their learning, and finding the opportunity to communicate their ideas and insights through different mediums;
- teachers are facilitators or mentors, providing flexible guidance

- and necessary scaffolding to ensure that students' inquiries are focused and moving forward; and
- on-going formative assessments are woven into the design of the inquiry process and involve detailed descriptive feedback.

For the purpose of this paper, IBL in the humanities is discipline-specific, encompassing the above-mentioned features to introduce students to important questions, provide the relevant content necessary to examine that question, pursue, generate, and then communicate knowledge in the ways specific to the humanities. As such, students can be prepared to read and evaluate sources in relationship to their contexts and use them as evidence to construct well-reasoned arguments and reflection.

### **IBL in the humanities**

In this paper, IBL in the humanities refers to the inquiry process conducted for subjects such as History, Social Studies, Economics and Geography. It mostly revolves around contextual and societal issues with the emphasis on "a learner's understanding and reflection on humans and their interactions with the societal world from multiple perspectives, values and interests" (Jong, 2017, p. 307). The interdisciplinary nature of the domain of humanities with its wide terrain of contents, positions inquiry in a more contextual and conceptual frame with more dynamic and non-linear flux (Shih, Chuang, & Hwang, 2010) and requires students' understanding of and engagement with values and interests from multiple perspectives. Multiple perspectives should be viewed in two ways: looking at a problem from different disciplinary perspectives within the humanities (social, political, historical, geographical, and economic), or different perspectives from different individuals and groups toward a single topic (Grant, Swan, & Lee, 2017). Emphasising and embracing these differences and different solutions to problems is fundamental to IBL in the humanities so that it can "support students to develop the capacity to know, analyse, explain, and argue about interdisciplinary challenges in our social world ... to communicate and act upon what they learn" (National Council for the Social Studies. 2013, p. 6). Thus, it should help students see and address the complexity of social problems for which there is sometimes a need for integrative and interdisciplinary learning.

The heart of the humanities is to develop our understanding of who we are and how we see the world. Consequently, the main aim of IBL in the humanities is to develop understanding and good judgment through critical examination of sources, claims and personal views/values. Therefore, it requires a more reflective character with ethical reasoning “to think about who we are as humans and what it means to live in the 21st century; to really think about the human side of different issues... it is fundamentally about values and the priorities we have” (Baildon, 2013, p. 1). Humanities inquiries are thus more as means towards right questions than answers, more about reflecting and interpreting than memorising, and more to learn to embrace different perspectives than a single solution or interpretation. This quality makes critical thinking, reasoning, reflection and evaluation paramount in the humanities IBL.

There are some differences not only in conducting inquiry across disciplines but also between subjects within a discipline. For example, one differentiating factor is the type of inquiry questions (especially posed by students). Kidman & Casinader (2017) obtained 1,445 discipline-specific student-generated questions in three domains of Science, History and Geography, and found that the types of questions asked by students in these contexts were quite different from each other. In their study, types of questions in Science included features, possibilities, function, mechanism and comparison; in History, verification, request for information and causal; and in Geography features, possibilities, comparison, request for information and causal. The comparison among these three subjects shows that there are some similarities, differences as well as overlapping areas. For example, Geography appears to be prone to a blend of Science and History types of questions. If questions differ, so do the instructional strategies and inquiry activities and tasks which follow (Kidman & Casinader, 2017).

Similarly, in an earlier study by Portnoy and Rabinowitz (2014) comparing the 3rd, 8th and 10th grade students' approach toward questioning across history and science texts, the results indicated that students generated significantly more questions regarding the purpose or function of ideas in science passages (e.g., features, possibilities, mechanism), but generated significantly more questions

requesting supplemental information across history passages (e.g., verification, causal). In another study, Van Drie & Van Boxtel (2008) asserted that questions such as descriptive, causal, comparison and evaluative questions are more used in History. Van Drie et al. (2006) compared how students' historical understanding and reasoning differ while working on different types of questions. The findings showed that the evaluative questions elicited more historical reasoning (e.g., argumentation, description of change and continuity and explanation), suggesting that types of questions are effective in provoking historical reasoning in an inquiry process.

Another characteristic of the humanities inquiry is mining information from primary and secondary sources. It involves collecting information from different sources, interpretation and evaluation skills as well as reflexivity. Using primary and secondary sources can be different in historical and geographic inquiries. Geography is distinguished by its clear specification of "place" as a primary emphasis, focuses on the use of both quantitative and qualitative methods, and usually leans towards singular objective conclusions. It relies on using less contentious pieces of evidence (e.g., maps as tools for reasoning about spatial phenomena) (Anderson & Leinhardt, 2002). On the other hand, the process of researching in History is more specific as the information types, resources (oral & written histories and narratives), and changes over time direct the conduct of historical inquiry to be more qualitative and interpretive (Portnoy & Rabinowitz, 2014). Historical evidence is less open to verification and generalisation than geographical evidence because of conflicting representations and interpretations (Roberts, 2013). Written sources in History (and also in Social Studies) are viewed as situated in a social context in which the intentions of the author should be taken into account. As Levstik (1996) suggested, doing historical inquiry in a classroom is a shift from the emphasis on "a story we-told" (as told in the textbooks) to "sources well-scrutinised" (p. 394). Historical inquiry starts with questioning past thoughts and actions through the sources and the trustworthiness of the sources needs to be evaluated, which makes a distinction between *reasoning about documents* and *reasoning with documents* (Rouet et al., 1996). As a result, sourcing information in historical inquiry requires two other essential skills of corroboration and contextualisation (Saye, 2017).

Corroboration is the analysis and comparison of information across multiple sources in light of the guiding historical questions. Corroboration is important in historical inquiry where students learn to examine similarities and differences among information and perspectives and eventually develop historical interpretations (Reisman, 2012). Contextualisation involves understanding and interpreting historical or social phenomena by creating a specific context based on the characteristics of time and place of the phenomena (Van Drie & Van Boxtel, 2008). It helps in tasks such as using sources, developing arguments and dealing with chronology.

Another point to consider within humanities inquiry is to highlight the distinction between a **disciplined inquiry** (e.g., historical or geographical inquiry) and a **disciplined civic inquiry** (Saye, 2017). While the former focuses on prioritising knowledge and skill acquisition in a particular discipline, the latter is a form of inquiry that “explicitly serves the end of civic decision-making” and is likely to incorporate “multiple disciplines and explicit consideration of ethical issues” (Saye, 2017, p. 343). According to Saye (2017) it is important to note that the disciplined inquiry and disciplined civic inquiry operate on a continuum instead of a rigid dichotomy. Social/historical/geographical inquiries about special issues can offer opportunity for civic and ethical reasoning and public policy discussions where students can learn to evaluate what is good, just, or right when it comes to related public policy decisions. For example, Maddox, Howell and Saye (2018) designed a problem-based geographic inquiry curriculum model in which students have opportunities to explore the relationship between their geographical knowledge/skills and civic problems and decision making. This model enables students to build in-depth learning in geography and to connect it to significant civic issues that citizens confront. The authors gave two examples: one is how a unit question under the disciplined inquiry such as *“how can sustainable agricultural practices help the environment and farmers?”* can be modified as *“what agricultural practices are the most ethical?”* (p. 257). Another example is to develop students’ gathering data on population changes in a particular country to deliberating about the best policy options for addressing the challenges created by population changes, which would include the civic component with a disciplined civic inquiry

focus. For such a curriculum design to be successful, learning should be purposeful, authentic, active and challenging so that all students with different learning styles can build in-depth understanding through age-appropriate activities and scaffolding. As such, students are empowered to think critically and reflectively in their discipline and act as responsible citizens (Maddox et al., 2018). This approach in the humanities inquiry is to develop students' informational understanding (facts, concepts, and generalisations) towards transformational learning (reflecting, evaluation, decision making and social action) which they will need as adult citizens.

In short, IBL in the humanities revolves around contextual and societal questions for which considering different perspectives in sourcing, corroboration, and contextualisation as well as reflecting, evaluating and ethical reasoning skills are essential. It is mostly qualitative and interpretive, challenging the idea that the questions in the humanities inquiry can be answered based on a single, stable, and objectively knowable reality. Inquiry-oriented humanities classroom should ideally link disciplinary knowledge to bigger social and citizenship goals to engage students in deep and meaningful inquiry.

### **Some international examples of IBL frameworks in the humanities**

Educational policy worldwide regards IBL as a vital component in academic disciplines (European Commission, 2007; NRC, 2012). Over the last decade, there has been an ongoing debate about the role and implementation of IBL in educational settings. The following offers an overview of only a few important examples from the international development of curricular employment of inquiry models in K-12 humanities.

One noteworthy example is *the C3<sup>3</sup> Framework for Social Studies State Standards* (the US National Council for the Social Studies [NCSS], 2013) which represents the most recent and perhaps ambitious effort to move the humanities/social studies classroom towards IBL in the US. It focuses on upgrading social studies standards and preparing students

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<sup>3</sup> C3 stands for: College, Career, and Civic life (NCSS, 2013)

for civic life through four dimensions of an inquiry arc: 1) developing questions and planning inquiries; 2) applying disciplinary concepts and tools; 3) evaluating sources and using evidence; and 4) communicating conclusions and taking informed action. Based on the C3 inquiry arc, an Inquiry Design Model (IDM) was developed as a guiding tool for teachers to plan and implement social inquiries. (Grant et al., 2017). In this design, questions, tasks, and disciplinary sources are the foundational elements, among which accessible sources are critical for the efficacy of the IDM. Appendix 2 illustrates the IDM blueprint—a one-page representation of the C3 inquiry arc.

