



THE EFFECT OF INQUIRY-BASED LEARNING ON READING PERCEPTION TO ELEMENTARY STUDENTS

Chanthoul Seam

The University of Cambodia, Cambodia

Email: seamchanthoul1@gmail.com

Abstract: This study investigates the effect of Inquiry-Based Learning (IBL) on elementary students' reading perception at a private school in Cambodia. IBL is a student-centered instructional strategy that fosters active participation, curiosity, and critical thinking through exploration and discovery. This research employed a mixed-methods approach, combining quantitative data from a questionnaire distributed to 50 students (selected from a population of 150) and qualitative data to provide deeper insights into students' attitudes and engagement with reading activities. Descriptive statistics were analyzed using SPSS 20.0. The findings reveal that the use of IBL positively impacts students' reading perception by enhancing motivation, comprehension, and active involvement in learning tasks. Students reported greater interest in reading when lessons were inquiry-driven, interactive, and connected to real-world contexts. Additionally, the study underscores the important role of teachers and school leaders in implementing effective IBL strategies. By promoting student autonomy and a sense of ownership in the learning process, IBL can improve literacy outcomes and foster lifelong reading habits. These results suggest that incorporating IBL into primary education, especially in language instruction, can significantly enrich the learning experience and contribute to more meaningful and student-centered education.

Keywords: Inquiry-Based Learning, Reading Perception, Student Engagement, Language Education, Cambodia

Abstrak: Penelitian ini mengkaji pengaruh Pembelajaran Berbasis Inkuiri (IBL) terhadap persepsi membaca siswa sekolah dasar di sebuah sekolah swasta di Kamboja. IBL merupakan strategi pembelajaran yang berpusat pada siswa dan mendorong partisipasi aktif, rasa ingin tahu, serta kemampuan berpikir kritis melalui eksplorasi dan penemuan. Penelitian ini menggunakan pendekatan metode campuran, dengan pengumpulan data kuantitatif melalui kuesioner kepada 50 siswa (yang dipilih dari total 150 siswa), serta data kualitatif untuk menggali lebih dalam sikap dan keterlibatan siswa dalam kegiatan membaca. Data dianalisis secara deskriptif dengan bantuan SPSS 20.0. Hasil penelitian menunjukkan bahwa penerapan IBL berdampak positif terhadap persepsi membaca siswa dengan meningkatkan motivasi, pemahaman, dan keterlibatan aktif dalam proses pembelajaran. Para siswa menunjukkan minat yang lebih tinggi terhadap kegiatan membaca saat pembelajaran bersifat inkuiri, interaktif, dan relevan dengan konteks kehidupan nyata. Selain itu, studi ini menekankan pentingnya peran guru dan pimpinan sekolah dalam menerapkan strategi IBL secara efektif. Dengan mendorong kemandirian dan rasa kepemilikan dalam proses belajar, IBL dapat meningkatkan hasil literasi dan membentuk kebiasaan membaca jangka panjang. Temuan ini menunjukkan bahwa integrasi IBL dalam pendidikan dasar, khususnya dalam pembelajaran bahasa, dapat memperkaya pengalaman belajar secara bermakna.

Kata Kunci: Pembelajaran Berbasis Inkuiri, Persepsi Membaca, Keterlibatan Siswa, Pendidikan Bahasa, Kamboja

DOI: <https://doi.org/10.37249/assalam.v9i1.848>

Received: 05 July 2024; **Revised:** 07 February 2025; **Accepted:** 18 April 2025

To cite this article: Seam, C. (2025). THE EFFECT OF INQUIRY-BASED LEARNING ON READING PERCEPTION TO ELEMENTARY STUDENTS. *Jurnal As-Salam*, 9(1), 67–89. <https://doi.org/10.37249/assalam.v9i1.848>

This is an open access article under the [CC BY-SA](#) license.

INTRODUCTION

Inquiry-based learning experiences can provide valuable opportunities for teachers and students to improve their understanding of teaching and learning practices. However,

the implementation of inquiry-based learning in classrooms presents many significant challenges. The researcher has been exploring these challenges through a program of research on the utilization of logical perception innovations to help request-based learning in Geosciences. National Science Education Standards and National Research Council (NRC) (1996:105) stated that students at all grade levels and in every particular skill should have the chance to utilize logical requests and build up the capacity to think and act in manners related to the request. As a result, recent years have seen a growing call for inquiry to play an important role in the field of teaching and learning (American Association for the Advancement of Science, 1994; Blumenfeld et al., 1991; Linn, Disessa, Pea, & Songer, 1994; NRC, 1996). This call for inquiry-based learning is based on the recognition that a particular skill is an inquiry-driven, open-finished procedure and that understudies must have personal experience with subject matter inquiry to understand this fundamental aspect of language (Linn, Songer, & Eylon, 1996; NRC, 1996).

Besides, request exercises give an important setting for students to gain, clarify, and apply an understanding of language concepts. Simultaneously, advances are getting expanded consideration from the science training network due to energy about their capability to help new forms of inquiry. For instance, countless instructive innovative work undertakings are presently investigating techniques of reading that can help students learn faster in reading comprehension cognizance. In the earth sciences alone, scores of instructive ventures have been started in the most recent decade to provide data and analysis tools to the educational sectors. Different ventures draw in students in the accumulation and trade of logical information. Many of these tasks in the United States directly result from the National Aeronautics and Space Administration (NASA) and National Science Foundation funding programs designed to facilitate synergies of reading theory to promote or encourage students and develop their reading ability. This article aims to address the needs of designers of educational experiences like these.

Background of Study

Nowadays, reading is the primary source of language input for most EFL learners since they live in a context in which English is not spoken. For the most part, they begin learning English through perusing books, writings, articles, and so forth. Considering the incredible significance of perusing for EFL students, thinking about what comprises understanding ability and what can end in trouble for EFL students in the course of reading a text supposed to be a crucial curriculum designer has reformed efforts throughout the world which has refocused on the necessity of teaching students to make informed and balanced decisions about how reading impacts their comprehension. According to Burrowes (2003); Crouch & Mazur (2001); Knight & Wood (2005); Smith et al. (2009); Tien, Roth, & Kampmeier (2002); Ebert-May et al (1997) mentioned that the type of learning is best accomplished using more student-centered active-learning strategies (e.g., peer guidance/talk; issue and case-based learning; peer educating; group-based learning, and request based learning).

Moreover, the students' perception of the teacher's instruction on teaching shows whether the teaching techniques meet the student's needs. Due to this explanation, the

researcher needs to discover the varieties of reading activities used by the teacher and the students" perception of the implementation of the reading activities. In addition to differing in how inquiry-based instruction is implemented, researchers have also differed in how they attempt to measure the effectiveness of this instruction. Many years of research from meta-investigations, practically all from preschool guidance, recommend that request inquiry instruction results in improved student learning; added that at the college level, data is mixed, whether the increasing inquiry instruction can significantly change student learning or attitude toward reading perception (Lott, 1983; Schneider et al., 2002; Shymansky, 1990; Von Secker & Lissitz, 1999; Weinstein, 1982; Einstein et al., 1982; Berg et al., 2003; Hake, 1998; Igelsrud and Leonard, 1988; Lawson, 1982; Leonard, 1989; Luckie et al, 2004; Udovic et al, 2002).

Statement of Problem

Inquiry-based learning can provide fruitful opportunities for students to improve their understanding of science content and scientific practices. On the other hand, implementing inquiry-based learning in classrooms presents some significant challenges. The researcher has been exploring these challenges through a research program on using scientific visualization technologies to support inquiry-based learning in the Geosciences.

