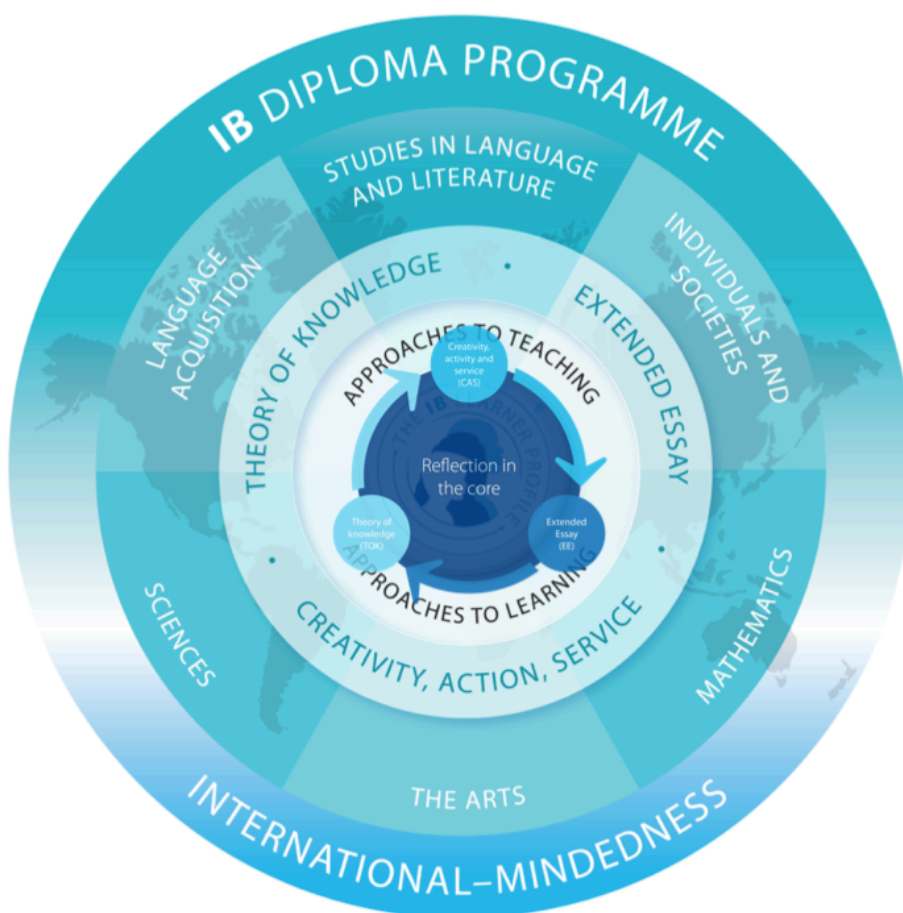




International School of Amsterdam



IB Diploma Program Extended Essay Handbook



WWW.IBO.ORG

Candidate Name: _____

E.E. Supervisor: _____

Nota bene: This Handbook was designed and developed by Matt Lynch, DP Coordinator. It is intended to compliment the IB's Extended Essay Guide. It is **NOT** intended to replace it. It remains imperative for students and supervisors to refer to the guide and read the subject specific guidance within. The materials presented are intended to trigger reflection and assist in the research process.

Majors changes from the Old to New:

For clarification please see Curriculum Review Update for EE Coordinators and Supervisors;
DP Development, March 2015

Change	Rationale
All research questions must be posed as a <i>research question</i> (not as a research title).	Enables students to maintain their focus more easily throughout the essay and to make a judgment as to whether they have responded to the research question.
Reference to external sources or supplementary information in appendices not permitted and examiners need not access them.	There can be no reference within the essay to external materials such as appendices. If it is relevant to the essay it should be in the essay.
Abstract is no longer required.	The abstract will no longer be a formal requirement in response to feedback from teachers and examiners.
Use of footnotes, endnotes and appendices is clarified.	Footnotes, endnotes, and appendixes are not an essential part of EE and examiners do not have to read them or use any information contained within in the assessment of the essay!
All EE submitted Electronically	Just makes sense!
Formatting of the extended essay is clarified.	<ul style="list-style-type: none"> • Arial 12-point • Double spacing • Page numbering • No candidate/school name on the title page or page headers.
Number of assessment criteria has been reduced to five !	A. Focus and method; B. Knowledge and Understanding; C. Critical Thinking; D. Formal Presentation; E. Engagement.
“Best-fit” approach has been adopted for the assessment of extended essays.	A “best-fit” approach means that compensation should be made when a piece of work matches different aspects of a mark band at different levels. The mark awarded should be one that most fairly reflects the balance of achievement against the mark band. It is not necessary for every indicator of a level descriptor to be met for that mark to be awarded.
Three mandatory reflection sessions btw Supervisors and Student are MANDATORY .	The RPP will allow for the application of criterion E, engagement. Students are responsible to complete each section of the RPP form after each of their mandatory reflection sessions. Supervisors must sign after each reflection is completed and at the end of the process once the <i>viva voce</i> has taken place and write their summative comment. The form is submitted along with the essay for external assessment.
Reflections on Planning and Progress Form (EE RPP Form) MANDATORY.	
Reflection is included in the assessment of EE (Criterion E).	
The Researcher’s Reflection Space is recommended.	The use of the Researcher’s Reflection Space (RRS) is strongly recommended as it will allow the student to more clearly articulate and understand their decision-making process as it relates to the critical and evaluative elements of the essay.
Administrative responsibilities are explained.	Supervisors and Students’ <i>Roles and Responsibilities</i> have been clarified.

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Introduction: What is the Extended Essay?



The Extended Essay is an independent piece of formal academic writing of up to **4,000 words**. It is the product of an *extended* research project that begins in the first year of Diploma Studies and culminates in the beginning of the second year.

The Extended Essay is designed to offer Diploma candidates the opportunity to investigate a topic of their choice in a subject of their interest. In working on the Extended Essay, students are responsible to research and develop a “**major piece of formally presented, structured writing, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject chosen**”. (EE Guide 2018)

The Extended Essay helps students develop independent approaches to learning essential to their further university studies. In working on their Extended Essay, students develop the ability to initiate, plan, and persevere on an extended research project. They fine-tune their abilities to inquire and manage information. They further develop their ability to understand and apply key concepts in a chosen subject of interest. They explore ways to communicate new understanding in a formal manner. Finally, they refine their social skills and learn to work with an academic mentor.

The Extended Essay is an **opportunity** for Diploma candidates to develop their interest, knowledge and understanding of topic of their choice in a subject area of their choice. It is also a **GREAT** subject of conversation in any formal University or Job interview setting!

The Extended Essay is:

- Piece of **independent research** on a topic chosen by the student in cooperation with a supervisor in the school,
- **Compulsory** for all DP students and is an option for course students.
- Presented as a **formal piece of scholarship** containing no more than 4,000 words,
- Accompanied by a reflection form of no more than 500 words
- Approximately **40 hours of work** by the student,
- Chosen from the list of approved DP **subjects offered at ISA**,
- **Externally assessed** and, in combination with the grade for theory of knowledge, contributes up to three points to the total score for the IB diploma,
- A student must achieve a D grade or higher to be awarded the Diploma.



<http://hi5tory.com/ibeeia/ee/Reflections%20of%20a%20Extended%20Essay%20Examiner.pdf>

The EE is the **opportunity** for DP students to show knowledge, understanding and enthusiasm about a topic of their choice. It is also a **GREAT** subject of conversation in formal University or Job interviews!

The Aims of the Extended Essay are:

Provide students with the opportunity to:

- Engage in independent research with **intellectual initiative** and **rigor**
- Develop research, thinking, self-management and communication **skills**
- **Reflect** on what has been learned throughout the research and writing process
- Experience the **excitement of intellectual discovery**.

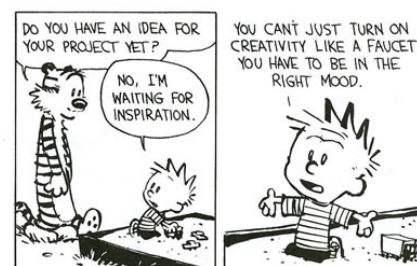
The Assessment Objectives of the Extended Essay are:

Assessment objectives	
Knowledge and understanding	<p>To demonstrate knowledge and understanding of the topic chosen and the research question posed.</p> <p>To demonstrate knowledge and understanding of subject specific terminology and/or concepts.</p> <p>To demonstrate knowledge and understanding of relevant and/or appropriate research sources and/or methods used to gather information.</p>
Application and analysis	<p>To select and apply research that is relevant and appropriate to the research question.</p> <p>To analyse the research effectively and focus on the research question.</p>
Synthesis and evaluation	<p>To be able to discuss the research in terms of a clear and coherent reasoned argument in relation to the research question.</p> <p>To be able to critically evaluate the arguments presented in the essay.</p> <p>To be able to reflect on and evaluate the research process.</p>
A variety of (research) skills	<p>To be able to present information in an appropriate academic format.</p> <p>To understand and demonstrate academic integrity.</p>

The Basic Responsibilities of the Student are:

It is **required** that students:

- Choose a topic that fits into one of the subjects offered by ISA
- Observe regulations relating to the extended essay (No Plagiarism!)
- Meet deadlines
- Acknowledge all sources of information and ideas in an approved academic manner.