Since the publication of the C3 framework in 2013, there has been little data collected to determine the impact of its implementation across different states. For example, *New York Toolkit for Social Studies* is a statewide project<sup>4</sup>, designed to help the implementation of C3 framework. In 2017, hundreds of humanities educators in the US completed a survey to provide data regarding the implementation process (Simpson & O’Neil, 2018). The findings of the survey indicated that although the majority of respondents (66%) had read the relevant sections of the framework for their grade levels, only 9% felt highly proficient, 22% adequately proficient and 25% felt no proficiency in using the framework. The majority of respondents either did not know about the implementation of the framework at their schools, districts, or states, or could not see any clear implementation timeline (Simpson & O’Neil, 2018). These and similar findings (Thacker, Lee & Friedman, 2017) highlight that while the idea of inquiry approach resonate with the humanities teachers, how they are enacting it is unclear and requires further and deeper studies.

The Australian national curriculum, which has had a strong tendency towards inquiry-learning since 2008, marked a significant development in the history of Australian education (Kidman & Casinader, 2017). One distinctive feature in this new curriculum is the emphasis

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<sup>4</sup> This project was designed to help the implementation of C3 framework-aligned standards in social studies. It led to the creation of the Inquiry Design Model, 84 piloted C3 framework-aligned inquiries made by teachers from across the state, and professional development materials. The material was made available and free to all teachers in 2014. Since then, its usage has proliferated throughout the country (Grant et al., 2017).

placed upon learning how to conduct inquiry in different disciplines (Australian Curriculum Assessment and Reporting Authority [ACARA] 2016). Among dominant inquiry models<sup>5</sup> used in Australian schools, *the TELSTAR* model which was developed by the Department of Education, Queensland (1994) is a highly-advocated schema in the humanities, especially in History education (Preston, Harvie, & Wallace, 2015). The acronym represents seven phases of historical/social inquiry, each corresponding with student focus questions (<http://www.cnscurric.catholic.edu.au/telstar-model.html>):

- Tune In (What is the topic/issue? Why should we study it?);
- Explore (What do I know/feel about this topic? What are other people's views? What questions do I have?);
- Look (What do we want to find out? How will we gather the information? What skills/ resources/strategies do we need?);
- Sort (How might we sort our information? What thinking skills/ strategies do I need? What connections can we make?);
- Test (What conclusions can we draw? What evidence supports them? What might we do with our findings?);
- Act (What actions could we take as a result of our findings?); and
- Reflect (What have we learnt and how do we feel about the topic now?).

Social Educators' Association of Queensland (SEAQ) recommends the Telstar model for its benefits: it develops a metacognitive understanding of the entire inquiry process; it facilitates class discussions, skills or strategies to be used in each step; it guides students to examine whether their research data can answer the key question and how they should use this data; and finally it provides an action and reflection components by which students not only can answer the question but also gain awareness of the skills and strategies used and how to improve them.

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<sup>5</sup> According to Bateman (2014), there are four dominant inquiry models: Integrating Socially, the 5Es, the Action Research and TELSTAR models.

Among Asian countries, Singapore is a good example of adopting IBL as the recommended pedagogy for the humanities syllabus (MOE, 2012). Policymakers and curriculum planners see IBL as the key to raise students' disciplinary standards and transforming teaching from a largely content-transmission approach to an approach in which students take ownership of their learning. Such transformation occurs when students learn to purposefully seek information and construct their own knowledge within the norms and standards set by the disciplinary nature of the subject (MOE/CPDD, 2012). Even earlier, in 2000, project-based learning, commonly referred to as Project Work, was introduced in the Singapore school curriculum with the goals of promoting student-centred learning and collaborative and communication skills as well as critical and creative thinking (MOE, 1999).

Singapore's *Teach less, Learn more* educational approach has reduced the number of outcomes in the programmes of studies so that teachers can focus on laying a strong foundation of knowledge and skills involving inquiry-based processes (MOE, 2017). The humanities inquiry process (as a part of the inquiry framework) is characterised by four aspects: Sparking curiosity; Gathering data, Exercising reasoning; and Reflective thinking. *Figure 1* illustrates the Singapore Ministry of Education's (MOE) recommended inquiry framework for the humanities subject, including the process and required elements of inquiry. Based on National Institute of Education's (NIE) Office of Education Research (OER) Core 3 Research Programme conducted on Social Studies pedagogy findings, teachers under the study were able to spark students' curiosity through ideation, activation of prior knowledge and use of stimuli but deep and critical analysis of the data and students' reflective thinking on the inquiry process were absent (Kwek & Hussain, 2019). Although the design of the humanities curriculum revolves around the inquiry approach and the inquiry pedagogy is clearly explained in this framework, there is a need for more research studies to show its effectiveness and to observe both teachers' and students' beliefs and practice in humanities classrooms.

In short, as elaborated in section 1, IBL (especially in the humanities) is not a linear and uniform process but rather a broad approach and

paradigm (i.e., a set of interconnected phases, concepts, and tasks, sometimes with some back and forth movement) which ideally focuses on investigating real world questions and problems, meaningful to learners (Drayton & Falk, 2001). It is more than just posing and answering a series of questions; it is a stance, a belief in the way learners gain or build new knowledge through a process (Short, 2009) in which all tentative answers should be taken seriously and investigated as rigorously as possible. Students should have a chance to reflect on the inquiry process and on their own learning. Once perceived and practised appropriately, inquiry infused with humanities education is able to prepare students to participate competently and responsibly as well-reasoned human beings and citizens in the 21st century global world.

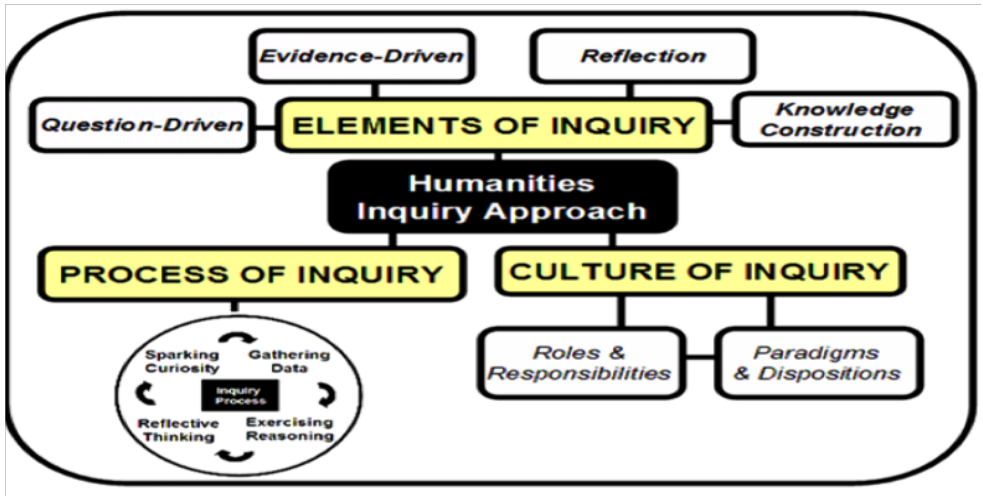


Figure 1. *Humanities inquiry approach* (taken from Singapore MOE, 2012).

## **Section 2: Impact of IBL in the Humanities – IBL in Practice**

Kidman & Casinader (2017) offered three inter-related frames to consider to operationalise IBL in the classroom:

1. Learning outcomes, including disciplinary knowledge, discipline-based interactions, and a set of skills that experts of that discipline need;
2. Instructional approaches/strategies used to engage students in the process of inquiry; and
3. Degree of direction from teachers

The following subsections will elaborate the above-mentioned points through the impact of IBL on student knowledge and skills learning, teaching approaches/strategies, and the significant role of teachers in the humanities classroom. Yet, one more area of emphasis that must be added to the list is assessment, which will be discussed in the last part of this section.

### ***Impact of IBL on learning the humanities***

Literature has shown that IBL, compared to traditional didactic teaching, is more effective in promoting students' ability to apply knowledge, deep thinking and reasoning skills (Hmelo-Silver, 2004; Harada & Yoshina, 2004b; Kuhlthau et al., 2015). Researchers have provided empirical support for the benefits of IBL in the humanities subjects to stimulate progression, not only in students' disciplinary knowledge and reasoning, but also in promoting 21st century skills. IBL emphasises students' active investigation and knowledge construction in the process of inquiry while they need to consider different perspectives, evaluate and adjust their own, and construct evidence-based interpretations (Slatta & Atkinson, 2007; VanSledright, 2002; Monte-Sano, De La Paz et al., 2014; Grant et al., 2017).

Although no single study has synthesised the literature to classify the many possible inquiry outcomes in the humanities classroom, what follows is an attempt to consolidate the most important potential

benefits of humanities IBL found in the literature, of course when meaningful and guided activities are conducted. The review of different studies indicates three main categories of benefits of implementing IBL (and related inquiry pedagogies) in the context of humanities: developing disciplinary knowledge, promoting 21st century skills, and enhancing joy of learning.