Objective of study

To investigate students' reading perception on inquiry-based learning

Research question

How does inquiry-based learning influence students' reading perception?

Theoretical Framework

Inquiry-Based Learning

Particularly from Jean Piaget, Lev Vygotsky, and David Ausubel's work, it is difficult to trace the first appearance of inquiry learning exactly, but it is the old discussion about the nature of learning and teaching. The work of these theorists was blended into the philosophy of learning, and it's known as constructivism by Cakir (2008), which was then used to shape instructional materials. These sorts of constructivism-based materials are generally classified under inquiry-based and include hands-on activities to motivate and engage students while concertizing teaching and learning concepts.

Moreover, Cakir (2008) and Mayer (2004) added that constructivist approaches emphasize that an individual constructs knowledge through active thinking defined as selective attention, organization of information, reconciliation with or substituting existing learning and that social cooperation is important to create shared meaning. Therefore, an individual needs to be actively engaged both behaviorally and mentally in the learning process for learning to take place. In addition, according to Griffiths (2004), inquiry-based learning focuses on students as the researchers so that teaching can be: a) Research-led, where students learn the research findings. Faculty research interests dominate the curriculum content, and information transmission is the main teaching model. a) Research-oriented, where students learn the research process, the curriculum emphasizes the teaching process by which knowledge is produced as learning that has been achieved. c) Research-based, where students learn as researchers and the roles of teachers and student is minimized. d) Research-tortured, where students learn the

research findings in small group discussions with the teacher

Reading Perception

Among the four language aptitudes, perusing is conceivably the most widely and seriously contemplated by specialists in language education. The consequence of the examination has been directed for a long time, like perusing how people learn to process textual information and has contributed contrasting theories about what works best in the teaching of reading. Accordingly, language instructors can pick among a wide assortment of strategies and procedures for students learning to read in their second language (SL) or foreign language (FL), and for understudies who are learning an SL/FL, perusing is the most significant ability to ace because of a few reasons.

First, students usually can perform at a higher reading level than any other skill. They can precisely comprehend composed materials they couldn't discuss orally or record as hard copies with proportionate exactness or painstaking quality. Such a condition will, without a doubt, improve their inspiration to learn. Second, reading necessitates very least necessities different from talking, which expects chances to communicate with a fighting accomplice, or from writing, which needs a great deal of direction and time to work on, perusing requires just content and inspiration, which needs a great deal of direction and time to work on, perusing requires just content and inspiration. Third, reading is a service, a skill in the wake of figuring out how to peruse adequately, and understudies will almost certainly adapt viably by perusing.

Acknowledging how pivotal perusing is for our understudies, we can see the extraordinary significance of building their reading ability. To achieve this, we should improve our reading lessons by implementing the best methods and techniques that the theories provide. This research describes principal reading theories and examines some tips and guidelines. So far, three main theories (the traditional theory or bottom-up processing, the cognitive view or top-down processing, and the metacognitive view) explain the nature of learning to read. However, top-down processing or theory will be discussed in the research.

Significance of the Study

This case study aims to identify the main effect of inquiry-based learning on student reading perception of Sovannaphumi school students, Takhmao1 campus. There are three significances of this study as the following:

- a. For the school itself, it is to strengthen and increase the teaching strategies, implications, and practice and figure out the main challenges of students' reading capacity. The result can be used to determine the right interference in some specific cases of students' reading perception.
- b. It can be utilized comprehensively among concerned analysts and researchers as one contextual analysis in a non-public school in Cambodia, Sovannaphumi School, Takhmao1 grounds, where it would be conceivable to exhaust into different schools in Cambodia. It would be one finding in a general sense and based on comparable examinations later on.
- c. The result of this study will be reached publicly and improve stakeholders, including communities to teachers and students themselves, where specific strategies or

techniques of inquiry-based learning approach can be shared and informed through academic channels.

Operational Definitions

In the educational context, according to Hutchings (2007), inquiry-based learning has been recognized as a powerful tool for learning about the subject domain and more necessary for students how to learn. It helps students to build up their independent learning skills. He added that learning is self-directed because students drive their existing knowledge to the class where the problem or issue is appropriately approached. No students come without knowledge. Moreover, examination pooling out from what's already known gives them opportunities to gain confidence. It is as well as practicing the habit of reflection. Students conduct research and investigate the areas they have decided are vital for a reasonable response to the problems. Meanwhile, the perception of reading is the process of receiving information and making sense of the world around us, and it is expressed that during the time spent on recognition, someone will get data from their environment (McShane and Glinow, 2005).

At that point, the individual will provide information on the data received. Along these lines, the procedure of recognition makes us ready to translate data around us and comprehend the people who will give their responses to stimuli from the surroundings. McShane and Glinow (2005) added that the subsequent observations impact our feelings and conduct toward those articles, individuals, and occasions. As a result, students' perception of reading will influence how they respond to the information, even if it is positive or negative. The research on the students' perception of reading activities is worth doing to know the student's perception of the training directions executed by the instructors. If the students perceive the teacher's teaching techniques, they will feel that the instructing systems are useful and significant for their effectiveness in the class. The students will show their interest in the reading activities. On the other hand, if the students respond to the instructions negatively, the students are not interested in the reading activities. The students' perception of reading activities, which are based on their experiences, will affect their way of thinking or interpreting the reading activities implemented by the teachers.

Limitation of the Study

This research was conducted only for Sovannaphumi School students, an English program at the Takhmao1 campus, in the academic year 2018 to 2019, and the findings of this research do not reflect the whole country or all private schools in Cambodia. The study selected only small numbers of classes and students; thus, some challenges were faced, including a generalization of the given data and the presentation of findings that would not be applied in other contexts or locations.

Another factor is the arrangement while the interview is conducted after fully informing the school in advance, so it is some special arrangement and preparation for this study. Thus, some prompts and instructions are also provided to ensure that the information given is aligned positively and that the study is fully followed through scientific methods.

Summary

With everything considered, Inquiry-Based Learning advances the securing of new information, capacities, and attitudes through students' increasingly independent investigation of questions, problems, and issues, for which there regularly is no single answer (Lee, 2004). The researcher hopefully feels that this research would help Sovannaphumi School students improve their reading by using inquiry-based learning. Both teachers and students can use Inquiry-Based Learning as a pedagogy that best enables students to experience knowledge-creation processes. The key attributes include learning stimulated by an inquiry, the student or learning-centered approach in which the instructor's job is to go about as a facilitator, a transition to self-coordinated learning, and an active approach to learning. Students ought to create and examine aptitudes and be set up for learning.

They ought to accomplish results that incorporate basic reasoning, the capacity for free request, duty regarding their learning, and scholarly development and development. Solid help for an IBL approach originates from constructivism, psychological research on spurring students, scholarly improvement, ways to deal with learning, and learning cycle-based instructing. Besides, there has been an ongoing development towards fortifying educating and researching links. IBL is an enticing and convincing pedagogy that offers a way of teaching and research to be coordinated to ensure that everything is equal (students, teachers, and institutions). In any case, the examination of learning styles offers ascend to alert. The same number of understudies might be with inquiry approaches and thus need adequate support to transition.