It is **strongly recommended** that students:



- Start work early
- Think very carefully about the research question for their essay
- Plan how, when and where they will find material for their essay
- Plan a schedule for both researching and writing the essay, including extra time for delays and unforeseen problems
- Record sources as their research progresses (rather than trying to reconstruct a list at the end)
- Have a clear structure for the essay itself before beginning to write
- Check and proofread the final version carefully
- Make sure that all basic requirements are met (Hand in the Checklist)

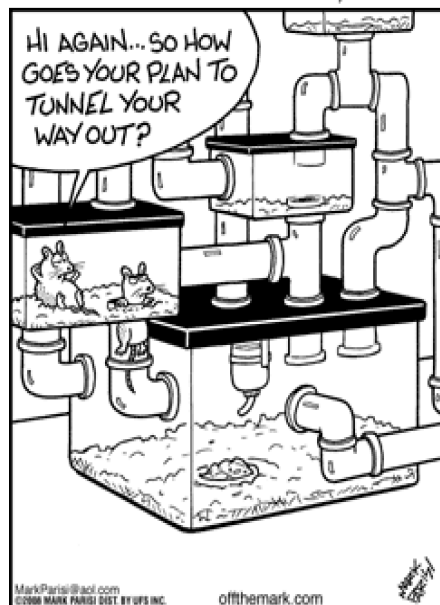
<https://emilybleeker.com/2015/12/01/put-that-thing-away/snoopy-good-writing-is-hard-work/>

Some Advice from your Examiners:

Recommended things to do:

Before starting work on the extended essay, students should:

off the mark.com by Mark Parisi



- Read the assessment criteria
- Read previous essays to identify strengths and pitfalls
- Spend time working out the research question
- Imagine the finished essay
- Work out a structure for the essay.

During the research process, and while writing the essay, students should:

- Start work early and stick to deadlines
- Maintain a good working relationship with supervisor
- Construct an argument that relates to the RQ
- Use the library and consult librarians for advice
- Record sources as they go along
- Maintain an ongoing Bibliography
- Choose a new topic and a research question that **can** be answered if there is a problem with the original topic
- Use the appropriate language for the subject
- Let their interest and enthusiasm show.

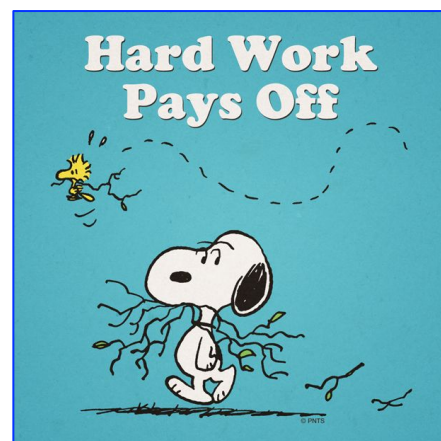
After completing the essay, students should:

- Write the abstract
- Check and proofread the final version carefully.

*Recommended things to **NOT** do:*

Examiners' reports also mention these things to be avoided at all costs:

- **Choose a research question that is too broad or too vague, too narrow, too difficult or inappropriate.**
- Forget to analyse the **research question** in the EE
- Ignore the assessment criteria (some points are mere technicalities!)
- Collect material that is irrelevant to the **research question**
- Use the internet uncritically
- **Plagiarize !!!!!**
- Merely describe or report and not analyse or argue
- Repeat the introduction in the conclusion
- Cite sources that are not used.



<https://www.pinterest.com/suel0105/encouragement-quotes/>

The more background a student has in the subject, the better the chance he or she has of writing a good extended essay. **The key to a good EE is to choose your subject well, narrow down your Research Question, and stick to deadlines!**

EE Timeline: Steps to Success



The E.E. is an exciting but **extended** research project. It is essential that you organize yourself effectively. Please consider the **final submission deadline** for your EE and then work backwards to establish a clear and useful **roadmap** to meet this deadline. Time is of essence, and there is no time to waist. **Plan effectively and take it step by step!**

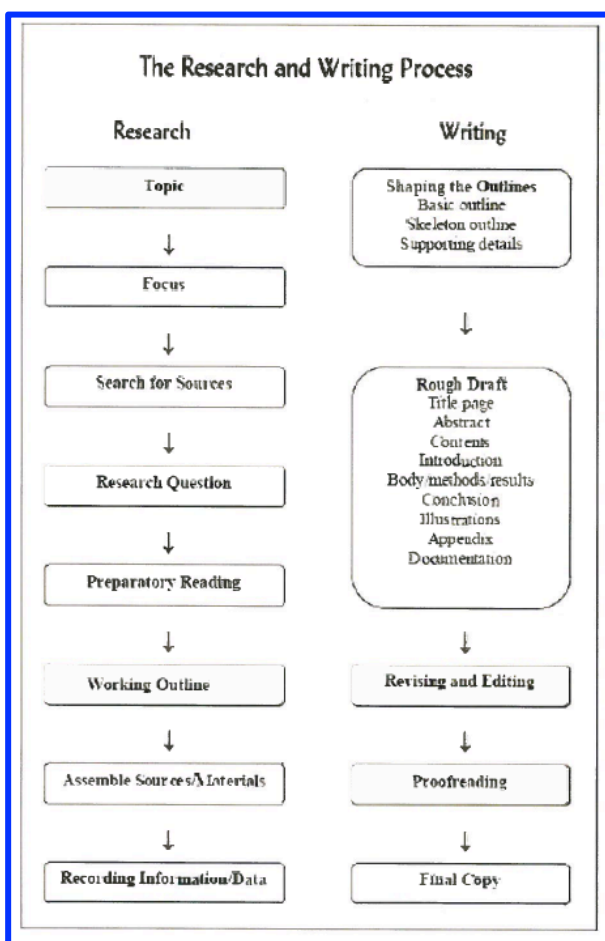
Remember your advisor is there to guide you in your work, not there to do the work for you! It is your responsibility to set appointments and come prepared for each of them. **No one has time to waist!**

Remember to keep track of meetings in your

Researcher's Reflection Space (EE Logbook).

At each meeting, record the goals/actions to be accomplished before the next meeting. Initial guidance form the IB on research and writing process:

Supervisors are recommended to advise their students on how to conduct research and write the extended essay, paying particular attention to the following key areas:



- 1 Choose an available Diploma Programme subject for the extended essay for the session in question (subject to any restrictions imposed by the school).
- 2 Read the following materials: the assessment criteria, relevant subject-specific chapter of the *Extended essay guide*, the IB's ethical guidelines and other associated policies where relevant, such as those relating to animal experiments.
- 3 Set up the Researcher's reflection space (RRS) and use this as the key planning and reflection tool for the extended essay process.
- 4 Choose a topic and undertake some background reading on it.
- 5 Formulate a preliminary research question. Try to incorporate an IB command term in the research question if possible.
- 6 Draw up an outline plan for the research and writing process. This should include a timeline.
- 7 Begin to identify how and where they will gather source material for their research.
- 8 Identify which system of academic referencing they will use, ensuring that this meets the minimum requirements for the IB.
- 9 Set deadlines for themselves that are realistic and take into consideration the school's own internal deadlines.
- 10 Plan a structure for the essay. This may change as the research develops but it is useful to have a sense of direction from the start.
- 11 Undertake some preparatory reading in light of the proposed research question. *If students discover that it will not be possible to obtain the evidence needed in the time available, the research question should be changed. This should be done sooner rather than later: students should not lose time waiting and hoping that something will turn up. Students should go back to stage 3, 2 or 1, and choose a new research question that can be answered.*
- 12 Carry out the research. *The material collected should be assembled in a logical order, linked to the structure of the essay and clearly focused on the research question posed. Only then will students know whether they have enough evidence for each stage of the argument so that they can proceed to the next. Students should be prepared for things to go wrong. Sometimes they may discover something later in the research that undermines what they thought had been established earlier. If that happens, the research plan needs to be revised.*