### **Developing disciplinary knowledge**

Disciplinary knowledge is more than reading and writing literacy. It includes the skills needed to understand, create, and communicate in a particular discipline. IBL helps students to come to grips with the nature of the subject they are studying. For example, in a historical inquiry, students learn to analyse historical sources and generate disciplinary arguments by reading and annotating the disciplinary sources rather than memorising historical facts, deliberate together about the documents and the question, and compose essays/arguments which lead to academic gains for all learners (De La Paz et al., 2014). Thus, classifying historical sources, determining the purpose of a historical source, and analysing the cause and effect are distinctive literacy in History. Giving another example, reasoning spatially and constructing maps by using geographic data are geographical literacy. A number of studies provided compelling evidence that inquiry approaches in the classroom (compared with traditional and didactic instruction) can improve students' disciplinary knowledge and consequently higher academic achievements as measured by standardised assessment (e.g., Bailey, 2018; Summers & Dickenson, 2012).

Some research examples in Economics include Maxwell, Mergendoller, & Bellisimo (2005) who observed students' increased disciplinary learning and deeper knowledge building of macroeconomic concepts and principles at the high school level when problem-based instruction was employed, and a problem-based Economics curriculum study developed by the Buck Institute (Finkelstein, Hanson, Huang, Hirschman & Huang, 2010) with 4,350 11th and 12th grade students. The findings showed the better performance of experimental group in content knowledge and problem solving performance assessment that included the application of disciplinary concepts, argumentation,

and use of evidence. This is consistent with Brophy and Alleman's (2006) research on the development over time of children's economic understandings about money, banking, production, and distribution, but more studies should be done to explore the development of adolescents' economic knowledge and reasoning (in Saye, 2017).

The mastery of historical writing, growth in abilities to think and reason historically, especially in reading and evaluating sources of historical evidence suggested students' deeper learning of content knowledge and enhancement of disciplinary thinking/reasoning when engaged in inquiry practices (VanSledright, 2002; Harmon, 2006; Li & Lim, 2008). This is consistent with Gultekin's (2005) and Mergendoller and Maxwell's (2006) findings of students' higher order thinking and research skills in Social Studies, deeper content learning especially for low and average achieving students, more effort in completing the tasks, and eventually greater academic achievements. Grant (2011) also found that project-based learning helped Social Studies students develop deep conceptual understandings of human rights and connections with other countries.

A number of research on the academic benefits of IBL in Geography lessons are presented by Spronken-Smith (2005) Spronken-Smith et al. (2008), as well as Roberts (2013) in the context of higher education. Overall, there is rather scant empirical information addressing the increase of disciplinary knowledge with the application of IBL in K-12 Geography (Pawson et al., 2006). Solem, Huynh, and Boehm (2014) informed about the development of learning progressions of geographic reasoning in primary and secondary levels in various countries. One example of a small-scale research in secondary school Geography is by Caesar et al. (2016), showing that classroom discussions and problem-based case study activities assisted students in bridging new knowledge with their prior knowledge, developing their content knowledge, and leading to better performance in the post-test. Besides, researchers observed that students showed higher behavioural, psychological and cognitive engagements in their learning process. To add another point, the literature (e.g., Kaldi et al., 2011; Favier & Van der Schee, 2012; Liu, Bui, Chang, & Lossman, 2010) showed that

students can expand geographical knowledge through IBL when it is enriched with field-based activities and technological tools such as *WebQuests* or *GIS* (Geographical Information System).

### **Promoting 21st century skills**

Research has found that well-designed inquiry-based approaches are effective in promoting 21st century skills among which collaboration, communication, problem-solving, critical thinking and digital literacies are the most cited ones.

Most types of IBL promote social skills as learners practise communication, negotiation and collaboration during different phases of inquiry process, brainstorm ideas with their peers, and interact with the physical, social and technological environments (Chu et al., 2017; Bell, 2010). Leinhardt, Stainton, & Bausmith (1998) found that groups engaged in discussion during a map-making task demonstrated statistically significant gains in geographical knowledge and reasoning compared to students who completed the task individually. According to a report on IBL in the arts and humanities disciplines from the University of Sheffield, on top of students' broadened disciplinary knowledge, collaboration was the most-referred transferable skill as students were working together to negotiate their working process, structure tasks, manage their time and present their projects. Collaborative learning through inquiry creates an opportunity to sharpen students' communication and negotiation skills (Gros 2001; Smith & MacGregor, 1992), analytical skills for interpreting information (Lowyck & Pöysä, 2001), enhancement of work quality and development of social skills in the course of negotiation (Fung et al., 2011) especially when students carry out projects using technological platforms or tools (Chu et al., 2017; Hwang, Lai, & Wang, 2015).

IBL in the humanities encourages students to reflect critically on themselves and their surroundings, take on new perspectives and engage in exploratory and evidence-based dialogues to find possible solutions to problems at hand. This opens up opportunities for them to engage in thought-provoking processes, develop deeper understandings about their local community (about concepts of identity,

belonging, place, and change), and develop important skills such as critical thinking and problem solving (Harada & Yoshina, 2004b). Shepherd's (1998) study on a group of 4th and 5th grade students in a nine-week project to find solutions related to housing shortages in six countries demonstrated significantly higher scores on a critical-thinking test (as measured by the Cornell Critical Thinking Test, CCTT), as well as increased confidence in learning and problem solving. This is in line with other studies that similarly reported higher increase of critical thinking and problem-solving skills after the intervention of inquiry teaching in the humanities classroom through evaluation, critical analysis, and interpretations of primary and secondary sources (Kitota, Ahmada, & Seman, 2010; Finkelstein et al., 2010; Lampert, 2006).

In our highly technological era and interconnected globalised world, digital literacies<sup>6</sup> (DL) are necessary to use and evaluate the information we encounter on a daily basis. In IBL, the use of technology can play a vital role in searching, capturing, analysing and presenting data. Technology-supported IBL has the potential to advance not only disciplinary learning but also to expand technological and digital literacies (Todd, 2008, Chu et al., 2017). Gasque (2016) presented a literature review of studies that addressed the relationship between research-based inquiry projects and IL (information literacy), and concluded that inquiry environments allow better integration of IL skills (concepts, procedures, and attitudes that allow seeking for and using information effectively and efficiently) and meaningful content learning. Utilising technology as a cognitive support during the inquiry-learning process provides students with opportunities for developing other important skills such as high order abilities and problem solving (Bell, 2010; Oliver, 2008; Ikpeze & Boyd, 2007) and encouraging the development of social skills, collaboration, and teamwork (Fung et al., 2011; Chu, 2009) as well as information literacy (IL) and information technology (IT) skills (Chu et al., 2017).

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<sup>6</sup> Digital literacies are made up of three key components: information literacy (IL), information and communication technology (ICT) skills, and media literacy (ML) (Chu et al., 2017).

Various kinds of software and platforms used in IBL, such as blogs (Kim 2008), forums, (Cook-Sather, Bovill, & Felten, 2014), wikis (Li et al., 2012), WebQuests (Ikpeze & Boyd, 2007), and computer games (Hwang et al., 2015; Teo & Chee, 2012) assist collaboration among teachers and students and at the same time improve their information and communication technology (ICT) skills and digital literacies (the latter was observed in Fu & Pow (2011), with a variety of indicators such as collecting and evaluating information, taking photos, editing video clips, and creating multimedia artefacts).

The skills explained above (i.e., collaboration, communication, critical thinking, problem solving and DL) are in line with inquiry literacy/skills when students learn how to ask questions, conduct investigations, gain understanding based on evidence, and report their findings individually or collaboratively. Shore et al. (2009) defined inquiry literacy as “the individual’s capacity to critically understand and use the language, symbols, and skills of inquiry, and to reflect on their meaning and usage during and after the activity” (p. 140). Inquiry literacy is not only about what students do, but also how they understand and value the process (Shore et al., 2009) and to represent data efficiently by separating their own views from someone else’s arguments (Kuhn, 2005). The findings of a study conducted by Peck, Peck, Sentz, and Zasa (1998) in a humanities project-based course, showed that students learned inquiry skills such as using multiple texts, revisiting texts, and evaluating information. Similarly, Chu (2009) showed that primary school students in the inquiry project-based learning were able to progress from simple searching tasks towards a more investigative process of the facts they learnt, with more positive perceptions on the influence of this approach on eight dimensions of learning: information literacy, reading ability, writing ability, IT skills, subject knowledge, social and communication skills, presentation skills and research skills. Afandi & Lim (2018) observed that through historical inquiry, students were able to improve their causal understanding by moving from mono-causal to multi-causal or multi-layered explanations to how and why events happened. Therefore, IBL promotes disciplinary inquiry skills along with the essential 21st century skills.

## **Enhancing joy of learning**

The most consistent finding in the inquiry-related research in the domain of humanities is that students in IBL classrooms are more motivated and actively engaged compared to the traditional mode of instruction (e.g., Hmelo-Silver, 2004; Spronken-Smith et al., 2008; Altstaedter & Jones, 2009) which suggests an increase in the joy of learning both during the learning process and after the process due to achieved results (e.g. Blumenfeld et al., 1991; Brush & Saye, 2008; Summers & Dickinson, 2012). Alvarado and Herr (2003) and Kane (2013) also asserted that IBL can promote students' intellectual engagement and motivate them to retain information better and improve their academic performance.