LITERATURE REVIEW

The Nature and Use of Inquiry-Based Learning

Request-based learning (IBL) is a teaching method that best empowers students to encounter the procedures of knowledge creation, and the key attributes are learning stimulated by inquiry, a student-centered approach, a transition to self-coordinated learning, and a functioning way to deal with it. Students should develop research skills and become lifelong learners. There is solid instructive hypothetical help for the utilization of request approaches, and IBL is across the full spectrum of disciplines at all levels, from within-class activities to inquiry courses and even inquiry degree programmers. Evidence gradually accumulates that IBL can upgrade understudy commitment, scholastic accomplishment, and higher request learning. Benefits can also grow for educators through the reconciliation of instructing and research, expanded pleasure and association, and rewards from enhanced student learning outcomes. The elements of this approach have their origins in antiquity and are recognizable in the teachings of Confucius and Socrates. This well-known maxim means the value of engaging the learners in a task as a more meaningful way to learn. One such training methodology is learning through a request (or request-based learning, IBL).

Moreover, Spinoza, in the 17th century, claimed that knowledge is found in manipulating ideas rather than transmitting facts. In addition, Dewey (1933) added that many teachers received inquiry-based learning during the 1970s and started to show up at a similar time in tertiary institutions. One example is Hampshire College in the United States. As educators, we are accused of the extraordinary test and obligation of drawing

in understudies to realize the goal that they develop the skills and knowledge they need to function in today's world. Questions and concerns abound. How will the skills and the values necessary to experience success be instilled in the present and the future? How might we give chances to understudies to move past being not involved to beneficiaries of learning to move toward becoming information Manufacturers, fit for inventive and creative answers to issues? How might we play a role in human progress by equipping our students with the requisite knowledge, skills, and dispositions to care for the overwhelming issues of our age? There is no formula for progress.

There are, however, some academic ways to deal with changing instructional practices that appear to be more qualified for the activity than others. What is pursued is a survey of the key attributes of the request-based discovery that guarantees supporting understudies to wind up attentive, propelled, community-oriented, oriented, and creative students prepared to participate in their very own requests and flourish in a universe of steady change. Inquiry-based learning is a way to deal with instructing and discovering that places understudies' inquiries, thoughts, and perceptions at the center of the learning experience. Teachers assume a functioning job by building up a culture where thoughts are respectfully challenged, tested, redefined, and viewed as improvable, moving children from a position of wondering to a place of authorized understanding and further addressing (Scardamalia, 2002).

Underlying this approach is the idea that educators and students are responsible for learning or understudies. The procedure regularly includes open-finished examinations concerning an inquiry or an issue, requiring them to engage in evidence-based reasoning, creative problem-solving, and "problem finding". For instructors, the procedure is tied to being receptive to the understudies' adapting needs and, generally significantly, knowing when and how to introduce students to ideas that will move them forward in their inquiry. Together, educators and students have learned experience, tolerating shared obligation regarding arranging, appraisal for learning, and the progression of a person as well as a class-wide understanding of personally important substance and thoughts (Fielding, 2012). Although request-based learning is an academic outlook that can swarm school and homeroom life and be seen in various settings, a request position does not hinder other forms of effective teaching and learning (Natural Curiosity, 2011). Request-based learning frets about the imaginative methodology of consolidating the best ways to deal with instruction, including explicit instruction and small group and guided learning, to build on understudies' interests and thoughts, eventually pushing understudies ahead in their ways of scholarly interest and understanding.

Inquiry-Based Learning

Prince and Felder (2006) found that inquiry-based learning falls under the region of Inductive approaches to teaching and learning. This approach to teaching and learning begins with a set of observations or data to interpret a complex actual world problem, and as the college students learn about the facts or problem, they generate a want for facts, processes, and guiding principles. Prince and Felder (2006:123) stated that inductive teaching encompasses a range of teaching methods, including "inquiry-based learning (hereafter referred to as IBL), problem-based learning (PBL), project-based

learning, case-based instructing, and disclosure learning. They order the showing strategies by thinking about the setting for learning and other features, such as the number of students' responsibility for their learning and the use of group work.

These are some of the common inductive methods of teaching characteristics: 1) A student or learner-centered approach in which the focus of the teaching is on student learning rather than on communicating defined bodies of content or knowledge (Kember, 1997). 2) Active learning is about learning by doing and may involve students discussing questions, solving problems, and developing self-directed learning skills in which students take more responsibility for their learning (Prince & Felder, 2006; Gibbs, 1988; Healey & Roberts, 2004). 3) A constructivist theoretical basis proposes that students construct their meaning of reality; the students create knowledge rather than knowledge being imposed or transmitted by direct instruction (Bruner, 1990).

The Role of Teacher in Inquiry-Based Learning

The educator's job in a request-based study hall is unique in relation to that of an instructor in a regular study hall. Rather than giving direct guidance to students, educators assist understudies with producing content related to questions and guide the following investigation. Because the instructor's job in a request-based study hall is unpredictable, it is occasionally misconstrued. School chairmen, guardians, or even students may not perceive the hard work that goes into planning and implementing an inquiry-based approach. It may seem that teachers aren't doing anything as the students battle detailed questions and search out answers. Nothing could be further from reality when teachers choose to use an inquiry-based approach; they commit to providing rich experiences that stimulate students' thinking and curiosity. For example, to plan carefully constructed questioning sequences, manage multiple student investigations simultaneously, continuously evaluate the advancement of every understudy as they progress in the direction of their answer or last item, and at the moment to students' emerging questions and discoveries.

On the other hand, there are strong arguments for picking a request-based methodology over progressively customary models of direct guidance. A request-based curriculum development validates habits of mind that characterize a lifelong learner. It teaches students to raise difficult questions and fosters the desire and skills to acquire knowledge about the world, and students are given opportunities to take ownership of their learning, a skill necessary for one to prevail in school and most experts. Additionally, a request-based methodology enables understudies to draw associations between scholarly academic substance and their own lives, which can be especially significant for socially and etymologically different learners.

Reading Perception

Among the four language aptitudes, perusing is potentially the most broadly and seriously considered by specialists in language instructing. According to the results of the research conducted for many years on the nature of reading, how people figure out how to process literary data has contributed to differentiating hypotheses about what works best in teaching reading. Accordingly, language instructors can pick from various strategies and systems for students to learn their second or foreign language. For students learning a second language or foreign language, it is the most critical skill to

master for several reasons. First, students can usually perform at a higher level in reading than any other skill. They can quite accurately understand written materials they couldn't talk about orally or recorded as hard copies with proportional exactness or exhaustiveness. Such a condition will redesign their motivation to learn. Second, reading necessitates very minimum requirements. It is not quite the same as talking, which expects chances to communicate with a fighting accomplice, or from composing, which needs much direction and time to work on.

Perusing requires just content and inspiration. Third, reading is a service skill. After learning how to read effectively, students will be able to read the process of reading step by step. So far, three primary hypotheses clarify the idea of figuring out how to read. First, the conventional hypothesis, or base-up handling, concentrates on the printed type of content. Second, the cognitive view, or up-down processing, enhanced the role of foundation information, notwithstanding what showed up on the printed page. Third, the metacognitive view depends on the control and control a peruse can have on demonstrating fathoming content.

The Traditional Bottom-Up View

According to Omaggi (1993), the conventional base way to deal with reading was influenced by the behaviorist psychology of the 1950s, which claimed learning was based upon habit formation, brought about by the repeated association of an improvement with a reaction and language learning was described as information response system that humans acquire through automatic conditioning processes, where some patterns of language are rewarded. Others are not; just those examples strengthened by the network of language clients will persist. More than this, behaviorism became the premise of the sound lingual strategy, which sought to form second language habits through drilling, repetition, and error correction. Today, the fundamental technique related to the base-up way to deal with perusing is known as phonics, which requires the learner to match letters with sounds in a defined sequence. This view indicates that perusing is a line or procedure by which pursuers interpret content word by word, connecting the words into expressions and after those sentences (Gray and Roger, 1987). The bottom-up approach describes the flow series of the stage of the process influencing earlier stages (Stanovich, 1980). As it was, language is seen as a code, and the reader's main task is to identify graphemes and convert them into phonemes.