EE Steps to Success		
(Please note that deadlines may vary depending on nature of the subject and supervisor's advice)		
Steps:	Tasks:	Deadlines:
Step One: Develop Research Proposal <i>Choose subject, topic, and find a advisor</i>	1. Review DP subjects for possible EE topics <i>(careful not to duplicate work done in class)</i> 2. Narrow down TWO possible subject areas 3. Brainstorm TWO possible Research Topics in each 4. Approach subject specialists, discuss ideas, and develop two working <i>research proposals</i> 5. Submit proposals via Google Form: Students submit proposals in order of preference BUT both proposals must be equally valid!	Proposal: Early Feb Google Form
	6. Departments meet to discuss proposals. 7. HoD (Heads of Dept) inform candidates which proposals were accepted and which advisor assigned	Dept. Decision: Mid Feb
	8. Submit onto ManageBac <i>tentative</i> research proposal and name of assigned Advisor	ManageBac: Early March
Step Two: Narrow Research Question <i>Narrow Research Question to something manageable</i>	1. Establish <i>Researcher's Reflection Space</i> to record reflections on research process 2. Read <i>ISA EE Handbook</i> on good RQ 1. Annotate <i>IB Subject specific EE guide</i> 2. Read <i>IB EE assessment criteria</i> to understand what examiners are looking for in an EE 3. Conduct Background Research on topic 4. Narrow down Research topic to a question 5. Develop preliminary Research Question 6. Include <i>IB command terms</i> in RQ 7. Check if RQ is a good one! 8. Meet with Librarian to develop <i>Research Plan</i> and understand <i>referencing process</i> (MLA)	Research Question: Mid-April RRS Specific Research Question on ManageBac
	1. Outline possible sources and methods of data collection (subject specific) 2. Discuss ways to structure argument/answer 3. Write brief outline of essay/tentative structure 4. Develop a Research Plan/specific timeline	Mid-May Upload outline, research plan
	Initial Reflection Session: Candidates discuss with advisors initial planning, background research, and tentative Research Question . They then record reflections on RPP form on ManageBac . Advisors write brief update to Parent/Legal guardians, cc'ed to DP Coordinator. Due: Mid-May	
Step Four: Analyze Research Data	1. Conduct Summer Research Plan 2. Research material complete and analyzed 3. First working Draft (Subject specific) 4. Re-read EE assessment criteria, self assess	First week after summer
Interim Reflection Session: Candidates discuss with advisors research process, working outline, and first attempts at writing draft . They then record reflections on RPP form on ManageBac . Advisors write brief update to Parent/Legal guardians, cc'ed to DP Coordinator. Due: Mid-September.		
Step Five: Draft the Extended Essay	1. Complete final analysis of Research 2. Write the <i>complete</i> official draft 3. Re-read EE assessment criteria, self assess 4. Submit the complete official draft for review	Beginning October Official Draft
Final Step: Submit Final Essay	1. Review advisor's comments 2. Work on final version and polish Formal presentation 3. Go through Final Check list in ISA Handbook 4. Email final EE to Advisor and submit final EE on ManageBac	Final EE: Nov 1st Email and Managebac
Caution: Students who fail to submit their EE on time will report to detention until their EE is complete.		
Final Reflection Session (Viva Voce): Candidates discuss with advisors overall research process: what have a learnt about research in general and in my chosen subject area? They then record final reflections on RPP form and submit final RPP form for assessment on ManageBac . Advisors write brief update to Parent/Legal guardians, cc'ed to DP Coordinator. Due: End November		

Step One (a)- Choose your subject and general topic:

Group 1: Studies in Language and Literature	
Category 1:	Studies of a literary work(s) originally written in the language in which the essay is presented
Topic	Death in Emily Brontë's and Emily Dickinson's poetry
Research question	"How is the subject of death treated in selected poems by Emily Brontë and Emily Dickinson?"
Language	English
Category 2:	Studies of literary work or works originally written in the language of the essay compared with one or more literary works originally written in another language.
Topic	The presentation of the hero in literature
Research question	"In what different ways do Shaw, Anouilh and Schiller present Joan of Arc in their respective plays?"
Language	English/French/German
Category 3:	Studies in language based on one or more texts originally produced in the language in which the essay is presented.
Topic	The impact of electronic communication technologies on meaning
Research question	An analysis of the development and implications of "Twitter" reactions to the 2010 election campaign in Britain.
Language	English
Ideas/Initial Brainstorm:	
Possible Research Topics:	
Possible Research Questions:	

Group 2: Language Acquisition	
Category 1:	A specific analysis of the language (its use and structure), normally related to its cultural context or a specific text.
Topic	Language laws in Quebec
Research question	To what extent has Bill 101 contributed to increasing the prevalence of the French language in Quebec?
Approach	An investigation into the effect of Bill 101 on the status of the French language in Quebec.
Language	French
Category 2:	A sociocultural analysis of the impact of a particular issue on the form or use of the language: (a) based on an examination of language use (b) an essay of a general cultural nature based on specific cultural artifacts.
Topic	Language for family members
Research question	Does Japanese need new words to describe non-traditional family relationships as society changes?
Approach	A commentary on how the use of the words "shujin" and "kanai" have changed, together with an examination of the social factors that may require new linguistic terms for family relationships to be created.
Language	Japanese
Category 3:	An analysis of a literary type, based on a specific work or works of literature exclusively from the target language.
Topic	Fictionalization of history in Abel Posse's novels
Research question	How does Abel Posse construct an imaginary history in his novel <i>El largo atardecer del caminante</i> ?
Approach	A textual analysis to reveal the narrative techniques used by the author to make the plot contrast with the order of chronological events.
Language	Spanish
Ideas/Initial Brainstorm: Possible Research Topics: Possible Research Questions:	

Group 3: Individuals and Societies	
Economics	
<p>An extended essay (EE) in economics provides students with an opportunity to:</p> <ul style="list-style-type: none"> • Apply economic theory to real-world situations • Make inferences based on real-world data • Analyze and evaluate the outcomes of their research. 	
Topic	Pricing at the local supermarket
Research question	Will the recent policy of cutting bakery prices lead to increased revenue for the Safeway supermarket in Ryde, Sydney?
Approach	Primary research is conducted through observation and supported by secondary research, such as company records and textbooks. This results in a detailed examination of elasticity and its relationship with total revenue.
Geography:	
<p>An EE in geography gives the student an opportunity to apply a range of geographic skills to complete an independent and in-depth research investigation using geographic concepts, methodologies, theories and sources with a clear spatial emphasis.</p>	
Title	Development disparities in Vietnam
Research question	To what extent does regional development in Vietnam reflect the core–periphery concept?
Approach	Data collection of a range of development statistics for each Vietnamese province allows the construction of the student’s own index of development levels pertinent to Vietnam. Provincial levels of development are mapped and the resulting pattern is compared with the core–periphery model.
History:	
<p>In history, the research question should encourage an investigation that lends itself to <i>analysis</i> and <i>critical commentary</i>. Students should avoid straightforward “What” and “How” questions as they tend to lead to narrative treatment. Terms such as “How significant...?” or “How successful...?” are more likely to engage students in analysis. “To what extent...?” requires an analytical answer, but if students choose this or a similar term, they need to ensure that their task does also require them to consider other factors to answer the question.</p>	
Title	The influence of National Socialist ideology on the German school system in the late 1930s: a case study
Research question	To what extent were Hitler’s educational aims fulfilled in the Uhland Gymnasium, 1937–1939?
Approach	Reading is undertaken to enable a summarization of National Socialist ideology and curriculum proposals. Primary sources (teachers’ records) are used to establish how far the proposed changes were put into practice in one school during 1937–1939.
ITGS:	
<p>An ITGS EE offers students an opportunity to:</p> <ul style="list-style-type: none"> • Expand their technical understanding of IT • Study an IT system in a real-world scenario • Analyze its impact on individuals, organizations or society in general. 	
Topic	The effectiveness of e-learning as an enhancement to conventional teaching
	Does the addition of e-learning systems improve the performance of students in mathematics?

Group 4: Experimental Sciences

Biology:

Biology is the science that deals with living organisms and life processes. A biology EE should incorporate biological theory and emphasize the essential nature of this subject.

Topic	The distribution and growth of lichens on urban pavements
Research question	How are the distribution and growth of lichens affected by sulfur dioxide and ozone levels in the atmosphere?
Approach	Thalus diameter and population density data is collected from selected sites in different parts of the city. This data is then correlated with published data on the levels of SO ₂ and O ₃ .

Chemistry:

Chemistry is the science that deals with the composition, characterization and transformation of substances. A chemistry EE should incorporate chemical principles and theory, and emphasize the study of matter and of the changes it undergoes.

Title	Analysis of strawberry jellies by paper chromatography
Research question	The use of paper chromatography to determine whether strawberry jellies obtained from 24 different countries in 5 different continents all contain the same red dyes.
Approach	

Physics:

An extended essay (EE) in physics should answer a research question in physics through focused, evidence-based argumentation. The evidence may be drawn from the student's personal experimentation and/or book- and internet-based research. Whichever method of research is adopted, the student must use the principles of physics. The essay must go beyond simply informing the reader and involve the elements of personal and original thinking.

Title	Black hole at the centre of the Milky Way
Research question	Is it possible to determine the presence of a black hole at the centre of the Milky Way?
Approach	A data-based approach is taken. From the astronomical observations of a star following a Keplerian orbit around a compact radio source, the mass of a supermassive black hole is determined. The level of uncertainty is appreciated.