The length of inquiry instruction is an influential factor. Teachers who had implemented classroom inquiry for at least two years reported increased enjoyment and engagement in their students (Bramwell-Rejskind, Halliday, & McBride, 2008). Undoubtedly, the results will be more positive if inquiry is viewed and used more than a teaching methodology but as a value, relevant to personal and professional lives (Saye, 2017) and when the inquiry activities are linked to real-world issues (Curtis, 2002). Motivation and engagement then become central in this process.

Keiper (1999) found high levels of motivation and substantial use of geographic thinking among 5th graders when he framed a geography inquiry project in the context of a local problem relevant to his students' interests, supported student use of GIS to gather and analyse community data, and planned for students to present their solutions to an authentic audience. Westwood (2006) highlighted that project-based activities promote meaningful learning, and increase self-direction and motivation because students feel responsible for their own learning, and utilise various modes of communication and presentation. Such effectiveness was also observed in primary school students with learning difficulties as student motivation (self-efficacy and task value in environmental studies) as well as team work (acceptance in the group and engagement in the learning process) increased through project-based learning (Filippatou & Kaldi, 2010). In the context of historical

inquiry, Kohlmeier (2006) reported that student motivation increased through historical empathy and appreciation of the historical thinking when they were actively engaged in distinguishing various perspectives of historical figures and event, and explaining and defending their analysis with historical evidence.

Of other research studies which showed an increase in students' motivation and interest in the process of IBL in the humanities subjects, we can name McCormick (2008), reporting students' motivation and interest to study history both in and outside the classroom, and MacArthur, Ferretti, and Okolo (2002), conducting a project-based Social Studies investigation which promoted high levels of engagement and equal participation of students with and without disabilities regardless of their gender. Moreover, using technological platforms such as game-based inquiry is observed to improve the students' learning achievements, motivation, satisfaction level and flow state (Hwang et al., 2015). In short, IBL as a student-centred learning environment fuels learners' motivation, interest and active engagement which makes the process of learning more enjoyable and meaningful.

To conclude the impact of IBL on learning the humanities, the diverse and wide body of research shown in this section suggests that when IBL is adopted as a core pedagogy and enacted appropriately, it can enhance learners' multifaceted skills and knowledge. However, it should be noted that most of the cited studies have been relatively small in scale and for some of them, further research and follow-up data analysis are required to demonstrate clearer and more rigorously ascertained depictions of students' progress through inquiry process. Although small-scale studies still have the potential to inform the field by providing important findings, larger and longer studies in the context of humanities IBL should be conducted to explore the development of essential skills and literacies as well as student perception and readiness in classrooms (Saye, 2017).

### ***Impact of IBL on teaching the humanities***

There are some studies that do not confirm the superiority of inquiry to traditional instruction (Kirschner, Sweller, & Clark, 2006; Barton,

& Levstik, 2003) or find it frustrating and confusing for students (e.g., Brown & Campione, 1996). Almost all of these studies, however, looked at unguided approaches which did not align with the disciplinary inquiry process. The choice of inquiry model in the classroom and its success depend on certain considerations such as a teacher's ability and flexibility to plan, guide, and scaffold, using suitable pedagogical approach/strategies through relevant activities as well of employing technology-enhanced inquiry effectively in order to facilitate a successful IBL in the humanities.

### **Teachers' role**

Teachers who want to have a productive inquiry classroom, regardless of the model adopted, must be able to be the main agent of change by shifting their perspective and role from that of direct instructors to that of facilitators and mentors (Harada & Yoshina, 2004b). This points to the importance of teachers being able to adequately design and provide well-planned scaffolding and support for inquiry (Darling-Hammond & Bransford, 2007). Scaffolding comes in many forms, including simplifying and modelling tasks, providing verbal and nonverbal representations of knowledge, and teaching cognitive and metacognitive strategies related to the task at hand (Reiser, 2004). The literature highlights the importance of appropriate scaffolding to support students' development of conceptual understanding, procedural skills and metacognitive capacities, problem solving, reflection, and knowledge acquisition (e.g. Cho & Jonassen, 2002; Davis, 2000; Roehler & Cantlon, 1997).

Saye and Brush (2002) distinguished between hard and soft scaffolding: Soft scaffolding is provided through context-specific supports (e.g., questions, insights, suggestions and feedback) based on teachers' immediate diagnosis of student difficulties and needs, whereas hard scaffolding occurs with instructional support (e.g., hyperlinked essays, storyboards, glossaries and model essays), designed prior to instruction to support very specific teaching objectives. Li & Lim (2008) examined the features of scaffolding to support online historical inquiry in a case study of two Secondary 2 History classes in Singapore. The hard scaffolds in this study included

written prompts and argumentation template while the soft scaffolds included questioning, modelling, and peer interaction. The findings indicated that different types of scaffolds facilitated the students' learning to achieve a better performance in different steps of the online historical inquiry.

Banchi & Bell (2008) also emphasised the teacher's role in identifying which level of inquiry to employ and providing suitable scaffolding in their four-level continuum of inquiry (i.e., confirmation, structured, guided and open). Moving up from confirmation (level 1) to open inquiry (level 4) is moving from a teacher-centred to a student-centred environment. There is a shift from teachers providing data, explanation, and steps to communicate findings (levels 1 & 2) to teachers guiding students in forming explanations/arguments and then communicating them (level 3) to students independently collecting data to formulate their arguments and eventually choosing an approach to communicate them (level 4). According to Banchi and Bell (2008), students must experience inquiry from the lower level to higher level to experience success. Moreover, teachers should note that their instruction in each level should focus on the development of the inquiry knowledge, skills and attitudes, and not on the solution only.

Analysing the role of educators, Kidman (2016) revealed that in three distinct phases of inquiry—exploratory, evidence-gathering and sense-making—teachers moved from high to low locus of control. Thus, with students' development of inquiry literacy, teachers' role changes accordingly. On a related note, both teachers and students experience role shifts within inquiry as students adopt teacher role, such as evaluating their or peers' works, and teachers adopt a less authoritative and more collaborative role with students or other teachers. A role shift suggests that a role is given up or traded and replaced with a new one (Aulls, Shore, & Delcourt 2007). Consequently, Walker & Shore (2105) proposed an inquiry framework which added the process of role diversification to exploration, engagement, and stabilisation, and stated that this process is applicable to both teachers and students of various age groups. Therefore, a facilitator's role in inquiry is adaptability towards role diversification, which implies that several roles, including roles not traditionally ascribed, can potentially be adopted at one time.

Issues might arise when teachers develop inquiry pedagogy superficially by adopting one or two components because they are not prepared to accommodate a complete change in their classrooms, but this superficial adoption results in an unsuccessful experience (Marx et al., 1997). Students are normally novices to IBL so they tend to overlook key information, forget to provide evidence for their arguments or might produce weak arguments (De La Paz & Felton, 2010). Therefore, teachers' role is to trust that their students are engaged in a meaningful process and to facilitate their progress phase by phase. It is critical for teachers to understand that being a facilitator in a student-centred learning process does not mean adopting a hands-off approach. Rather, it means teachers must be more flexible and ready for the unexpected.

Relatedly, teachers' beliefs, perceptions and readiness to change of role are essential. Teachers' skeptical mind-sets can stem from various reasons: their own lack of understanding and experience with the inquiry methods (Saye & Brush, 2006); their conception of the subjects they teach (Yilmaz, 2010); inconsistencies in perceptions of inquiry (Vajoczki, Watt & Vine, 2011); lack of familiarity and preparation in choosing and using sources (Jewet & Ackerman, 2013; Hicks et al., 2014); and their unwillingness to risk relinquishing control to students in inquiry-based classrooms (Kagan & Tippins, 1992). By comparing different studies in different parts of the world, Leat (2017) pinpointed that teachers' resistance to change their role is one of the visible issues in adopting IBL. In the humanities, IBL might call upon uncertainties and controversy around certain topics which are out of the acceptable boundaries of public discourse (Baillon & Sim, 2009) which makes the shift of control even more challenging. Besides, humanities teachers might find it challenging to give interpretive and reflective support and guide students to be open to opinions and recognise the credible ones, deal with different sources (e.g., narratives, photos, films), and reflect on their own learning, beliefs, and assumptions (Ho et al., 2017; Baildona & Damico, 2008; Kwek & Hussain, 2019). The notion of thinking or reflection is central to IBL in the humanities which is unfortunately overlooked or underestimated in practice. The Core Research Programme conducted on Singapore Social Studies

pedagogy (in Primary 5 and Secondary 3 levels) reported that despite teachers' belief in the importance of inquiry in Social Studies, they struggled in addressing sensitive issues and tensions in classroom discussions and in engaging students in reflective thinking aspect of the inquiry cycle (Kwek, 2018; Kwek & Hussain, 2019).

Overall, to effectively provide opportunities for students to engage in inquiry-oriented classrooms, teachers must be inquiry literate themselves, be ready to undertake roles from direct instructors to facilitators, mentors, and organisers, and have a high level of expertise, aligned with curriculum goals and pedagogical approaches (Kidman & Casinader, 2017). The uncertainty associated with the choice of topics or questions to investigate, the investigation of some social problems, and the need to depend on students to generate knowledge and then to justify and evaluate conflicting claims require great flexibility, tolerance, and control of sentimentalities from teachers (Barton & Levstik, 2003; Saye & Brush, 2004; Baildon & Damico, 2008). In short, teachers' beliefs in adopting the new pedagogy and their flexibility to change their roles are among obstacles to overcome in enacting IBL in the classroom<sup>7</sup>.