The Cognitive View (Top-Down Processing)

According to Smith (1994), the cognitive and top-down processing approaches revolutionized the conception of the way students learn to read. He added that reading is not a passive mechanical activity but purposeful, what's more, discerning, subject to the earlier learning and desires of the readers. It isn't only a matter of interpreting print to sound and comprehending composed language. Moreover, in this view, reading is not just extracting meaning from a text but also connecting data in the content with the learning the readers bring to the demonstration of perusing. In this sense, perusing is a discourse between the reader and the content, which includes a functional, psychological procedure wherein the reader's background knowledge plays a key role in the creation of meaning (Tierney and Pearson, 1994). So, perusing is a

psycholinguistic speculating game, a procedure wherein readers test the content, make speculations, affirm or dismiss them, and make new theories.

RESEARCH METHODOLOGY

Sample Size

The sample selection of this research has been done with 50 (fifty) students currently studying at one private school, Sovannaphumi School, Takhmao 1 campus, Kandal Province, in Cambodia. The students were randomly selected within the most affected classes in Sovannaphumi School, Takhmao 1, and campus. This sample selection was based on no specific criteria or requirements regarding whether they were male or female students.

The quantitative and qualitative methods were used in this research. It outlines the sampling criteria, sampling techniques, data collection, and data analysis to achieve the purpose of this research.

Firstly, the researcher chooses an interval number, selects from the given list of students in selected classrooms, and calculates it in each classroom. This flow was applied to all of the data collected.

Sampling Criteria

The researcher chooses students to conduct questionnaires based on real observation and in-depth understanding of students' learning progress sofa, especially related to inquiry-based learning on students reading perception. Furthermore, those students can provide their real perception of reading progress.

Sampling Techniques

This research uses sample and systematic random sampling techniques. The current students who are studying in this school are selected. The sample size is 50 (33.33%) of 150 students (3 classes from levels 5A-6C). For this study to collect data and information needed, questionnaires were given to 50 students individually. This research was collected with primary data (questionnaires) from the 2018-2019 academic year.

Sample Size Determination

Sample Size for $\pm 5\%$ and $\pm 10\%$ Precision Levels where Confidence Level is 95% and $P=0.5$.

Table 1. Sample size determination

Size of Population	Sample Size (n) for precision (e)	
	$\pm 5\%$	$\pm 10\%$
500	222	83
1,000	286	91
2,000	333	95
3,000	353	97
4,000	364	98
5,000	370	98
7,000	378	99
9,000	383	99
10,000	385	99

15,000	390	99
20,000	392	100
25,000	394	100
50,000	397	100
100,000	398	100
>100,000	400	100

Adopted from Israel (1992), Singh and Masuku (2014).

Data Analysis

The data obtained from each student answered the questionnaire, and an in-depth interview was conducted to facilitate the analysis process. The data was processed and analyzed electronically using computer application software called SPSS 23.0. The comparison frequency analysis techniques and percentage of parametric statistics mean, as well as the standard deviation, will be shown in the table. The table can make it easy to interpret the result of the research.

FINDINGS AND DISCUSSION

Findings

This chapter begins by giving brief background information on two sections of Demographic Profile of Students and Dimension Questionnaires. The following sections report the results of data collected from questionnaires with elementary students of English by a researcher in the private education sector.

Demographic Profile of Students

A total of 50 students who study English responded to the questionnaires. The number of respondents who participated in the research was 21(42.00%) males and 29 (58.00 %) females. There were 41 (82.00%) 10-15 years old and 9 (18.00%) 15-18 years old. Those 50 (100.00 %) students were studying level 5A-6C (Table 2).

Table 2. Gender, age, and learning level

Respondents	Description	Respondents	Percentage (%)
Gender	Male	21	42.00
	Female	29	58.00
	Total	50	100.00
Age	10-15	41	82.00
	15-18	9	18.00
	Total	50	100.00
Learning Level	5A-6C	50	100.00
	Total	50	100.00

Inquiry-Based Learning on Reading Perception

Table 3. Inquiry-based learning on reading perception

Description	Mean	Std. Deviation
The learning experience about the inquiry-based approach is made more interesting technique.	3.24	0.62
I would like to improve my reading through an inquiry-based approach.	2.96	0.60

I would like to choose inquiry-based learning if given a choice between inquiry-based learning and a traditional approach.	2.96	0.85
I would like to get more information by using inquiry-based technique than using a regular technique	3.44	0.64
The information from inquiry-based is more useful than a regular class.	3.18	0.72
I learned more about reading comprehension than that I have learned in conventional classes.	3.20	0.70
The information from inquiry-based contributed greatly to my knowledge about reading perception.	3.32	0.65
I put more time into this class more than I would have invested in	3.18	0.77
I gained technical reading skills on the inquiry-based as the result of this technique	3.32	0.68
I was initially frustrated by using inquiry-based learning on reading perception.	3.20	0.78
I gained confidence in my ability to use inquiry-based learning on reading perception.	3.20	0.63
I was initially frustrated by the previous activities of inquiry-based learning on reading perception in the formal class.	2.98	0.75
I gained confidence in using critical thinking and came up with some ideas when using inquiry-based learning in reading. Perception.	3.36	0.63
I gained confidence in my ability as an independent learner.	3.30	0.64
I have learned how to be resourceful in finding the meaning of words or phrases that were difficult.	3.08	0.82
My reading skills in English have improved as a result of the inquiry-based activities.	3.32	0.79
My writing skills in English have improved as a result of the inquiry-based activities.	3.30	0.70
My listening skills in English have improved as a result of the inquiry-based activities.	3.30	0.73
My speaking skills in English have improved as a result of the inquiry-based activities.	3.36	0.69
I have learned a lot from the inquiry-based reading.	3.32	0.86
I enjoyed the interactive inquiry-based reading activities.	3.38	0.60
I learned the interactive inquiry-based activities on reading.	3.24	0.65
Reading is not just extracting knowledge from the text but a process of connecting information in the text with the knowledge the reader brings to the act of reading.	3.38	0.66

I enjoyed the threaded discussion activities.	3.34	0.74
The instruction interacted with me to facilitate difficulties in the use of inquiry-based learning.	3.44	0.76

As shown in Table 2, inquiry-based learning on reading perception is a very useful technique or strategy for students to improve their reading by using Inquiry-Based Learning approach since Sovannaphumi School students and other students from private or public schools improve their learning progress in macro skill of reading. As a result, Sovannaphumi School students feel more interested in this technique. They would choose inquiry-based learning if given a choice between inquiry-based learning and a traditional approach. Moreover, students get more information, especially reading comprehension, than they have learned in conventional classes. They have added that information from inquiry-based is causing great knowledge about reading perception. Students put more time into this class, and they have gained technical skills as a result of this technique. Students admitted that it was frustrated by using inquiry-based learning on reading perception at first, but after doing this continuously, they obtained confidence in their ability to use it on reading perception.

In addition, students are able to use their critical thinking and come up with some ideas when using inquiry-based learning. It is the cause that makes them become independent learners. They have learned how to be resourceful in finding the meaning of words or phrases that were difficult. Thus, their four macro skills have improved by using inquiry-based learning. All in all, students enjoyed the interactive inquiry-based reading activities. They feel that reading is not just extracting from the text with the knowledge, but it is a process of connecting information in the text with the knowledge and skill that the reader brings to the act of reading. Students bring 21st-century skills to the class while the instructor interacts with them to facilitate difficulties in the use of inquiry-based learning.