Ideas/Initial Brainstorm:

Possible Research Topics:

Possible Research Questions:

Group 5: Mathematics

An EE in Maths are divided into six categories:

- The applicability of mathematics to solve both real and abstract problems
- The beauty of mathematics—eg geometry or fractal theory
- The elegance of mathematics in the proving of theorems—eg number theory
- The history of mathematics: the origin and subsequent development of a branch of mathematics over a period of time, measured in tens, hundreds or thousands of years
- The effect of technology on mathematics:
 - In forging links between different branches of mathematics,
 - Or in bringing about a new branch of mathematics, or causing a particular branch to flourish.

These are just some of many different ways that mathematics can be enjoyable or useful, or, as in many cases, both.

Topic	The geometry of navigation
Research question	What was the role of mathematics, and geometry in particular, in navigation when we relied on the stars? Does it still play a part now we have man-made satellites?
Approach	Using one of the two geometric representations of the earth (spherical or ellipsoidal), describe how maps and charts were produced to assist navigators in the past.
Topic	Square–triangular numbers and Pell’s equation
Research question	How many square numbers are also triangular numbers, where are they, and what other problems lead to Pell’s equation?
Approach	A description of square and triangular numbers, and how the locations of numbers that are both are solutions of Pell’s equation. Some other problems, perhaps in number theory and geometry, that lead to the equation could be described, with a brief history of the equation included.
Topic	The exponential function and the measurement of age and growth
Research question	How does the exponential function, and its calculus, inform areas of science such as nuclear physics, geology, anthropology or demography?
Approach	Use one of the settings where exponential growth applies, perhaps modelling the world’s population, to describe the phenomena. Show how it is applicable in mathematical models of other real situations.

Ideas/Initial Brainstorm:

Possible Research Topics:

Possible Research Questions:

Group 6: The Arts

Visual Arts

An extended essay (EE) in visual arts gives students an opportunity to undertake research in an area of the visual arts of particular interest to them. The visual arts are here broadly defined also to include architecture, design and contemporary forms of visual culture.

Topic	Cultural influences on Pablo Picasso's work
Research question	Picasso: individual genius or cultural thief?
Approach	An investigation of the extent to which selected images in Picasso's work may have been appropriated from other cultural sources.

Music:

An extended essay (EE) in music gives students an opportunity to undertake in-depth research into a topic in music of genuine interest to them. Music—as a form of expression in diverse contexts, with intent, purpose and meaning—should be at the heart of the essay.

Title	<i>Jesus Christ Superstar</i> and opera
Research question	Is <i>Jesus Christ Superstar</i> a modern classical opera?
Approach	An investigation into Andrew Lloyd Webber's musical language and structures in this work, with reference to other relevant music from operas of the Western classical tradition.

Theatre:

An extended essay (EE) in theatre gives students an opportunity to test and validate their research by considering its effect on the practice of the area of theatre they have investigated.

Title	An investigation into the functions of mask in two of Zeami Motokiyo's plays
Research question	What are the main uses and types of mask in Noh drama, and how does the mask contribute to the creation of a character in Noh?
Approach	Relevant research materials are collected on the history, acting styles and stage conventions of Noh, and on the types of mask and their uses. The use of mask in two of Zeami Motokiyo's plays and the significance of mask for character development in these plays is analysed, and the uses of mask in the two plays are compared and contrasted.

Film

An (EE) in film gives students an opportunity to undertake an in-depth investigation into a topic in film of particular interest to them. Students should undertake the study of at least two films in consideration of their chosen topic.

The topic must clearly focus on film or television, rather than a literary, sociological, political or historical issue. For example, a study of film adaptations of Shakespeare's plays or of classic novels must not become a literature essay about the plays or the novels. It must be a discussion about the films from a filmic point of view. The topic needs to offer enough scope for a substantial essay without being too general. Crucially, it needs to capture the interest and enthusiasm of the student.

Ideas/Initial Brainstorm:

Possible Research Topics:

Three Possible Research Questions:

Step One (b): Developing a Research Proposal.

Brainstorm TWO possible topics from TWO different subjects and submit your research proposals to the Head of each Subject Area via Google form

Extended Essay Proposal Brainstorm
Possible Research Topic(s):
What research topics am I interested in investigating?
Possible Research Question(s):
What do I want to know?
Research terminology:
What are the key words/concepts in Research Question that I will need to research? a) b) c) d) e)
Purpose of Research Project:
Why do I want to know this? a) b) c) d) e)
Method of Investigation:
How am I going to find this out? (Approach to Research/Subject specific Methodology)
What will my research 'material' look like? Note: "material" has different meanings in different subjects. It may be data or information; it may be arguments or evidence, primary or secondary resources:
When and where am I going to carry out this research?

Extended Essay Proposal Form	
(To assist filling in EE Google Form)	
Name:	Exam Session: Year you take your exams
Proposal One:	
Subject:	Group:
Category (If subject is either Group 1 or Group 2):	
Possible Research Topic:	
What topics do you want to research in this subject? Why?	
Possible Research Questions:	
List three possible research questions you would to investigate in this subject/topic area. Be prepared to answer why.	
Approach to Research	
How will you research this topic? What will the research 'material' look like?	
<p><i>Note: "material" has different meanings in different subjects. It may be data or information; it may be arguments or evidence, primary or secondary resources.</i></p>	
Proposal Two:	
Subject:	Group:
Category (If subject is either Group 1 or Group 2):	
Possible Research Topic:	
What topics do you want to research in this subject? Why?	
Possible Research Questions:	
List three possible research questions you would to investigate in this subject/topic area. Be prepared to answer why.	
Approach to Research	
How will you research this topic? What will the research 'material' look like?	
<p><i>Note: "material" has different meanings in different subjects. It may be data or information; it may be arguments or evidence, primary or secondary resources.</i></p>	

Extended Essay Contract <i>(To be scanned and sent to the DP Coordinator)</i>			
Student:		Exam Year	
Group:		Subject:	
Category (If subject is either Group 1 or Group 2):			
Tentative Research Topic:			
What topic do you want to research in this subject? Why?			
Tentative Research Question:			
What tentative research questions do you want to explore in researching this topic?			
Approach to Research:			
How will you research this topic? What will the research ‘material’ look like? Note: “material” has different meanings in different subjects. It may be data or information; it may be arguments or evidence, primary or secondary resources:			

Advisor’s Terms of Agreement:
<p>I have read the ISA Extended Essay Handbook, the introduction to the Official IB guide for the Extended Essay, and the subject specific section of the IB Guide to the EE (available on ManageBac). I understand that the Extended Essay is an independent piece of formal academic writing of 4,000 words and is the product of an extended independent research project.</p> <p>I am aware of the general steps to success in working on such a project and commit to respecting established deadlines. I understand that it is my responsibility to make sure that I plan my work effectively and keep to deadlines established in consultation with my supervisor.</p> <p>I understand that my supervisor is an academic tutor. As such, I understand that it is his/her responsibility to assist me in the formal academic research and writing processes. It is not his/her responsibility to chase after me! I agree that it is my responsibility to be motivated in my work and ensure that I am on top on things. I understand that it is my responsibility to set appointments with my supervisor, come prepared, and be on time for each and every one of them.</p> <p>Finally, I understand that the Extended essay is an individual research endeavor. As such, I agree to be principled in my research and writing, as defined the ISA’s Academic Honesty Policy. In order to facilitate the coordination of the EE, I agree to ensure that my material is up to date on ManageBac.</p> <p>Student’s Signature: _____ Date: _____</p>
<p>Under the terms of this agreement, I consent to assist this candidate to the best of my abilities.</p> <p>Supervisor’s Name: _____</p> <p>Signature: _____ Date: _____</p>

Step Two: Narrowing down your Research Question



The EE is ultimately a simple task: **answer** a clear, focused subject specific research question! It is thus imperative that you ask a **clear, focused, subject-specific DOABLE Research Question!** To ask such a question, it is imperative that you do first some preliminary background research. You need to have an idea of what you are going to research, how you are going to research, in order to determine if indeed it is a good research question.

The Research Question must be phrased in the form of a question. It is strongly advise that you use IB Command Terms in your question. (see appendix: IB Command Terms). A **GOOD** Research Question is subject-specific. You thus need to read the subject specific guide in order to know what

constitutes a GOOD research question for that subject area. Should supervisors require support or advice with regard to possible research questions, the Online curriculum centre extended essay forum is a good starting point.

Unclear, unfocused and unarguable research questions	Clear, focused, narrow research questions lending themselves to in-depth research
What was the impact of Ho Chi Minh's allegiance to Lenin?	To what extent was nationalism the guiding factor in Ho Chi Minh's adoption of Leninism in 1920?
What is the history of Chinese theatre?	How does the legacy of Mei Lan Fang contribute to modern Jingju?
How important is chlorophyll to plant life?	What is the effect of different concentrations of kinetin on leaves aging and the biosynthesis of chlorophyll?
How can the US government's spending policy be reformed?	To what extent did the rising COE prices affect the demand for new and used cars by the consumer population and hence affect the revenue generated by the Singaporean economy for the period 2012–16?