### **Pedagogical approaches to IBL in the humanities**

Among the variety of instructional approaches to IBL, this section explains four potential approaches to support successful IBL in the humanities plus the primary implications arising from each.

#### *1. Project-based learning (PjBL)*

In this approach, an individual or a group of students are involved in a constructive investigation and hands-on activities to do projects (which are central to the curriculum) over a specified period of

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<sup>7</sup> In this regard, Voet & de Wever (2018) presented a theoretical framework which explained three constitutive dimensions of teachers' belief system in choosing IBL: the constructs of education, the self, and the context. Within the framework, other key interrelated variables were introduced: the value attributed to procedural knowledge (i.e. knowledge about historical reasoning and inquiry); feelings of competence for organizing IBL-activities; and the extent to which the classroom environment is perceived as a hindrance to such activities. This framework was empirically investigated through a survey study with secondary school history teachers. For more information, see Voet & de Wever (2018).

time, resulting in an output such as a product, presentation or performance (Thomas, 2000). There is a growing body of literature that supports the use of PjBL as it shows a decrease in students' absenteeism, increase in cooperative learning skills and motivation, and improvement of social skills as well as academic achievement (Thomas, 2000; Wong, 2001; Yip et al., 2003; Quek et al., 2005). PjBL has also been found useful in teaching children with different learning styles, cultural and ethnic backgrounds, and ability levels (Railsback, 2002). Based on the perceived effectiveness of PjBL, a number of Western educational organisations, such as the Buck Institute for Education (BIE) and the Partnership for 21st Century Learning (P21), have put their support behind this teaching approach (Chen & Yang, 2019).

Thomas (2000) identified five key components of an effective PjBL as it should be: 1) central to the curriculum; 2) organised around driving questions that lead students to encounter central concepts or principles; 3) based on a constructive investigation that involves inquiry and knowledge building; 4) student-driven (students are responsible for designing and managing their work); and 5) authentic and realistic, focusing on real-life problems. In the learning process of PjBL, students need to solve problems by defining the problem, discussing ideas, collecting and analysing data, and sharing findings with their peers. Thus, learning to work together is a critical factor in PjBL; teachers need to facilitate appropriate collaboration and teamwork among students in order to develop and present their final products (Bell, 2010; Blumenfeld et al., 1991). Conversely, PjBL may end up demotivating if teachers prefer performance over the process by emphasising grades and enforcing competitive evaluation (Blumenfeld et al., 1991).

## *2. Problem/issue-based learning (PBL)*

In this approach, students work in small groups to investigate meaningful problems, identify what they need to learn to solve a problem, and generate solution strategies (Hmelo-Silver, 2004). Barrows and Kelson (1993) were the pioneers in introducing and developing problem-based curricula and teacher training programmes for implementing it to high school students. Various

results of its implementations in K-12 humanities subjects have been reported in History (Wieseman & Cadwell, 2005), Geography (Yeung, 2010), Literature (Jacobsen & Spiro, 1994) and Microeconomics (Maxwell et al., 2005).

A good example of implementing PBL is Republic Polytechnic's one day, one problem model. In this model, students work on one problem under a tutor's facilitation, focusing on one given subject each day. At the end of the day, the groups synthesise their research results and share them with the entire class. The objective of this model is to embed students' learning processes in real-life problems and provide a clear purpose of learning through creating problem solving skills (Hung, Jonassen, & Liu, 2008). The advantage of this approach is that knowledge is not imposed mechanically but is "drawn out"; it motivates and engages students as they are "actively pursuing their choice and inclinations" (Hung et al., 2008, pp.486, 488).

### 3. *Discussion-based inquiry*

Discussion of authentic historical, economic, social, and geographic issues is a useful tool to engage students in the humanities inquiry (Barton & Levstik, 2003; Miller & VanFossen, 2008; Saye & Brush, 2004; Woelders, 2007; Hess, 2009). Discussion can increase student understanding of important contents, develop their critical thinking and ability to dialogue across differences, build their tolerance for diversity, and promote positive civic behaviour and engagement (Hess, 2009). Furthermore, it allows them to be actively engaged in the curriculum and to understand the issues in a more meaningful way that is relevant to everyday life (Torney-Purta et al., 2002). Hess (2009) asserted that when structured appropriately, discussions about controversial issues have positive impact on students' "civic engagement" and build the "understandings, skills and dispositions" they need to participate in social life (p. 5). The benefits of teaching controversial issues are well-established in international scholarship (Barton and McCully, 2007). In the humanities classroom (such as History), discussing controversial issues helps students develop understandings of different competing or contradictory accounts and develop a deeper

awareness of the ways knowledge is constructed. McAvoy & Hess (2013) characterised four elements that teachers must employ in a discussion-based classroom: 1) students discuss and deliberate controversial issues; 2) students read, watch a video, or do a writing assignment in advance of the discussion; 3) a majority of students participate in the discussion; and 4) the teacher encourages students to exchange ideas.

Socratic seminar (Parker, 2007), structured academic controversy (Johnson & Johnson, 1999), and town meeting model (Hess, 2009) are among discussion models to use in the humanities inquiry. In structured academic controversy approach, for instance, students prepare and present an argument for one side of the argument and then reverse roles to present the opposing view. To do so, students learn to enter empathetically into the arguments of both sides and arrive at a synthesis based on best-reasoned decisions (Johnson, Johnson, & Smith, 2000). Bickmore and Parker (2014) suggested teaching constructive conflict talk and creating inclusive cooperative environments such as dramatic role-play and peace-making circles to employ in teaching controversial issues. Sim (2016) explained how primary school children can learn about issues in their Social Studies lessons through discussion and investigation. By elaborating Marsh's (2001) investigation model, Hess' (2009) town meeting model, and Johnson and Johnson's (1999) structured academic controversy model, Sim (2016) illustrated the application of these models in two issue-based, inquiry-centred packages designed for primary school children by student teachers from the National Institute of Education (NIE), Nanyang Technological University, Singapore. While the value and suitability of the implementation of the models are stated, the challenges are not overlooked. The author named the availability of suitable issues for primary student understanding, supporting resources, lack of student research and discussion skills, time, school support, and teacher factor as main challenges to overcome for a successful outcome.

#### 4. *Field-based inquiry*

Fieldwork in the context of inquiry is a means of collecting information and creating engagement with the outside world beyond

the classroom (Phillips & Johns, 2012). Conducting historical or geographic inquiry in the fieldwork allows students to observe, deduce, understand, and make valuable connections between textbook theories and real life. Fieldwork develops students to be caring citizens by informing them of environmental issues and encouraging them to make responsible decisions about them (Gerber & Chuan, 2000). Lai (2000) asserted that apart from helping students consolidate and apply classroom learning and acquire practical skills, fieldwork builds up self-esteem and motivation. It also fosters the development of interpersonal relationships as students work in groups. Tan (2017) presented a set of guiding principles for the enrichment of the pre-service geography fieldwork module among which addressing teachers' beliefs and (mis)conceptions of fieldwork and providing relevant hands-on experiences are very important.

To establish a field-based inquiry successfully, teachers need to have support with content understanding, inquiry literacy as well as knowledge of the fieldwork sites. One example to affirm this, is the findings from the Sustainability Living Lab at NIE. The project integrated real world fieldwork sites (Jurong Eco-Garden and NIE Raingarden) equipped with environmental sensors and a virtual data portal with curriculum resources related to these fieldwork sites. The project aimed to provide opportunities for students to collect first-hand data of physical and human environments, make sense of a range of multimodal data, and to enhance teachers' understanding and use of geographical inquiry. Through a qualitative exploratory study of six teachers in four secondary schools, the findings suggested that teachers had varying professional dispositions, beliefs and attitudes about the purpose of geographical inquiry. Some emphasised more on scientific methodologies; some on geographical concepts or on environmental values. A key finding was the general misalignment between the concrete operational processes employed by teachers and their deep structural understandings and professional beliefs in field-based inquiry pedagogy. The field-based inquiries observed were more teacher-directed (e.g., in selection of inquiry questions or selection of sampling sites) perhaps because teachers did not

have enough knowledge and support in the design of field-based inquiry lessons for students (Seow, Irvine, & Chang, 2018). To reinforce the educational importance and necessity of fieldwork learning, schools or teachers must avoid using the term like “excursion” as a “day out of learning rather than a day of learning” (Kidman & Casinader 2017, p.147). Similarly, Chang and Ooi (2008) warned that some school teachers conduct fieldwork as field tours or excursions where students remain largely passive with less academic gains. Besides that, the educational value of the fieldwork can be emphasised by making it central to both the learning and assessment of a particular subject. The next noteworthy point is that the fieldwork itself needs to be exciting and active for students. It should not repeat what students have already learnt in class; it should be the source of learning itself (Fisher 2012).