Discussion

The findings of the study, with references to some of the related literature, will be discussed in this chapter. It looks at the impact of inquiry-based learning on reading perception in elementary students. As indicated by a writing survey, request-based learning empowers students to understand the processes of knowledge creation, and the key attributes are learning stimulated by inquiry, a student-centered approach, a transition to self-coordinated learning, and a functioning way to deal with learning.

Similarly, there is a significant correlation between inquiry-based learning and reading perception capacity at elementary schools. This result reflects EFL teachers' and students' perception that a brain research factor (motivation) contributes to student motivation. EFL educators focus not only on intellectual and learning reading in English guidance but also on student reading. In addition, the study announced a high positive correlation coefficient (r) between teaching reading and student inquiry-based learning on reading perception (0.80) (Menggo, 2018).

Furthermore, the findings revealed that learning reading practice is fundamentally linked to student motivational behavior. While no differences were found in a high

positive correlation between student inquiry-based learning on reading perception capacity at elementary schools regarding their best foreign language, a good positive correlation (r) was 0.74, and more grounded should be English as a foreign language as it will be examined concerning the learning of English reading (Papi & Abdollahzadeh, 2012).

The result from the literature review and finding the effect of inquiry-based learning on reading perception has formed active learning that starts by posing questions, problems, or scenarios. It appears differently in relation to customary instruction, which, for the most part, depends on the instructor introducing actualities and their insight about the subject. Inquiry-based learning is frequently helped by a facilitator as opposed to a teacher. Inquirers will distinguish and research issues and inquiries to create information or arrangements. Inquiry-based learning incorporates issue-based learning and is commonly utilized in little-scale examinations and activities, just as research. The request-based guidance is chiefly, in all respects, firmly identified with the improvement of routine with regard to deduction and critical thinking abilities. Request learning includes creating questions, mentioning objective facts, doing exploration to discover what information is already recorded, and developing methods for experiments. Evidence is gradually accumulating that shows inquiry-based learning can increase student involvement, academic achievement, and higher produce learning outcomes.

It is an approach to teaching and learning that places students' questions, ideas, and observations at the center of the learning experience. Educators assume a functioning job all through the procedure of building up a culture where thoughts are differentially challenged, tested, redefined, and viewed as improvable, moving children from a position of wondering to a place of ordering understanding and further addressing. The process is about being responsive to the student's learning needs and, most importantly, knowing the point when and how to acquaint understudies with thoughts that will push them ahead in their requests. Together, instructors and students have a scholarly understanding, tolerating common obligations for planning, appraisal for learning, and the progression of the individual, just as class-wide comprehension of meaningful content and ideas (Fielding, 2012). Moreover, from data collection, inquiry-based learning has been used to improve students learning progress in macro skills, especially reading comprehension. For instance, students get more information. They have spent more time in this class and gained more knowledge in technical skills. Even though it was frustrating at first, after doing this repeatedly, students got confidence in doing it. Students have emphasized their learning by doing and mirroring the work of scientists as they actively discover knowledge. In solicitation-based learning, understudies grasp a couple or most of the after activities:

- formulating a question or a set of questions
- designing an investigation to research the questions
- identifying and collecting relevant resources
- developing explanations based on evidence and scientific knowledge
- sharing investigation procedures and findings
- reflecting on the learning process and outcomes

Research has discovered that request-based exercises can support understudies'

learning in a wide scope of school subjects. There is evidence that inquiry-based learning can motivate students to learn and advance their problem solving and build up twenty-first-century skills (critical thinking, collaboration, communication, and creativity). It is the root causes that make them become independent learners. However, the viability of requested put-together learning depends with respect to the direction given by instructors. Unguided or insignificantly guided requests may not work for understudies who have less past learning or capacity in the branch of knowledge. At the point when the requests of the learning exercises surpass the students' capacities, their learning is blocked, and they may develop misunderstandings about the topic.

Along these lines, the proper direction must be consolidated into understudies' request learning. For instance, instructors should help students build up good questions for examinations, monitor their inquiry process, and provide guidance when they encounter difficulties. Instructors should give understudies continuous input and urge them to evaluate their very own learning continually. Compared with having the teacher present all of the information, research offers clear evidence that an instructor-guided request works to the greatest advantage of understudies and their learning. Thus, inquiry-based learning offers another dimension to undergraduate education as it purports to strengthen educating exploration interfaces by uniting educators and understudies in a network of requests and is inherently learning-centered.

CONCLUSION

The last chapter of this study concludes this paper by describing the limitations of the study, followed by a short section on research implications. The end of this section in this chapter is also the end of the study, which brings a conclusion to the study by calling for further research into the effect of inquiry-based learning on reading perception in elementary students. There were some possible limitations to this study, such as the researcher finding that it is not easy to access or collect documents or seminar research that have been concluded in Cambodia, especially at school. The researcher had to adopt the findings and model from previous researchers and make it contextualized. This study covered only the main factors influencing Inquiry-Based Learning in Reading Perception among elementary students who are studying in school in Cambodia. Based on the results of the questionnaires with students, we came up with a fruitful result that offers another measurement to undergrad instruction as it implies reinforcing teaching investigation interfaces by joining instructors and understudies in a system of solicitation and is innately learning-focused.

The solicitation-based direction is primarily concerned with solidly related improvement and routine with respect to conclusion and basic reasoning capacities. Solicitation learning incorporates making questions, referencing target certainties, doing investigations to find what data is as of now recorded, and creating strategies for examinations. The proof is bit by bit aggregating that shows inquiry-based learning can build students' inclusion and scholarly accomplishment and produce higher learning results. It is a way to deal with instructing and discovering that places understudies' inquiries, thoughts, and perceptions at the focal point of the learning knowledge. Teachers expect a working activity all through the technique by structuring up a culture

where contemplations are respectfully tested, tried, reclassified, and seen as improvable, moving youngsters from a place of pondering to a position of requesting understanding and further tending to.

The procedure is tied to being receptive to the understudies' adapting needs, and in particular, knowing right when and how to familiarize understudies with musings that will drive them ahead in their solicitation. Together, instructors and understudies have educated involvement, tolerating shared obligation regarding arranging, examination for learning, and the movement of individuals similar to the class-wide appreciation of significant substance and thoughts (Fielding, 2012). Moreover, from information gathering, inquiry-based learning has been utilized to improve students learning progress in full-scale aptitude, particularly perusing perception. For example, understudies get more data. They have invested more energy in this class and increased their learning in specialized expertise. Indeed, even though it was baffling from the outset, subsequent to doing this more than once, understudies trust in doing it. Understudies have underscored their learning by doing and mirrors crafted by researchers as they effectively find information.