As you can see, though there are a few general common characteristics to all **GOOD** Questions. The following checklist may help you in your task. (*p.s. you don't have to get it right the first time by the way. In conducting your research you may fine-tune the question. It is imperative however that you get a good sense of direction right from the start.*)

Having conducted preliminary <i>Background Research</i> on topic, what are your initial ideas?
Write out a few possible questions that naturally arise from your <i>Background Research</i>: (Remember to use in your questions key IB Command Terms)
a.
b.
c.
Mind map the key words in each of these initial questions:
Merge your ideas into one possible Research Question:
Mind map the key words, <i>IB Command Terms</i>, in this Research Question:
What you will have to research in order to answer this question?
Can you see yourself having fun researching it? Is it doable If not, start again!

IB's five steps to developing a research question

Choose a subject and topic that is of interest.



Deciding on a subject and topic that is of interest and in which the student is personally invested is important if their motivation is to be sustained throughout the process. The student should be able to identify, in a broad sense, what it is that they are interested in and why.

Carry out preliminary reading.



After deciding on a topic of interest students should undertake some general reading around the issue. Questions they must consider at this stage are:

- ï What has already been written about this topic?
- ï Was it easy to find sources of information?
- ï Is there a range of different sources available?
- ï Is there a range of views or perspectives on the topic?
- ï What interesting questions have started to emerge from this reading?

Consider the emerging questions.



The student should now begin posing open-ended questions about their general topic. These questions will usually be framed using the terms “how”, “why” or “to what extent”.

Evaluate the question.



Once possible research questions have been posed they should be evaluated. This evaluation should be based on whether the research question is clear, focused, and arguable.

Clear: Will the reader understand the nature of my research? Will it direct the research being undertaken?

Focused: Will the research question be specific enough to allow for exploration within the scope of the task (that is, the number of words and time available)?

Arguable: Does the research question allow for analysis, evaluation and the development of a reasoned argument?

Consider research outcomes.



Once a provisional research question has been decided upon students should start thinking about the direction their research might take. This could be in terms of:

- ï suggesting possible outcomes of the research
- ï outlining the kind of argument they might make and how the research might support this
- ï considering options if the research available is not sufficient to support a sustained argument.

To determine whether it is a GOOD research Question, answer YES to the following	
1. Is your RQ subject-specific? (i.e. uses subject specific terminology)	<input type="checkbox"/>
2. Is your RQ focused? (i.e. can it actually be answered in 4000 words?)	<input type="checkbox"/>
3. Is your RQ clear? (i.e. does it actually have an answer?)	<input type="checkbox"/>
4. Can you physically investigate your RQ? (i.e. is there enough resources available?)	<input type="checkbox"/>
5. Can you <i>imagine</i> what this research might look like? (i.e. library, interviews, lab work)	<input type="checkbox"/>
6. Are you interested in researching your question? (i.e. motivation is essential!)	<input type="checkbox"/>
7. Can you see what the research outcome(s) might look like? (i.e. can you imagine possible hypothetical answers to your question)	<input type="checkbox"/>
8. Can you demonstrate this answer(s) in 4000 words?	<input type="checkbox"/>
9. Does your supervisor think it is a <i>GOOD</i> research question?	<input type="checkbox"/>
10. Does your final question subject specific?	<input type="checkbox"/>
11. Does it contain specific IB command terms?	<input type="checkbox"/>
Examples of good and bad Research Questions:	
BAD Research Questions:	GOOD Research Questions:
The works of Emily Dickinson	"How is the subject of death treated in selected poems by Emily Brontë and Emily Dickinson?"
What would have happened to Turkey if the last Sultans had been more powerful?	To what extent were Hitler's educational aims fulfilled in the Uhland Gymnasium, 1937–1939?
What causes cancer?	How are the distribution and growth of lichens affected by sulfur dioxide and ozone levels in the atmosphere?
Why study Maths?	What was the role of mathematics, and geometry in particular, in navigation when we relied on the stars? Does it still play a part now we have man-made satellites?
What did Picasso bring to the world of Art?	Picasso: individual genius or cultural thief? An investigation of the extent to which selected images in Picasso's work may have been appropriated from other cultural sources.
Review your Research Question in light of the above:	
What is your Research Question:	
Topic:	
Research Question:	
Research Approach/ methods of data collection:	
Possible sources:	

Step Three: Planning your research very well!

Developing a Research Plan:
Research Question:
Research terminology:
What are the key words/concepts in Research Question that I need to research?
Context of Research Question:
What do I want to know?
Purpose of Research Project:
Why do I want to know this?
Method of Investigation / Sources / Method of Data Collection:
How am I going to find this out? (Approach to Research/Subject specific Methodology)
What is a tentative structure to my research paper?
What research do I need to do for each section of my essay?
What will my research 'material' look like? Note: "material" has different meanings in different subjects. It may be data or information; it may be arguments or evidence, primary or secondary resources:
Where am I going to carry out this research?

IB Guidance on Research and Writing

1	Choose an available Diploma Programme subject for the extended essay for the session in question (subject to any restrictions imposed by the school).
2	Read the following materials: the assessment criteria, relevant subject-specific chapter of the <i>Extended essay guide</i> , the IB's ethical guidelines and other associated policies where relevant, such as those relating to animal experiments.
3	Set up the Researcher's reflection space (RRS) and use this as the key planning and reflection tool for the extended essay process.
4	Choose a topic and undertake some background reading on it.
5	Formulate a preliminary research question. Try to incorporate an IB command term in the research question if possible.
6	Draw up an outline plan for the research and writing process. This should include a timeline.
7	Begin to identify how and where they will gather source material for their research.
8	Identify which system of academic referencing they will use, ensuring that this meets the minimum requirements for the IB.
9	Set deadlines for themselves that are realistic and take into consideration the school's own internal deadlines.
10	Plan a structure for the essay. This may change as the research develops but it is useful to have a sense of direction from the start.
11	Undertake some preparatory reading in light of the proposed research question. <i>If students discover that it will not be possible to obtain the evidence needed in the time available, the research question should be changed. This should be done sooner rather than later: students should not lose time waiting and hoping that something will turn up. Students should go back to stage 3, 2 or 1, and choose a new research question that can be answered.</i>
12	Carry out the research. <i>The material collected should be assembled in a logical order, linked to the structure of the essay and clearly focused on the research question posed. Only then will students know whether they have enough evidence for each stage of the argument so that they can proceed to the next. Students should be prepared for things to go wrong. Sometimes they may discover something later in the research that undermines what they thought had been established earlier. If that happens, the research plan needs to be revised.</i>

Supervisors are recommended to advise students on how to conduct research and write the extended essay, paying particular attention to the following key areas.

REMEMBER to P.E.A.L your ideas when writing!

P – Point of Paragraph
E – Evidence/Example
A – Analysis
L – Link to next Paragraph

Four – Structure and Analysis: Producing a Rough Draft!

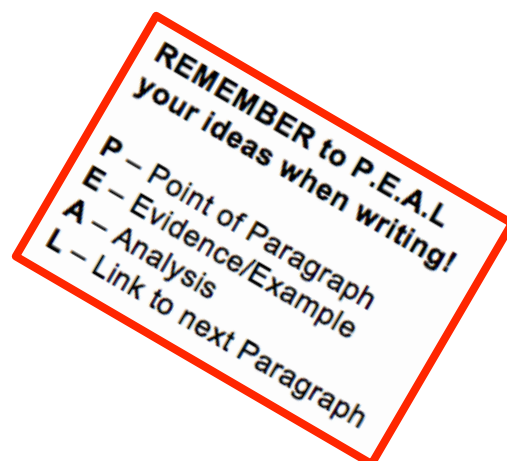
Essential EE Pointers: (Courtesy of Mike Allen and Hugh Robertson, both EE Examiners)	
<p>The Extended Essay is not an essay – nor is it anything like your Personal Project. It is a research paper. It is not a matter of opinion. It is an analysis of your research findings.</p> <p>Please consider that the following pointers are general to all EEs. Each subject area has its own very specific research methodology and terminology. It is ESSENTIAL to consult with your EE supervisor and read the subject specific sections of the EE guide.</p>	
<p>Introduction: (+/- 500 Words)</p> <p>“The context, purpose, and method of the RQ should be clearly spelled out. The thesis or main argument should be succinctly stated”</p> <p>Many advise: Do the final version of your introduction LAST!</p>	<ul style="list-style-type: none"> • Context of Research Question: What do I want to know? What is the general research topic? What is the academic context of the research topic? What is the specific Research Question? How does it fit in the overall context? • Purpose of Research Project: Why do I want to know this? What is the main thesis/hypothesis/ argument? What are you trying to argue/investigate? Why is it important/relevant? Why is it ‘worthy of investigation’? • Method of Investigation: How am I going to find it out? How do you argue the Research Question? What research methodology do you employ? How do you present the research findings? How does the structure of the essay support the analysis of these findings?
<p>Body/Development: (+/- 2500 words)</p> <p>“This is the longest and most important section. Its sole function is the development and substantiation of the thesis or argument. Eliminate all irrelevant descriptive, narrative, biographical, and anecdotal distractions.”</p>	<ul style="list-style-type: none"> • Research Methodology: What subject specific research methodology did you use to research your question? How did you carry out your research? • Research Results: What were your research findings? Present the results of the research, in subject specific manner. • Results Analysis – Do the results support your thesis/Argument? If so, how? If not, why not? What else do they tell us?
<p>Conclusion: (+/- 1000 words)</p> <p>“Remember: Last impressions are lasting impressions! The conclusion pulls the essay together and sums up the major points that shaped the thesis.”</p>	<ul style="list-style-type: none"> • Answer your research question: Briefly say how your essay has proved this answer. • Reflect on your argumentation: What gaps or weaknesses are there in your arguments? What further research, if any, is needed to answer the research question fully? • Investigate implications: What are the implications, predictions, or further questions raised by your research?
<p>Bibliography:</p> <p>ONGOING!</p>	<p>It is important to keep up your bibliography as you go along. It should include all books, web-sites, documents, magazines etc. you have consulted, as well as giving a full reference to any data, citations or quotations in the essay. Stick to ONE recognized format, e.g. MLA</p>
<p>“The Success of an EE is shaped largely during the preparatory stages. Major weaknesses stem often from too broad a topic, a lack of clear research, no clear thesis, and vague research!”</p> <p>Make sure you have focused Research Question, understand it, research it, and then analyze it.</p>	