### **Technology-enhanced IBL**

Any of the inquiry instructional approaches can be facilitated and enhanced by the use of technological advancements by promote inquiry process and skills (Chu et al., 2017; de Jong, Sotiriou, & Gillet, 2014). The Internet has made information about places and events—past and present—more accessible to students in and out of classrooms. Having direct access to databases and digitalised sources such as historical archives, virtual museums and online atlases supports the inquiry process as students can develop disciplinary inquiry skills through the observation, interpretation and analysis of primary data from these sources. This fact can relieve a part of teacher’s job (as teachers used to be the main source of information) and also support students to inquire into places that they may have no opportunity to visit, like Antarctica. In short, using electronic primary source texts, images and artefacts in online inquiry motivates “students’ positive participation, on-task behaviours, and rich collaboration”, and empowers “students’ ownership and self-directed learning by increasing student involvement and responsibility for their own learning” (Lim, 2004, p. 629).

Planning, designing and conducting inquiry are now increasingly accessible via a range of digital and online resources. There is

a growing body of literature which proves how different inquiry pedagogies in the humanities are mobilised and facilitated through using various technologies which is summarised in Appendix 3. Among them, perhaps game-based inquiry is the most innovative and promising approach for providing an interesting, situated and student-centred learning environment. In a study by Hwang et al. (2015), an inquiry-based educational computer game was developed and applied to the financial management unit of an elementary school Social Studies course in Taiwan. Students were situated in various economic activities embedded in the storylines of the role-playing game to probe and experience the basic concepts of investment, financial management, and economic activities. The findings showed that this method significantly improved the students' learning achievements, motivation, satisfaction level and flow state, particularly for those with active learning style. As another example, *Statecraft X*, a fantasy multiplayer strategic game designed to assimilate principles of governance and citizenship, was developed and examined in Social Studies lessons in Singapore (Chee et al., 2012, Teo & Chee, 2012). The game was designed based on beliefs in reflective inquiry<sup>8</sup> and the development of process and dialogical skills. Each player takes the role of a free agent or active virtual citizen in the game, acting to manage resources, perform transactions with other citizens, and build a virtual town. The results reported a significant increase in the inquiry skills of the students, including the ability to generate insights, curiosity, questions, reflections, evidence-based personal views, and the ability to make sense of their learning. However, such findings were mainly based on the data collected from a single school. Therefore, more experiments on game-based inquiry are required to examine whether the same results are replicated in other schools and countries.

Despite the fact that the utilisation of technology and the Internet has accelerated and enhanced IBL, technical problems, unreliable

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<sup>8</sup> Reflective-inquiry tradition is firstly created and developed by John Dewey (1910) as an "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it; and the further conclusions to which it tends" (p.6) Self-reflection is central to this approach of learning, which is based on the Socratic method of asking questions and developing understanding.

Internet connection, lack of infrastructure facilities, the absence of special personnel support, and teacher and student competency in using technology are some of the structural challenges to consider when technology-enhanced inquiry is employed. Lim (2004) discussed major issues in designing online inquiry. He identified six major issues: 1) seeking a balance between a system-generated guide and human facilitator; 2) visual representation of the inquiry process; 3) motivating learners with the right question; 4) engaging learners in various learning activities; 5) scaffolding the inquiry process; and 6) coordinating resources, tools and the community of inquiry.

### **Assessment**

Assessment is an important part of inquiry pedagogy. The flexible and open-ended nature of IBL, especially in the humanities, requires compatible methods of assessment which are less rigid and more informative so that teachers and students are informed of the learning progress phase by phase. In-depth understanding, interpretation, evaluation and elaborated communication are inherent elements of the humanities inquiry for which traditional tests of knowledge fall short (King et al., 2009). In almost every study in the literature, the impact of high-stakes testing and insufficient time to prepare students for it are highlighted as major barriers for productive IBL. Teachers feel pressured to make a balance between preparing students for tests and teaching them how to think like historians or geographers. Deng and Gopinathan (2016) stated that across different subjects in Singapore, including History, national examinations “remain purveyors of a nation-wide obsession with excelling in examinations”, despite numerous reforms over the past thirty years (p. 456). This factor has persisted in the practice of teacher-centred classroom which emphasises transmission of knowledge for exam success rather than conceptual and disciplinary understanding, classroom discussions, and reflective thinking. For this reason, using formative and performance assessments with authentic and contextualised tasks as the alternative can reduce the tension, uphold assessment above memorising facts and concepts, and consequently catalyse the interpretive and evaluative nature of the humanities inquiry (Darling-Hammond & Adamson, 2014).

Barron and Darling-Hammond (2010) highlighted three important elements of assessment for effective IBL: 1) the design of intellectually ambitious performance assessments; 2) creation of guidance for students' progress in the form of evaluation tools and assignment guidelines; and 3) frequent use of formative assessment to shape instructional decisions throughout the process. As the first element, performance assessments provide students with suitable opportunities to demonstrate knowledge of a concept and its application (Mathison & Fragnoli, 2006). Assigned authentic and meaningful tasks help evaluate student performance in real-world contexts and prepare them for a highly-skilled workforce. Historical argumentations and narrative representations are only two examples of performance tasks, useful in historical inquiry (Carrasco & Martinez, 2016). In this line, VanSledright (2010) proposed several items to be measured when working with narrative tasks: arguing position; citing evidence; corroboration; accounts status; and contextualisation.

Wallace, Preston, & Harvie (2016) used posters as a means of authentic performance assessment of pre-service teachers of primary humanities to share and showcase resources of the humanities inquiry planning. The authors concluded that posters can be used as an assessment model for teachers to use in their classrooms. In their study of PBL and its assessment, Parker et al. (2013) designed a Complex Scenario Test, focusing on students' ability to analyse different aspects of a controversial issue and formulate a presentable action plan by applying the knowledge gained. Findings showed that assessment through PBL yielded better results compared to the one in the traditional class. More research, however, is required to determine the validity and reliability of such tests while dealing with controversial issues.

As for the second element of the effective assessment in IBL, guidance for students' progress (Barron & Darling-Hammond, 2010), the literature offers different qualitative assessment tools: rubrics in which the indicators show different levels of achievement and essential qualities that students should possess (Kishbaugh et al., 2012); checklists, including a set of criteria, targets, and outcomes (Zohrabi et al., 2012); learning logs, suitable for digital inquiry and also for students' self-

evaluation (Lombardi, 2007); portfolios (McMullan et al., 2003); class discussions (Hess, 2009); self-assessment (Lee & Gavine, 2003); and peer reviews (Lombardi, 2007). Using these assessment tools are essential parts of the humanities inquiry, especially when dealing with subjective and contextual situations and opinions.

Finally, providing constant feedback along with scaffolding, as part of formative assessments, play a crucial part in IBL as they increase students' abilities to engage more in disciplinary inquiry and help teachers in determining whether they need to made adjustments to the original plan (Hess & Posselt, 2002). Students need to be made aware of what they do and do not know about the discipline so that they can make better judgements. Heritage's (2010) review of the literature asserted that feedback is most effective when it "provides students with suggestions, hints, or cues, rather than offered in the form of praise or comments about performance" (p. 5). Although there is an "evaluation" stage at the end of inquiry cycle, it is desirable to allocate reflection slots at the end of each stage so that students can process and internalise their learning and discover areas of strength and weakness (Harada et al., 2008; Kuhlthau et al., 2015).

Another example of assessment method in inquiry approach is using document-based questions (DBQs). While the research is limited, evidence suggests the influence is promising (Grantr, Gradwell, & Cimbricz, 2004). Swan, Hofer, and Locascio (2008) used a web-based inquiry with DBQ activities in Historical Scene Investigation (HSI) for a 5th grade History class. They found some students improved in their learning of the content, disciplinary reading, sourcing, and other historical thinking skills. Other studies which showed the effectiveness of this method are by VanSledright (2002), who also used it successfully in a 5th grade History class, and Nokes (2014) who found that when students received document-based instruction and assessment, they developed more historical reasoning and skills.

Maddox and Saye (2017) argued for the use of "hybrid" tasks that include both historical reasoning skills and ethical reasoning skills, engaging students in disciplined civic inquiry (Saye, 2017) which

was elaborated earlier in section 1. They piloted a hybrid authentic task assessment connected to the history curriculum, featured as a scaffolded essay (taken from De La Paz, 2005): part 1 assessing students' ability to make a historical argument and part 2 applying what they have learned from their historical understandings to reason civically and defend a decision about a related contemporary issue. The authors suggested that this type of assessment should be used as a formative or diagnostic tool whereby student misconceptions about a particular topic or lack of historical reasoning (which easily go unnoticed in a high-stakes testing) can be identified and addressed. For this, the assessment should happen after a unit of instruction to promote students' higher order thinking and reasoning, help students gradually build desired skills, and allow teachers to more precisely target student deficiencies.

Technology can also facilitate IBL in assessment (formative and summative). One example of technology-supported performance assessment is the one designed by Means and Haertel (2002) to measure inquiry skills associated with the analysis and interpretation of climate data. Analysing a set of climate-related criteria, students were tasked to decide a suitable site for the next Winter Olympics and present multiple types of climate data for a few candidate cities. The assessment method revealed the extent to which students were able to understand and apply the data systematically and present their argument persuasively. However, authors pointed out that such assessment tasks might not be suitable for broader assessment needs. Needless to say, technology-enhanced assessment is not without challenges. One issue is plagiarism. Understanding plagiarism, learning about paraphrasing and related skills, providing proper citations with an online citation tool are some of the ways to help students avoid plagiarism (Chu et al., 2017; Lee et al. 2016). Using a citation machine tool helps avoid plagiarism and at the same time offers examples of how sources are properly acknowledged (Siu et al., 2014).