Recommendation

So as to decide the key properties of the methodology and the degree of utilization in education, inquiry-based learning is a teaching method that best empowers understudies to encounter the procedures of information creation. The key qualities incorporate learning animated by request, an understudy or learning-focused methodology wherein the job of the educator is to go about as a facilitator, a transition to self-coordinated learning, and a functioning way to deal with learning. Students ought to look into their abilities and be set up for lifelong learning. They have to accomplish results that incorporate basic reasoning, the capacity for free request, duty regarding their learning, and scholarly development and development. Strong support for an Inquiry-Based Learning approach originates from constructivism, psychological research on spurring students, scholarly advancement, ways to deal with learning and learning cycle-based instructing. Moreover, there has been an ongoing development towards fortifying instructing and research connections. IBL is a luring and persuading instructional method that offers a route for educating and research to be firmly coordinated to the advantage of all things considered (understudies, educators, and establishments). Be that as it may, the exploration of learning styles offers to ascend to alert, the same number of understudies might be awkward with request approaches and, in this way, need satisfactory help to make the change. After all, the finding also indicates the recommendations as follows:

1. Curriculum makers, educational administrators, and social teachers should make a strong commitment to use inquiry-based learning to improve students' reading skills statically.
2. Help build self-esteem by allowing students to be more active in their learning process rather than possessive via traditional teaching-based methods.
3. Reinforces and builds several skills of students in the areas of physical, emotional, and cognitive concepts in crucial ways of 21st-century learning skills.
4. The school needs to provide training to teachers and conduct peer teaching in order

to make them understand the techniques for improving reading skills by using inquiry-based learning methods.

Moreover, teachers should benefit from using IBL through the integration of teaching and research, increased enjoyment and interaction with students, their induction into a wider community of practice of innovative educators, and the rewards picked up from improved students' commitment and scholarly accomplishment. In addition, teachers can also struggle with adjusting to the approach. A large portion of the writing on the instructors' encounters with IBL centers around issues encompassing teaching and fails to report how the inquiry approach has influenced the individual teacher's research. Given that IBL has developed a way to integrate teaching and research, the evaluation of IBL should probe both students and teachers about how they perceive teaching research as an important connection and whether there is the development of a community of inquiry.

All in all, the researcher suggests using inquiry-based learning (IBL) as an umbrella term covering a range of pedagogical approaches that are united by the central place they give to students' investigative work (addressing questions and solving problems). As a pedagogical approach, IBL is widely recognized and advocated in higher education.

Recommendation for Future Studies

The next researcher should use the mixed method, add up the sample size based on the actual population, and increase the target places. It can be done in other regions to compare the results of this study with the results of other studies so that the same study could be conducted within Departments of English Language in Higher Education. The next researcher should use other SPSS tools such as One-Way ANOVA, One-Way ANCOVA, or Regression.

Future studies should concentrate on the variables that affect how well reading skills are learned in an online learning environment. Researchers should examine the relationship between language learning practices and online learning since this is the predominant learning environment for students today. In order for teachers to apply effective methods when teaching in the current learning environment, it is also critical to determine the variables that might affect the learning strategies employed by students. When learners employ the right tactics, they will graduate and enter the job market well-prepared with outstanding speaking abilities.

The current research is focused only on the effect of Inquiry-Based Learning on reading perception in elementary students in Schools in Kandal province, Cambodia. A further study is recommended to extend to more schools in Kandal province, especially in the whole of Cambodia. There is evidence that inquiry-based learning on reading perception can motivate students to learn and advance their problem-solving and critical thinking skills of comprehending the main idea as well as specific information in the text. In any case, the viability of request put-together learning depends with respect to the direction given by instructors. A successful administrator should be able to integrate this area into its curriculum to equip students with enough knowledge and arrange the essential skills and abilities that they require for their future lives and careers. In the new educational theories, learning and teaching are mainly considered

dynamic and student-centered processes, with a particular focus on developing research skills and intellectual capabilities of students such as:

- a. Brainstorming and mind maps are used to encourage students to reflect or generate ideas on their existing knowledge and make links with the contents of the reading text.
- b. Raising questions about different aspects of the lectures' contents and asking Students' opinions on them.
- c. Supporting teamwork and asking students to reflect on each other works.
- d. Arranging oral presentations for students, individually and in groups, to talk about their experience of seeking information on related topics.

All in all, the researcher recommends that future researchers extend the study more broadly to the approach above.

REFERENCES

- Al-Shamisi, A. (2016). The Effect of WebQuests on Grade 11 Reading Comprehension and Student Perceptions of WebQuests. *American International Journal of Contemporary Research*, 6(1), 132-143. <http://sites.google.com/site/vsportal2007/isabelperez>
- Barer-Stein, T. (1933). On the meaning of learning: Reflections with Dewey. *Canadian Journal for the Study of Adult Education*, 25-50. <https://doi.org/10.56105/cjsae.v1i1.2961>
- Berg, P., Kalleberg, A. L., & Appelbaum, E. (2003). Balancing work and family: The role of high-commitment environments. *Industrial Relations: A Journal of Economy and Society*, 42(2), 168-188. <https://doi.org/10.1111/1468-232X.00286>
- Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational psychologist*, 26(3-4), 369-398. <https://doi.org/10.1080/00461520.1991.9653139>
- Bruner, J. (1990). Culture and human development: A new look. *Human development*, 33(6), 344-355. <https://doi.org/10.1159/000276535>
- Burhanuddin, W. (2012). Using Inquiry Method to Improve the Students' Reading Comprehension (a Classroom Action Research). *Exposure*, 1(1), 126-146. <https://doi.org/10.26618/ejpb.v1i1.765>
- Burrowes, P. A. (2003). A student-centered approach to teaching general biology that really works: Lord's constructivist model put to a test. *The American Biology Teacher*, 65(7), 491-502. <https://doi.org/10.2307/4451548>
- Cakir, M. (2008). Constructivist approaches to learning in science and their implications for science pedagogy: A literature review. *International journal of environmental and science education*, 3(4), 193-206. <https://doi.org/10.1002/ldr.859>
- Chen, H. T., Wang, H. H., Lin, H. S., P. Lawrenz, F., & Hong, Z. R. (2014). Longitudinal study of an after-school, inquiry-based science intervention on low-achieving children's affective perceptions of learning science. *International Journal of Science Education*, 36(13), 2133-2156. <https://doi.org/10.1080/09500693.2014.910630>
- Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., & Lee, C. W. Y. (2017). *21st-century skills development through inquiry-based learning*. Singapore: Springer Singapore. DOI 10.1007/978-981-10-2481-8
- Chu, S. K. W., Tse, S. K., Loh, E. K. Y., & Chow, K. (2011). Collaborative inquiry