Structuring the Extended Essay:

The structure of the essay is very important. It helps students to organize the argument, making the best use of the evidence collected. There are six required elements of the final work to be submitted. Please note that the order in which these elements are presented here is not necessarily the order in which they should be written.

Six required elements of the extended essay:

1. Title page
2. Contents page
3. Introduction
4. Body of the essay
5. Conclusion
6. References and bibliography



The following formatting is required:

- Arial 12-point
- Double spacing
- Page numbering
- No candidate or school name on the title page or page headers.

1. Title page

The title page should include only the following information:

- Title of the essay
- Research question
- Subject for which the essay is registered (if it is a language essay state which category)
- Word count

The title

The title of your essay should be a clear, focused summative statement of your research, which gives the reader an indication of your research topic. It should not be phrased as a research question.

Title	Research question
Negative externalities of consumption: Australian policy on cigarette packaging	How effective has the Australian policy of plain cigarette packaging been in reducing the negative externalities associated with the consumption of cigarettes in X?
Commodification and the body— an ethnographic study of social representations about the human body with relation to organ donation	To what extent can we interpret the negative attitude from laymen towards organ donation as an act of resistance towards the demands of the hegemonic medical model? The case of organ donation in Argentina.
An exploration of evil as a motivating force in drama	How effectively does Christopher Marlowe present his view of evil in Dr Faustus?

2. Contents page

A contents page **must** be provided at the beginning of the extended essay and all pages should be numbered. Please note that an index page is not required and if included will be treated as if it is not present.



3. Introduction

The introduction should tell the reader what to expect in the essay. The introduction should make clear to the reader the focus of the essay, the scope of the research, in particular an indication of the sources to be used, and an insight into the line of argument to be taken. While students should have a sense of the direction and key focus of their essay, it is sometimes advisable to finalize the introduction once the body of the essay is complete.

4. Body of the essay (research, analysis, discussion and evaluation)

The main task is writing the body of the essay, which should be presented in the form of a reasoned argument. The form of this varies with the subject of the essay but as the argument develops it should be clear to the reader what relevant evidence has been discovered, where/how it has been discovered and how it supports the argument. In some subjects, for example, the sciences, sub-headings within the main body of the essay will help the reader to understand the argument (and will also help the student to keep on track). In structuring their extended essay, students must take into consideration the expected conventions of the subject in which their extended essay is registered.

Once the main body of the essay is complete, it is possible to finalize the introduction (*which tells the reader what to expect*) and the conclusion (*which says what has been achieved, including notes of any limitations and any questions that have not been resolved*).

Any information that is important to the argument must not be included in appendices or footnotes/ endnotes. The examiner will not read notes or appendices, so an essay that is not complete in itself will be compromised across the assessment criteria.



5. Conclusion

The conclusion says what has been achieved, including notes of any limitations and any questions that have not been resolved. While students might draw conclusions throughout the essay based on their findings, it is important that there is a final, summative conclusion at the end. This conclusion(s) must relate to the research question posed.

6. References and bibliography

Students should use their chosen style of academic referencing as soon as they start writing. That way they are less likely to forget to include a citation. It is also easier than trying to add references at a later stage. For more information on this, refer to the guidelines in the IB document Effective citing and referencing. Appendices are to be avoided, please see IB Website for further guidance.

Step Five –Reviewing your work: Understanding the Criteria!

EE: Understanding the Criteria To gain maximum marks on the general criteria, make sure you can answer YES to the following questions before submitting the essay to your supervisor. If you hesitate or answer no, have another look. These questions are designed to trigger reflection. They are by no means exhaustive)	
A. Focus and Method:	
This criterion focuses on the topic , the research question , and the methodology (the nature of sources and method of data collection appropriate to subject). It assesses the explanation of: <ol style="list-style-type: none"> The focus of the research (this includes the topic and the research question), How the research will be undertaken, How the focus is maintained throughout the essay. 	
Is the topic clearly identified and explained to readers in terms of contextualizing and justifying its worthiness?	
Does essay meet the requirements/methodology for the subject for which it registered? (i.e. if it is registered for History, is it indeed a history paper?	
Is the purpose and focus of research within the scope of a 4,000-word extended essay, is it focus and purpose clearly outlined in the introduction, and specified as a research question?	
Is the research question clearly focused and based on/situated against background knowledge and understanding of the chosen subject/ topic area?	
Is the research question feasible within the scope of the task? Can it actually be “answered” or it is too vague?	
Have you said how you intend to do investigate the research question (i.e. outlined research plan and main argument)?	
Did you refer to your research question throughout the entire essay (not only in the introduction and conclusion)?	
Is there an appropriate range of relevant source(s) and/or method(s) of data collection (i.e. Methodology) been applied in relation to the topic and research question? <i>(For example, for an economics essay, it would not be sufficient to only use textbooks but rather include reports and data.)</i>	
Did you explain why you selected your methodology?	
Are there other possible methods that could be used or applied to answer your research question? How might this change the direction of your research?	
Is there evidence of effective and informed selection of sources and/or methods of data collection?	
Comments/Ideas to develop: 	

B. Knowledge and Understanding

This criterion assesses the extent to which the **research relates to the subject** area/discipline used to explore the research question; and additionally, the way in which this knowledge and understanding is demonstrated through the use of appropriate **terminology** and **concepts**.

Have you explained how your research question relates to a specific subject you selected for the extended essay?

Have you clearly put your research question in the context of the subject/discipline/issue?

Have you used relevant subject specific terminology and concepts throughout your essay as they relate to your particular area of research?

Does your use of subject-specific terminology and/or concepts indicate your overall knowledge and understanding of the discipline(s)/issue discussed?

Have you effectively demonstrated an appropriate and relevant selection and application of sources?

Is it clear that the sources you are using are relevant and appropriate to your research question?

Do you have a range of sources, or have you only relied on one particular type, eg internet sources?

Is there a reason why you might not have a range? Is this justified?

Are your sources and methods of data collection identified, discussed, and assessed in terms of their appropriateness to the research question?

Comments/Ideas to develop:

C. Critical Thinking

This criterion assesses the extent to which **critical thinking skills** have been used to **analyse** and **evaluate** the research undertaken. There seems to be three main strands to this criterion: the research, the analysis, and the discussion/evaluation of the research.

Is the selection and application of the research relevant and appropriate to the research question?

Is your analysis of the research effective and clearly focused on the research question?

Have you made links between your results and data collected and your research question?

Does your discussion of the research develop a clear and coherent reasoned argument in relation to the research question?

Are your conclusions supported by your data?

Is there a critical evaluation of the arguments presented in the essay?

Have you provided a critical evaluation of the methods you selected?
Have you considered the reliability of your sources (peer-reviewed journals, internet, etc)?

Have you mentioned and evaluated the significance of possible errors that may have occurred in your research?

If you included data or information that is not directly related to your research question have you explained its importance?

If you found unexpected information or data have you discussed its importance?

Are all your suggestions of errors or improvements relevant?

Have you evaluated your research question?

Have you compared your results or findings with any other sources?

Is there an argument that is clear and easy to follow and directly linked to answering your research question, and which is supported by evidence?

Comments/Ideas to develop:

D. Presentation

This criterion assesses the extent to which the presentation follows **the standard format** expected for **academic writing** and the extent to which this aids effective communication.

Have you read and understood the presentation requirements of the extended essay provided in the Extended essay guide for the relevant subject?

Is the structure of your essay compatible with the expected conventions of a research paper in the subject area?

Is your essay double-spaced and size 12 arial font?