In short, to help students to develop informed view about IBL, continuous scaffolding, constructive feedback, and performance

assessments are necessary. Employing and designing suitable assessment methods and tools support and inform the positive impact of IBL in teaching and learning the humanities.

### **Section 3: Implications & Suggestions**

This section offers some major implications and suggestions for policymakers, educators/practitioners, and researchers who would like to enact IBL in the humanities with more rigorous outcomes.

#### ***Implication for policymakers***

To cultivate a culture of inquiry as a stance (Cochran-Smith & Lytle, 2009) for both teachers and students implies shifts in educational policy that leaders should attend to. One of the strongest implications involves teacher professional development to train teachers how to regard and value inquiry and how to implement a balanced inquiry cycle in classrooms. The Singapore MOE's important curricular and pedagogical shifts and updates over the last few years have strengthened humanities teachers' understanding, perception, and enactment of inquiry. However along with that, the cultivation of inquiry as a stance/disposition should be the foundational component of teacher development programmes. Inquiry culture calls for greater emphasis on a democratic and open school climate where dialogic discussions across different perspectives and engagement in controversial or sensitive issues should be encouraged. As such, more concrete directions and support is needed for teachers to address and facilitate the same (Kwek & Hussain, 2019). More regular workshops, refreshers, and sharing lessons for both pre- and in-service teachers on the above points are needed for teachers to implement a successful and complete inquiry process. Besides, inquiry as a stance is best developed when the class becomes a 'community of inquiry' in which teachers themselves are inquirers (Wells, 1999, 2001). Teachers should understand that a critically important activity in a community of inquiry is "whole class meetings for review and reflection on what is planned, in progress or has been achieved. It is in these meetings that the dialogue of knowledge building occurs most deliberately and systematically...and alternative suggestions and perspectives are considered and evaluated ..." (Wells, 1999, pp. 7–8).

Moving towards greater provision of digital and online resources in education and subsequently increasing technology-supported IBL seem inevitable. On this point, policymakers should consider digital and media resources used for the humanities inquiry as curricular materials on an equal footing with textbooks (Aulls et al., 2007). Improving the accessibility to updated and relevant resources (media, videos, games and so on) is important as they can facilitate real-life discussions and reflection that might not be found in the textbook. It is noteworthy that without sufficient government support, technology will never reach the desired level to facilitate the pedagogical process. Thus, more opportunities and time should be created for educators to undergo training specific to inquiry skills, ICT competency, and technology-enhanced inquiry tools (e.g., using *GIS*, *WebQuests*, digital games). For this, financial and personnel support for schools to furnish and maintain IT-equipped classrooms and to provide more workshops to improve teacher competency should be ensured. It is also advisable for schools to have enough funds and facilities to run workshops to enrich parents' knowledge on the potential academic benefits of applied pedagogies so that parents are informed of their children's activities, especially when the latter are engaged with online activities (Law et al., 2011).

Assessment design is a critical issue in revealing the benefits of IBL in the humanities. It is important to design valid and suitable assessment to promote and evaluate students' high order skills, and the quality of their reasoning besides disciplinary literacy and skills in the humanities subjects. Assessment in the humanities inquiry should be more for continuous formative purposes with the emphasis on using authentic performance tasks, scaffolded essays, narrative representations and document-based questions in which students can present their investigations, interpretations, evidence-based reasoning and reflection, similar to what experts (e.g., historians, geographers) do. In addition, more attention to the use of feedback during the process and assessment of inquiry is needed for a more formative role in student learning (Kwek & Hussain, 2019).

### ***Implications for educators/practitioners***

IBL in the humanities demands more time as teachers and students

deal with diverse sources for more conceptual and procedural understanding, verification of evidence, consideration of different perspectives through discussions and arguments, and multiple interpretations. Subsequently, making a balance between all these activities and the need for curriculum coverage for exam preparation poses a big challenge. Kwek & Hussain (2019) and Kwek (2018) also asserted that the Social Studies teachers in their study faced the challenge to balance between allocating time for active and sustained inquiry tasks and the pressure of time to cover the curriculum, taking into account students' prior knowledge and readiness for classroom discussions as well as students' perceptions of the domain. Curriculum developers should employ more flexibility that allow teachers to incorporate and adapt a balanced and full cycle of inquiry in the humanities classroom. Flexible curricula should encourage teachers to tap into authentic tasks, support classroom discussions, and increase student interest and participation in the assigned activities. Including controversial topics in the curriculum enables learners to connect their disciplinary knowledge with contemporary issues as well as ethical and civic reasoning regarding those issues and to exercise critical thinking and reasoning skills to make informed judgements. When curriculum and assessment are aligned with emphasis on using performance tasks, formative assessments, and reflective thinking, teachers will be able to plan for and implement more effective enactment of inquiry.

Addressing real-world problems with multiple perspectives through interdisciplinary learning encourages students' interaction with each other and their engagement with direct experiences. Equipped with these, the impact of IBL should go beyond content learning and factual knowledge towards providing students the tools to address the challenges of our global world as responsible citizens. To achieve this, teachers and school leaders should create a learning environment where the emphasis is on a culture which is open to questioning and searching for information rather than on correcting errors and finding one single accurate answer. Promoting better questioning techniques by both teachers and students with productive dialogic exchanges is necessary for effective humanities IBL (Kwek, 2018).

Teachers play an important role in conducting IBL. They need to be equipped with the necessary skills and strategies and should note that students cannot benefit from disciplined inquiry when little guidance or support is provided. Inquiry moves away from a purely teacher- to student-centred approach. As teachers and students pose compelling questions, they can work with and learn from experts to develop responses and performances that are meaningful, sophisticated, and compelling. For that, well-designed pedagogies (e.g., project-based or field-based approaches) with more outdoor and technology-supported learning and hands-on activities are necessary to make the process more interesting and meaningful for learners. In this process, well-designed scaffolds, formative assessment, greater use of feedback especially at self-regulation levels, authentic and thought-provoking activities, and rich informational resources are essential. Therefore, school administrations and leaders should empower the humanities teachers' autonomy and leadership role at various levels to implement inquiry tasks and activities effectively (Chu et al., 2011).

Collaboration among teachers, school librarians, other members of school and sometimes parents can bring together diverse community voices both in teaching and learning and also serve to reduce the tension of time constraint in inquiry process. The growing involvement of librarians in collaborative teaching is helpful in guiding students' inquiry learning in the humanities as librarians can offer resource-centred instructions and organise activities to promote students' reading habits and skills, in addition to information seeking and analysing (Todd, 2012). Thus, employing professional librarians is vital as they are primary agents to change school libraries to dynamic learning centres, and consequently partner teachers in facilitating student learning through vast resources and multiple communication channels (Kuhlthau et al., 2015) In line with this, Kuhlthau et al. (2015) recommended a flexible three-member core team consisting of two subject teachers and a librarian for the implementation of inquiry projects. For collaborative teaching to be more effective, the areas of collaboration should be identified and the responsibilities of each member be clearly defined (Chu et al., 2011; Harada & Yoshina 2004a; Kuhlthau et al., 2015). In addition, curriculum leaders and school principals are held accountable

for their contribution in restructuring the school culture towards collaborative teaching and offering strong administrative support toward an effective enactment of this approach (Chen, 2008; Chu et al., 2011).

### **Implications for researchers**

It is worth-repeating that more empirical and longitudinal research across K-12 humanities subjects is needed in order to report how inquiry teaching and learning is effectively realized (Saye, 2017). For future research, it is necessary to examine teachers' perception, attitudes, and knowledge of inquiry methods and skills. Unfortunately, there is not much information available about the extent to which teachers know how to conduct the humanities inquiry or how to learn from exemplary teachers who successfully enacted it. Linked to that, more research is needed to examine students' development in disciplinary inquiry, and 21st century skills, the problems students face, and the limits of scaffolding for extending student competence while investigating social problems. Moreover, researchers should investigate the cultural impact on the implementation of IBL to determine what aspects of IBL need to be adjusted to meet the requirements of the education system of a particular country. In short, research should be used to not only evaluate potential strategies but also to guide future development and implementation. Undoubtedly, to accomplish all these, providing funds and resources support is indispensable, which requires collaborative efforts among educators, researchers and policymakers.

### **Conclusion**

This paper presented the theoretical framework behind IBL and examined the impact of IBL on learning and teaching the humanities. Various results have been demonstrated in selected studies conducted in different parts of the world. In short, inquiry approaches to teaching and learning are challenging to implement in any discipline but they seem more daunting in the humanities. While some suggestions have been made for different stakeholders in this process, we must bear in mind that IBL is deeply rooted in philosophy and culture; therefore,

there is no perfect formula that can work for all systems. Different countries must adopt different policies suitable to their contextual requirements.

On a final note, the bigger question is not how effective IBL is but how we are culturally and mentally ready and secure to adopt this open-ended approach of education and grant our children the authority to carry out inquiry into important matters (Engle, 2012). Inquiry is a stance which involves a particular way of thinking and being. It requires a deep change in the mind-set and values embodied within education. If it is only seen as a teaching technique, we will miss the main point about its function (especially in the humanities) to cultivate individuals capable of critical thinking, problem solving, and well-reasoned decision making in social and personal life. When teachers, school administrators, parents, and policymakers understand and appreciate this aspect of inquiry-based education, they will ultimately know how viable and sustainable its goals will be. IBL is first and foremost a way of life, a mind-set; then it should be the key objective of education, and then, a progressive pedagogical approach.