- project-based learning: Effects on reading ability and interests. *Library & Information Science Research*, 33(3), 236-243. <https://doi.org/10.1016/j.lisr.2010.09.008>
- Chu, S. K. W., Tse, S. K., Loh, E. K. Y., Chow, K., Fung, H. F., & Ng, H. W. R. (2008). Primary four students develop reading ability through inquiry-based learning projects. *Selected papers from the 37th Annual Conference of the International Association of School Librarianship and the Twelfth International Forum on Research in School Librarianship*. International Association of School Librarianship. <https://doi.org/10.29173/iasl7964>
- Crouch, C. H., & Mazur, E. (2001). Peer instruction: Ten years of experience and results. *American journal of physics*, 69(9), 970-977. <https://doi.org/10.1119/1.1374249>
- Dwyer, B. (2016). Engaging all students in internet research and inquiry. *The Reading Teacher*, 69(4), 383-389. <https://teach.mozilla.org/teach-like-mozilla/web-literacy>
- Ebert-May, D., Brewer, C., & Allred, S. (1997). Innovation in large lectures: Teaching for active learning. *Bioscience*, 47(9), 601-607. <https://doi.org/10.2307/1313166>
- Edelson, D. C., Gordin, D. N., & Pea, R. D. (1999). Addressing the challenges of inquiry-based learning through technology and curriculum design. *Journal of the Learning Sciences*, 8(3-4), 391-450. <https://telearn.hal.science/hal-00190609v1>
- Egan, J. P. (1975). *Signal Detection Theory and ROC Analysis Academic Press Series in Cognition and Perception*. London, UK: Academic Press. <https://lccn.loc.gov/74030817>
- Einstein, A. (1982). How I created the theory of relativity. *Physics today*, 35(8), 45-47. <https://doi.org/10.2307/27757844>
- Ekaningrum, V. C., & Prabandari, C. S. (2016). Students' Perception on Pre-reading Activities in Basic Reading II Class of the English Language Education Study Program of Sanata Dharma University. *LLT Journal: A Journal on Language and Language Teaching*, 18(2), 133-140. <http://www.readingrockets.org/article/29624>
- Elkind, D. (1967). Piaget's theory of perceptual development: Its application to reading and special education. *The Journal of Special Education*, 1(4), 357-361. <https://doi.org/10.1177/002246696700100404>
- Fielding, N. G. (2012). Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of mixed methods research*, 6(2), 124-136. <https://doi.org/10.1177/1558689812437101>
- French, D., & Russell, C. (2002). Do graduate teaching assistants benefit from teaching inquiry-based laboratories? *BioScience*, 52(11), 1036-1041. [https://doi.org/10.1641/0006-3568\(2002\)052\[1036:DGTABF\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2002)052[1036:DGTABF]2.0.CO;2)
- Gibbs Jr, R. W. (1988). Psycholinguistic studies on the conceptual basis of idiomaticity. [https://doi.org/10.1016/S0166-4115\(08\)61535-6](https://doi.org/10.1016/S0166-4115(08)61535-6)
- Gormally, C., Brickman, P., Hallar, B., & Armstrong, N. (2009). Effects of inquiry-based learning on students' science literacy skills and confidence. *International journal for the scholarship of teaching and learning*, 3(2), 16. <https://doi.org/10.20429/ijstl.2009.030216>
- Gray, R., & Roger, C. (1987). Conservative laryngectomy: An effective treatment for severe aspiration in motor neurone disease. *The Journal of Laryngology & Otology*, 101(3), 283-285. <https://doi.org/10.1177/000348948809700506>
- Griffiths*, R. (2004). Knowledge production and the research-teaching nexus: The case of the built environment disciplines. *Studies in Higher education*, 29(6), 709-726. <https://doi.org/10.1080/0307507042000287212>

- Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American journal of Physics*, 66(1), 64-74. <https://doi.org/10.1119/1.18809>
- Healey, M., & Roberts, J. (2004). Active learning and the swap shop. *Engaging students in active learning: case studies in geography, environment and related disciplines. Cheltenham: University of Gloucestershire, Geography Discipline Network and School of Environment*, pp1-8. <https://doi.org/10.1080/03098260500130684>
- Healey, M., Jordan, F., Pell, B., & Short, C. (2010). The research-teaching nexus: a case study of students' awareness, experiences, and perceptions of research. *Innovations in Education and Teaching International*, 47(2), 235-246. <http://trnexus.edu.au/uploads/downloads/TR%20Questionnaire.pdf>
- Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational psychology review*, 16(3), 235-266. <https://doi.org/10.1177/016235329702000402>
- Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: a response to Kirschner, Sweller, and. *Educational Psychologist*, 42(2), 99-107. <https://doi.org/10.1080/00461520701263368>
- Ho, H. N. J., Tsai, M. J., Wang, C. Y., & Tsai, C. C. (2014). Prior knowledge and online inquiry-based science reading: Evidence from eye tracking. *International journal of science and mathematics education*, 12(3), 525-554. <https://doi.org/10.1080/09500693.2022.2072013>
- Hutchings, K. (2007). Ecocriticism in British romantic studies. *Literature Compass*, 4(1), 172-202. <https://doi.org/10.1111/j.1741-4113.2006.00417.x>
- Hutchison, A., & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the United States. *Reading Research Quarterly*, 46(4), 312-333. <https://doi.org/10.1002/RRQ.002>
- Igelsrud, D., & Leonard, M. A. (1988). Sound Ideas. *The American Biology Teacher*, 183-186. [https://doi.org/10.1662/0002-7685\(2000\)062\[0378:RPM\]2.0.CO;2](https://doi.org/10.1662/0002-7685(2000)062[0378:RPM]2.0.CO;2)
- Justice, C., Rice, J., Roy, D., Hudspeth, B., & Jenkins, H. (2009). Inquiry-based learning in higher education: administrators' perspectives on integrating inquiry pedagogy into the curriculum. *Higher education*, 58(6), 841. DOI 10.1007/s10734-009-9228-7
- Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Learning and instruction*, 7(3), 255-275. [https://doi.org/10.1016/S0959-4752\(96\)00028-X](https://doi.org/10.1016/S0959-4752(96)00028-X)
- Knight, J. K., & Wood, W. B. (2005). Teaching more by lecturing less. *Cell biology education*, 4(4), 298-310. <https://doi.org/10.1187/05-06-0082>
- Laugksch, R. C., & Spargo, P. E. (1996). Construction of a paper-and-pencil test of basic scientific literacy based on selected literacy goals recommended by the American Association for the Advancement of Science. *Public Understanding of Science*, 5(4), 331. DOI 10.1088/0963-6625/5/4/003
- Lawson, A. E. (1982). The nature of advanced reasoning and science instruction. *Journal of Research in Science teaching*, 19(9), 743-760. <https://doi.org/10.1002/tea.3660190904>
- Lee, H. L. (2004). The triple-A supply chain. *Harvard business review*, 82(10), 102-113. <https://doi.org/10.5465/20159613>
- Lee, V. S. (2012). What is inquiry-guided learning? *New directions for teaching and learning*, 2012(129), 5-14. <https://doi.org/10.1002/tl.20002>

- Leonard, J. S. (1989). Women and affirmative action. *Journal of Economic perspectives*, 3(1), 61-75. DOI: 10.1257/jep.3.1.61
- Levy, P., & Petrulis, R. (2012). How do first-year university students experience inquiry and research, and what are the implications for the practice of inquiry-based learning? *Studies in Higher Education*, 37(1), 85-101. <https://doi.org/10.1080/03075079.2010.499166>
- Linn, M. C., Disessa, A., Pea, R. D., & Songer, N. B. (1994). Can research on science learning and instruction inform standards for science education?. *Journal of Science Education and Technology*, 3, 7-15. <https://telearn.hal.science/hal-00190577v1>
- Linn, M. C., Songer, N. B. & Eylon, B. S. (2996). Knowledge integration and displaced volume. *Journal of Science Education and Technology*, 9, 287-310. <https://doi.org/10.3102/00346543058003251>
- Lott, D. (1983). Analysing and counteracting interference errors. *ELT journal*, 37(3), 256-261. <https://doi.org/10.1093/elt/37.3.256>
- Luckie, D. B., Maleszewski, J. J., Loznak, S. D., & Krha, M. (2004). Infusion of collaborative inquiry throughout a biology curriculum increases student learning: a four-year study of “Teams and Streams”. *Advances in Physiology Education*, 28(4), 199-209. <https://doi.org/10.1152/advan.00025.2004>
- Maaß, K., & Artigue, M. (2013). Implementation of inquiry-based learning in day-to-day teaching: a synthesis. *ZDM*, 45(6), 779-795. <https://doi.org/10.1016/j.edurev.2015.02.003>
- Mansourian, Y. (2010). Evolving perceptions of LIS students about their discipline: Action research with inquiry-based learning approach. *Library Review*, 59(3), 185-197. <https://doi.org/10.1108/00242531011031179>
- Mayer, R. E. (2004). Should there be a three-strikes rule against pure discovery learning?. *American psychologist*, 59(1), 14. <https://psycnet.apa.org/doi/10.1037/0003-066X.59.1.14>
- McMeniman, J. P., Defoor, P. J., & Galyean, M. L. (2009). Evaluation of the National Research Council (1996) dry matter intake prediction equations and relationships between intake and performance by feedlot cattle1. *Journal of Animal Science*, 87(3), 1138. DOI:10.2527/jas.2008-1326
- McShane,M.S and Glinow,G. 2005. More than understanding. *Management Teaching Review*, 3(4), 268-270. <https://doi.org/10.1177/2379298118810834>
- Menggo, S. (2018). English learning motivation and speaking ability. *Journal of Psychology and Instruction*, 2(2), 70-76. <https://doi.org/10.23887/jpai.v2i2.15979>
- National Research Council, Division of Behavioral, Board on Science Education, National Committee on Science Education Standards, & Assessment. (1995). *National science education standards*. National Academies Press. https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=National+Science+Education+Standards+and+National+Research+Council+%28NRC%29+%281996%3A105%29+&btnG=
- Natural Curiosity, J. (2011). Natural curiosity. *PUtting Knowledge to Work: New DIrections for Knowledge-First Epistemology*. <https://psycnet.apa.org/doi/10.1037/a0023020>
- Nguyen, H. T. (2009). An inquiry-based practicum model: What knowledge, practices, and relationships typify empowering teaching and learning experiences for student teachers, cooperating teachers, and college supervisors? *Teaching and Teacher Education*, 25(5), 655-662. <https://doi.org/10.1016/j.tate.2008.10.001>