Do you have a title page, table of contents, page numbers, section headings (where appropriate), effective inclusion of illustrative materials (tables, graphs, illustrations, appropriately labelled) and quotations, bibliography and referencing?

Are the title and research question mentioned on the cover page?

Are all pages numbered?

Do the page numbers in the table of contents match the page numbers in the text?

Have you prepared a correct table of contents?

Is your essay subdivided into correct subsections, if this is applicable to the subject?

Are all figures and tables properly numbered and labelled?

Did you use the same reference system throughout the essay?

The extended essay has not exceeded the maximum word limit
Is all the material presented in the appendices relevant and necessary?

Have you proofread the text for spelling or grammar errors?

Comments/Ideas to develop:

E. Engagement

This criterion assesses the student's **engagement** with their research focus and the research process. It will be applied by the examiner at the end of the assessment of the essay, after considering the **student's RPPF**. There seems to be two strands to this criterion: the student's ability to reflect on the research process and the student's engagement with the overall project.

Is there evidence in your RPP Form that clearly and explicitly illustrates that you have engaged in discussions with your supervisor in the planning and progress of their research?

Do you show evidence of your ability to reflect on and refine the research process?

Do you show evidence of your ability to reflect on and react to insights gained through the exploration of your research question?

Is there clear evidence in your RPP Form highlighting how you have evaluated your decisions made throughout the research process?

Have you clearly documented the key decision-making during research process?

Is there clear evidence in your RPP Form of you reflecting on critical feedback, on how you have worked with suggested improvements to your working practices?

Do your reflections in the RPP Form give a clear insight into your thinking, your intellectual initiative, and your creative approach to the overall research process?

Is there clear evidence in your RPP Form of your personal engagement, your perseverance, and your personal enthusiasm for the overall research project?

To what extent is your voice present in the RPP form rather than that of the supervisor and academics; is your engagement clearly reflected in this form?

Comments/Ideas to develop:



IBDP Extended Essay

Final Submission Checklist



Please check and make sure all the below information is accurate. This may impact your results!

Candidate:		Supervisor:	
Subject:		Category for Group 1/2 :	

Items to be checked:	St:	Sp:	Comments:
Title page contains: <ul style="list-style-type: none"> • Essay title • Research Question • Subject and Category if it is a language essay (grp1/2) • Word count 			
NO Candidate name or number should appear on EE!			
Table of Contents Page:			
Less than 4000 word Limit:			
Format Issues: <ul style="list-style-type: none"> • Arial font • Font size 12 • Double Spaced • Pages numbered in footer • Acceptable file type (DOC, DOCX, PDF) 			
File size: NO MORE THAN 10MB			
Tables, charts, maps, graphs, images are properly labeled, referenced, produced DIGITALLY, and attached to final file			
In text citations correctly formatted:			
Bibliography clear and correctly formatted:			
Appendixes only if relevant (not read so be careful!):			
Uploaded Final EE onto ManageBac and reviewed on turnit.com			
FINAL Digital copy sent to Supervisor and Coordinator with candidate name and number as file name:			
Reflection on Planning and Progress Form is up to date and available (i.e. initial and interim comments are complete and it is available to supervisor and EE coordinator on google drive)			
Appointment made with Supervisor for VIVA VOCE			

Final Signatures that all is complete:	
Date:	Candidate Signature:
Date:	Supervisor Signature:

Extended Essay: Predicting your Grade

(This table is designed to assist assessment of the EE. It is **NOT** designed to replace the actual guide)

	1-2	3-4	5-6
A: Focus and Method	Topic communicated unclearly and incompletely . Identification and explanation of topic is limited ; the purpose and focus of research unclear , or does not lend to research.	Topic is communicated. Identification and explanation of topic is communicated; purpose and focus of research is adequately clear , but only partially appropriate.	Topic communicated accurately and effectively . Identification and explanation of research topic effectively communicated; Purpose and focus of the research is clear and appropriate .
	Research Question (RQ) stated but not clearly expressed or too broad. Intent of RQ understood but not clearly expressed and/or essay is not focused on RQ.	RQ clearly stated but only partially focused. <i>(If topic or RQ deemed inappropriate for subject, no more than 4 marks can be awarded)</i>	RQ clearly stated and focused . RQ addresses an issue of research that is appropriately connected to the discussion in the essay.
	Methodology of research is limited . Source(s) and/or method(s) used are limited in range given topic and RQ. Limited evidence of informed selection.	Methodology of research mostly complete . Source(s) and/or method(s) used are generally relevant and appropriate . Some evidence of informed selection(s).	Methodology is complete . Appropriate range of relevant source(s) and/or method(s) applied to topic and RQ. Evidence of effective and informed selection of sources and/or methods.

B: Knowledge and Understanding	Knowledge and understanding is limited : -Selection of source material has limited relevance and partially appropriate to RQ. -Knowledge of topic/discipline(s)/issue is anecdotal, unstructured and mostly descriptive , sources not effectively used.	Knowledge and understanding is good : -Selection of source material mostly relevant and appropriate to RQ. -Knowledge of the topic/discipline(s)/issue is clear ; there is an understanding of the sources used but their application is only partially effective .	Knowledge and understanding is excellent : -Selection of source materials clearly relevant and appropriate to RQ. -Knowledge of the topic/discipline(s)/issue is clear and coherent and sources are used effectively and with understanding.
	Use of terminology and concepts unclear and limited : Subject-specific terminology and/or concepts are either missing or inaccurate, demonstrating limited knowledge and understanding.	Use of terminology and concepts is adequate : Subject-specific terminology and concepts mostly accurate , demonstrating appropriate level of K+U.	Use of terminology and concepts is good : Subject-specific terminology and concepts is accurate and consistent , demonstrating effective knowledge and understanding.
<i>(If topic or RQ deemed inappropriate for subject, no more than 4 marks can be awarded)</i>			

C. Critical Thinking	1-3	4-6	7-9	10-12
	Research is limited: Research and application not clearly relevant to RQ	Research is adequate: Some is appropriate and application is partially relevant to RQ.	Research is good: Majority is appropriate and application clearly relevant to RQ.	Research is excellent: Appropriate to RQ and application is consistently relevant .
	Analysis is limited: Conclusions to points of analysis are limited and not consistent with evidence.	Analysis is adequate: Analysis exists but partially relevant to RQ; irrelevant research detracts from quality of argument. Conclusions to <i>points of analysis</i> are partially supported by evidence.	Analysis is good: Research is analysed, clearly relevant to RQ; less relevant research rarely detracts from quality of analysis. Conclusions to <i>points of analysis</i> are supported by evidence but there are some minor inconsistencies.	Analysis is excellent: Research is analysed effectively, clearly focused on RQ; less relevant research does not significantly detract from quality of analysis. Conclusions <i>points of analysis</i> effectively supported by evidence.
	Discussion/evaluation is limited: <ul style="list-style-type: none"> Argument is outlined but limited, incomplete, and descriptive in nature. Construction of argument is unclear, incoherent in structure. Final conclusion limited, not consistent with arguments, evidence presented. Attempt to evaluate research but superficial. 	Discussion/evaluation is adequate: <ul style="list-style-type: none"> Argument explains research but contains inconsistencies. Argument may lack clarity and coherence but does not significantly hinder understanding. Final conclusion only partially consistent with arguments, evidence. Research has been evaluated but not critically. 	Discussion/evaluation is good: <ul style="list-style-type: none"> Reasoned argument is effective, developed, with a conclusion supported by evidence. Reasoned argument is clearly structured, coherent, and supported by summative conclusion. Minor inconsistencies may hinder strength of overall argument. Research has been evaluated, and this is partially critical. 	Discussion/evaluation is excellent: <ul style="list-style-type: none"> Effective and focused reasoned argument is developed conclusion reflective of the evidence presented. Reasoned argument is well structured and coherent; any minor inconsistencies do not hinder strength of argument or the final or summative conclusion. Research critically evaluated.
<i>(If topic or RQ deemed inappropriate for subject, no more than 3 marks can be awarded)</i>				

D. Presentation	1-2	3-4
	Presentation is acceptable: a. Structure of essay generally appropriate in terms of expected conventions for topic, argument and subject essay is registered. b. Some layout considerations may be missing or applied incorrectly. c. Weaknesses in structure and/or layout do not significantly impact the reading, understanding or evaluation of the extended essay.	Presentation is good: a. Structure of essay clearly appropriate in terms of expected conventions for topic, argument and subject in which essay is registered. b. Layout considerations are present and applied correctly. c. Structure and layout support reading, understanding and evaluation of the extended essay.