## Appendix 1

Examples of IBL cycles/models in K-12 humanities

Model/Cycle	Phases in sequence	Additional information
Banks' social studies inquiry cycle (Banks et al., 1999)	8 phases: <ul style="list-style-type: none"> <li>• Doubt-Concern;</li> <li>• Problem Formation;</li> <li>• Formulation of hypothesis;</li> <li>• Definition of terms;</li> <li>• Collection of data;</li> <li>• Evaluation of data;</li> <li>• Testing Hypotheses;</li> <li>• Beginning inquiry anew (conclusion).</li> </ul>	This model completes the cycle with a new question/problem.
Beach & Myers's cycle (2001)	6 phases: <ul style="list-style-type: none"> <li>• Immersing;</li> <li>• Identifying;</li> <li>• Contextualising;</li> <li>• Representing;</li> <li>• Critiquing;</li> <li>• Transforming.</li> </ul>	The phases in their framed cycle are referred to as strategies.
Stripling Model of Inquiry (2008)	6 phases: <ul style="list-style-type: none"> <li>• Connect;</li> <li>• Wonder;</li> <li>• Investigate;</li> <li>• Construct;</li> <li>• Express;</li> <li>• Reflect.</li> </ul>	Inspired by the constructivist theories of Dewey and Vygotsky, Stripling developed this guided social inquiry learning (GSIL) model, which has been adopted and adapted in the learning and teaching of Liberal Studies in Hong Kong.

Model/Cycle	Phases in sequence	Additional information
Prokes (2009)	<p>5 phases:</p> <ul style="list-style-type: none"> <li>• Engage;</li> <li>• Explore;</li> <li>• Explain;</li> <li>• Elaborate;</li> <li>• Evaluate.</li> </ul>	<p>It is adapted based on the 5E inquiry-based model that was designed in the late 1980s for science classrooms.</p> <p>The small-scale research (Prokes, 2009) demonstrated that students were more engaged with a more positive attitude to the subject, worked cooperatively, and overall were more motivated than their peers in the traditional teaching group, concluding that the 5E inquiry model provides a simple yet powerful way to plan an inquiry-based lesson in any discipline.</p>
Gilbert's (2014)	<p>3 iterative stages:</p> <ul style="list-style-type: none"> <li>• Establishing what we want to find out (posing questions &amp; planning inquiry);</li> <li>• Finding out (collecting and analysing evidence);</li> <li>• Deciding what to do with what we've found out (concluding, reflecting, and responding to the inquiry).</li> </ul>	<p>This is a model of inquiry phases in the Australian Humanities and Social Sciences curriculum (Gilbert, 2014, pp.75-77). Researchers believed that Gilbert's framework accommodates the iterations of the inquiry stages in the humanities and social sciences (e.g. Preston et al., 2015).</p>

Model/Cycle	Phases in sequence	Additional information
<p>Bateman's Humanities model of Inquiry (HMI), (2014)</p>	<p>5 phases:</p> <ul style="list-style-type: none"> <li>• Immersion (in topic and discipline);</li> <li>• Exploration (of topic and discipline);</li> <li>• Focused Investigation (of topic through discipline);</li> <li>• Showcased Learning (through topic and discipline);</li> <li>• Applied Knowledge (to topic and discipline).</li> </ul>	<p>Immersion and Exploration are directed whole-class learning experiences, whereas Focused Investigation and Showcased Learning are dynamic and involve both independent and small group learning design. The Applied Knowledge stage is set by negotiation between teachers and students. This model also offers a more succinct and focused way for curriculum design to draw upon a range of pedagogical strategies over varying durations.</p>
<p>Voet &amp; De Wever's historical inquiry (2017)</p>	<p>5 stages:</p> <ul style="list-style-type: none"> <li>• Sourcing (identifying sources to gather data);</li> <li>• Appraising (assessing the validity of sources);</li> <li>• Specifying (using the data to optimize understanding);</li> <li>• Constructing (interpreting and contextualise the gathered information);</li> <li>• Arguing (providing conclusions by formulating arguments based on quotes, general citations or references).</li> </ul>	<p>The same process model was used to examine both students' and teachers' knowledge of the historical inquiry. Their findings showed that more than half of the teachers in this study did not enact all stages during the inquiry process. Specifying, Arguing, and Appraising were the most often overlooked tasks by teachers.</p> <p>Therefore, the differences in teachers' performance lied not in their disciplinary or content knowledge but in their historical inquiry knowledge and skills.</p>

## Appendix 2

Inquiry Design Model (IDM) blueprint, taken from Grant et al. (2017).

Inquiry Design Model (IDM) Blueprint™		
<b>Compelling Question</b>	Compelling questions reflect the interests of students and the curriculum and content with which students might have little experience.	
<b>Standards and Practices</b>	The state standards provide the content and skills foundation for the inquiry.	
<b>Staging the Question</b>	Staging the question activities introduce students to the ideas behind the compelling question in order to generate curiosity in the topic.	
<b>Supporting Question 1</b>	<b>Supporting Question 2</b>	<b>Supporting Question 3</b>
Supporting questions are intended to contribute knowledge and insights to the inquiry behind a compelling question. Typically, there are 3–4 supporting questions that help to scaffold the compelling question.		
<b>Formative</b>	<b>Formative</b>	<b>Formative</b>
<b>Performance Task</b>	<b>Performance Task</b>	<b>Performance Task</b>
Formative Performance Tasks are exercises designed to help students practice the skills and acquire the content needed to perform well on the summative tasks. These tasks are built around the supporting questions and featured sources and are intended to grow in sophistication across the tasks.		
<b>Featured Sources</b>	<b>Featured Sources</b>	<b>Featured Sources</b>
Each Formative Performance Task should have 1–3 disciplinary sources to help students build their understanding of the compelling and supporting questions. Sources can be used toward three distinct, but mutually reinforcing purposes: a) to generate students' curiosity and interest in the topic; b) to build students' content knowledge; and c) to help students construct and support their argument related to a compelling question.		
<b>Summative Performance Task</b>	<b>Argument</b>	Each inquiry ends with students constructing an argument (e.g., detailed outline, drawing, essay) that addresses the compelling question, using specific claims and relevant evidence from sources.
	<b>Extension</b>	An extension task presents students with additional and alternative ways to engage with the ideas that are central to an inquiry. Summative extensions can take many forms (e.g., a policy-writing activity, a documentary, a perspective-taking exercise) and are intended to stretch students' understanding through more expressive modalities.
<b>Taking Informed Action</b>	Taking Informed Action tasks are designed so that students can civically engage with the content of an inquiry. These tasks follow a sequence so that students a) <i>understand</i> the issues evident from the inquiry in a larger and/or current context; b) <i>assess</i> the relevance and impact of the issues; and c) <i>act</i> in ways that allow students to demonstrate agency in a real-world context.	

Based on this blueprint, IDM begins with a compelling question, followed by supporting questions which can flesh out the relevant main ideas. Performance tasks and disciplinary sources are designed so that students can work to find answers for each supporting question. Performance tasks (purposeful exercises or informed actions) include major content and skills that students need for constructing evidence-based arguments/claims. Informed actions (e.g., discussions, debates, presentations) offer students opportunities to engage civically with the content of the inquiry. Taking informed action can be expressed in three stages of understanding, assessing, and acting, as the conclusion of this social inquiry (Grant et al., 2017). While bridging the C3 framework and pedagogy, IDM offers teachers guidance in planning, teaching, and assessing social inquiries. Needless to say that such templates are only examples and can be modified or adapted in response to particular contexts, students, and teachers' embedded pedagogical stances (Thacker, Lee, Fitchett, & Journell, 2018).

## Appendix 3

The following table summarises using various technological platforms to conduct inquiry in the humanities classroom:

<b>Technological platforms</b>	<b>Research examples</b>
Wikis	Chu et al., 2011, 2017; Pifarre & Starrman, 2011
WebQuests	Milson, 2002; Perkins & McKnight, 2005; Bartoshesky & Kortecamp, 2003; Gürgil, Ünal, & Aksoy, 2019; Hung, 2006
mobile-based inquiry	Shih et al., 2010; Norris, Soloway, Tan, and Looi, 2013; Tan, So, & Zhang, 2012
GIS	Kinniburgh, 2010; Milson & Earle, 2008; Liu et al., 2010; Favier & Van der Schee, 2012
Game-based inquiry	Hwang et al., 2015; Erhel & Jamet, 2013; Virvou, Katsionis, & Manos, 2005; Afandi & Lim, 2018; Chee, Mehrotra, & Liu, 2012; Teo & Chee, 2012
Historical films/videos	Seixas & Peck, 2004; Woelders, 2007; Marcus, Metzger, Paxton, & Stoddard, 2018
SCIM-C (as a hard scaffold)	Hicks, Doolittle, & Ewing, 2004
Digital story-telling	Sadik, 2008; Yang & Wu, 2012
social media such as Facebook, YouTube, Instagram, and Twitter	Chen & Bryer, 2012
Multimedia-enhanced inquiry	Saye & Brush, 2006
Critical Web Reader (CWR)	Baildon, 2018; Baildona & Damico, 2008

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