- Omaggi, E. 1993. Developing EFL learners' intercultural communicative competence: A gap to be filled. *Journal of English as an International Language: From defining EIL competence to designing EIL learning*, 86-99. DOI 10.1088/0268-1242/8/1S/024
- Papi, M., & Abdollahzadeh, E. (2012). Teacher motivational practice, student motivation, and possible L2 selves: An examination in the Iranian EFL context. *Language learning*, 62(2), 571-594. <https://doi.org/10.1111/j.1467-9922.2011.00632.x>
- Parappilly, M., Siddiqui, S., Zadnik, M., Shapter, J., & Schmidt, L. (2013). An inquiry-based approach to laboratory experiences: Investigating students' ways of active learning. *International Journal of Innovation in Science and Mathematics Education*, 21(5), 42-53. <http://pareonline.net/getvn.asp?v=15&n=11>
- Pardede, P. (2010). A Review on Reading Theories and its Implication to the Teaching of Reading. *UKI: ELT'n Edu~ A cyber-ELT & Edu service from Universitas Kristen Indonesia*. <https://www.teachingenglish.org.uk/article/theories-reading-2>
- Prince, M. J., & Felder, R. M. (2006). Inductive teaching and learning methods: Definitions, comparisons, and research bases. *Journal of engineering education*, 95(2), 123-138. <https://doi.org/10.1002/j.2168-9830.2006.tb00884.x>
- Savery, J. R. (2015). Overview of problem-based learning: Definitions and distinctions. *Essential readings in problem-based learning: Exploring and extending the legacy of Howard S. Barrows*, 9, 5-15. <http://docs.lib.purdue.edu/ijpbl/>
- Scardamalia, M. (2002). Collective cognitive responsibility for the advancement of knowledge. *Liberal education in a knowledge society*, 97, 67-98. <http://csile.oise.utoronto.ca/abstracts/distributed/>
- Schneider, B., Salvaggio, A. N., & Subirats, M. (2002). Climate strength: a new direction for climate research. *Journal of applied psychology*, 87(2), 220. DOI: 10.1037//0021-9010.87.2.220
- Shymansky, J. A. (1990). A reassessment of the effects of inquiry-based science curricula of the 60's on student performance. *Journal of Research in Science Teaching*, 27(2), 127-144. <https://doi.org/10.1002/tea.3660270205>
- Smith, A. (1776). 1994. *Teachers perceptions of the special education work environment: Does experience make a difference*. <https://doi.org/10.1111/j.1467-8578.1994.tb00081.x>
- Smith, P. H., Tamppari, L. K., Arvidson, R. E., Bass, D., Blaney, D., Boynton, W. V., ... & Zent, A. P. (2009). H2O at the Phoenix landing site. *Science*, 325(5936), 58-61. <https://doi.org/10.1126/science.1172339>
- Spronken-Smith, R. (2012). Experiencing the process of knowledge creation: The nature and use of inquiry-based learning in higher education. In *International Colloquium on Practices for Academic Inquiry. University of Otago* (pp. 1-17) <http://www.sedl.org/pubs/sedletter/v09n03/practice.html>
- Spronken-Smith, R., Bullard, J. O., Ray, W., Roberts, C., & Keiffer, A. (2008). Where might sand dunes be on Mars? Engaging students through inquiry-based learning in geography. *Journal of Geography in Higher Education*, 32(1), 71-86. <https://doi.org/10.1080/03075079.2011.616584>
- Stanovich, K. E. (1980). Toward an interactive-compensatory model of individual differences in the development of reading fluency. *Reading research quarterly*, 32-71. <https://doi.org/10.2307/747348>
- Tien, L. T., Roth, V., & Kampmeier, J. A. (2002). Implementation of a peer-led team learning instructional approach in an undergraduate organic chemistry course. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, 39(7), 606-632. <https://doi.org/10.1002/tea.10038>

- Tierney, R. J., & Pearson, P. D. (1994). *A history of literacy education: Waves of research and practice*. Teachers College Press.
<https://doi.org/10.30957/cendekia.v8i2.63>
- Udovic, D., Morris, D., Dickman, A., Postlethwait, J., & Wetherwax, P. (2002). Workshop biology: demonstrating the effectiveness of active learning in an introductory biology course. *Bioscience*, 52(3), 272-281.
[https://doi.org/10.1641/0006-3568\(2002\)052\[0272:WBDTEO\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2002)052[0272:WBDTEO]2.0.CO;2)
- Von Secker, C. E., & Lissitz, R. W. (1999). Estimating the impact of instructional practices on student achievement in science. *Journal of research in science teaching*, 36(10), 1110-1126. [https://doi.org/10.1002/\(SICI\)1098-2736\(199912\)36:10%3C1110::AID-TEA4%3E3.0.CO;2-T](https://doi.org/10.1002/(SICI)1098-2736(199912)36:10%3C1110::AID-TEA4%3E3.0.CO;2-T)
- Wee, B., Fast, J., Shepardson, D., Harbor, J., & Boone, W. (2004). Students' Perceptions of Environmental-Based Inquiry Experiences. *School Science and Mathematics*, 104(3), 112-118. <https://doi.org/10.1111/j.1949-8594.2004.tb17991.x>
- Weinstein, C. E. (1982). Training students to use elaboration learning strategies. *Contemporary Educational Psychology*, 7(4), 301-311. [https://doi.org/10.1016/0361-476X\(82\)90013-3](https://doi.org/10.1016/0361-476X(82)90013-3)
- Yeung, S. Y. S. (2009). Is student-centered pedagogy impossible in Hong Kong? The case of inquiry in classrooms. *Asia Pacific Education Review*, 10(3), 377-386. <http://etheses.dur.ac.uk/320/>
- Żyszkowska, W. (2015). Map perception: theories and research in the second half of the twentieth century. *Polish Cartographical Review*, 47(4), 179-190. <https://doi.org/10.1515/pcr-2015-0017>