E. Engagement	1-2	3-4	5-6
	<p>Engagement is limited: (based on RPP Form)</p> <p>a. Reflections on decision-making and planning are mostly descriptive.</p> <p>b. Reflections communicate limited degree of personal engagement with research focus and/or research process.</p>	<p>Engagement is good: (based on RPP Form)</p> <p>a. Reflections on decision-making and planning are analytical and include reference to conceptual understanding and skill development.</p> <p>b. Reflections communicate moderate degree of personal engagement with research focus and process of research, demonstrating some intellectual initiative.</p>	<p>Engagement is excellent: (based on RPP Form)</p> <p>a. Reflections on decision-making and planning are evaluative and include reference to student's capacity to consider actions and ideas in response to setbacks experienced in research.</p> <p>b. Reflections communicate high degree of intellectual and personal engagement with research and process of research, demonstrating authenticity, initiative and/or creative approach.</p>

Grade Boundaries:	A 6pts	B 6pts	C 12 pts	D 4 pts	E 6 pts	Total: (0-34)	(A-E)
Student Self Evaluation: Date and signature:							
Supervisor: Date and signature:							

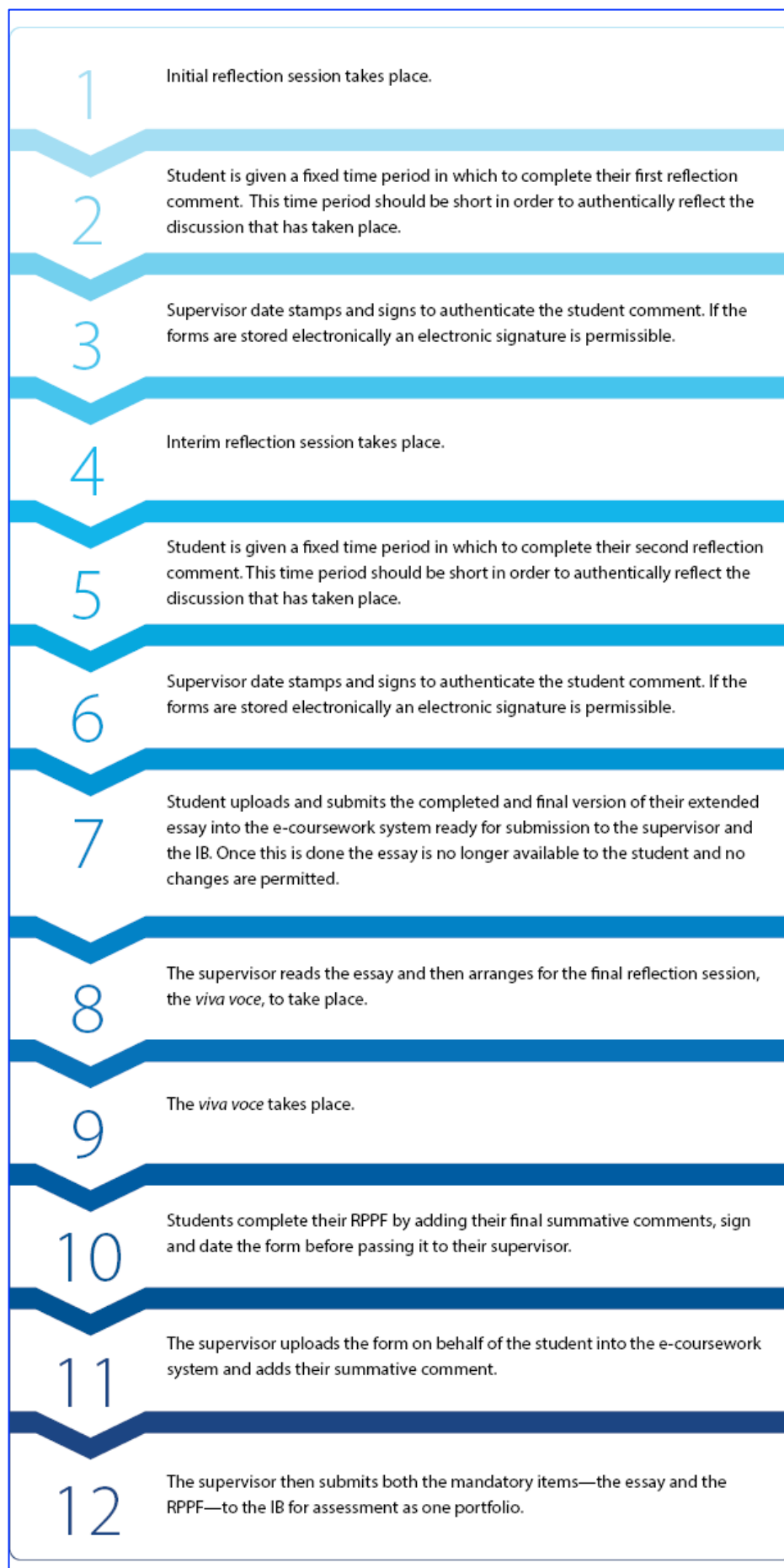
Comments/Recommendations:

EE Grade Descriptors
Grade A
<p>Demonstrates effective research skills resulting in a well-focused and appropriate research question. There is an effective engagement with relevant research areas, methods and sources; excellent knowledge and understanding of topic in wider context of relevant discipline. Demonstrates effective application of source material and correct use of subject-specific terminology and/or concepts further supporting this; consistent and relevant conclusions that are proficiently analysed; sustained reasoned argumentation supported effectively by evidence; critically evaluated research; excellent presentation of the essay, whereby coherence and consistency further supports the reading of the essay; and present and correctly applied structural and layout elements.</p> <p><i>Engagement with process is conceptual and personal, key decision-making during the research process is documented, and personal reflections are evidenced, including those that are forward-thinking.</i></p>
Grade B
<p>Demonstrates appropriate research skills resulting in a research question. There evidence of reasonably effective engagement with relevant research areas, methods and sources; good knowledge and understanding of the topic in wider context of relevant discipline; a reasonably effective application of source material and use of subject-specific terminology and/or concepts; consistent conclusions that are accurately analysed; reasoned argumentation often supported by evidence; research that at times evidences critical evaluation; and a clear presentation of all structural and layout elements, which further supports the reading of the essay. <i>Engagement with the process is generally evidenced by the reflections and key decision-making during the research process is documented.</i></p>
Grade C
<p>Demonstrates evidence of research undertaken, which has led to a research question that is not necessarily expressed in a way that can be explored within the scope of chosen topic; partially effective engagement with mostly appropriate research areas, methods and sources—however, there are some discrepancies in those processes, although these do not interfere with planning and approach; some knowledge and understanding of the topic in the wider context of discipline, which is mostly relevant; attempted application of source material and appropriate terminology and/or concepts; attempted synthesis of research results with partially relevant analysis; conclusions partly supported by evidence; discussion is descriptive rather than analytical; attempted evaluation; satisfactory presentation of the essay, with weaknesses that do not hinder reading of essay; and some structural and layout elements that are missing or are incorrectly applied. <i>Engagement with the process is evidenced but shows mostly factual information, with personal reflection mostly limited to procedural issues.</i></p>
Grade D
<p>Demonstrates lack of research, resulting in unsatisfactory focus and a research question that is not answerable within the scope of chosen topic; at times engagement with appropriate research, methods and sources, but discrepancies in those processes that occasionally interfere with planning and approach; some relevant knowledge and understanding of topic in wider context of discipline, which are at times irrelevant; attempted application of source material, but with inaccuracies in use of, or underuse of, terminology and/or concepts; irrelevant analysis and inconsistent conclusions as a result of descriptive discussion; a lack of evaluation; presentation of essay that at times is illogical and hinders reading; and structural and layout elements that are missing. <i>Engagement with the process is evidenced but is superficial, with personal reflections that are solely narrative and concerned with procedural elements.</i></p>
Grade E (failing condition)
<p>Demonstrates unclear nature of the essay; generally unsystematic approach and resulting unfocused research question; limited engagement with limited research and sources; generally limited and only partially accurate knowledge and understanding of topic in wider context of relevant discipline; ineffective connections in application of source material and inaccuracies in terminology and/or concepts used; summarizing of results of research with inconsistent analysis; attempted outline of an argument, but one that is generally descriptive in nature; layout that generally lacks or incorrectly applies several layout and structural elements. <i>Engagement with the process is limited, with limited factual or decision-making information and no personal reflection on the process.</i></p>

Appendices:

1. Reflection on Planning and Progress:
 - RPP Flow Chart
 - RPP Guiding Questions
 - Examples of Candidate Comments
 - Examples of Supervisor Comments
2. IB Command Terms
3. Places to go when in doubt
3. Additional materials for Predicting Grade

The Reflection on Progress and Planning Flow chart:



Extended Essay - Reflections on Planning and Progress Form

Candidate: *From May 2018, please refer to the 'Extended Essay Student Guide' when completing this form. This form is to be completed by the candidate during the course and completion of their EE. This document records reflections on your planning and progress, and the nature of your discussions with your supervisor. You must undertake **three formal reflection sessions** with your supervisor:*

- *The first formal reflection session should focus on your initial ideas and how you plan to undertake your research;*
- *The interim reflection session is once a significant amount of your research has been completed,*
- *The final session will be in the form of a viva voce once you have completed and handed in your EE.*

The completion of this form is a mandatory requirement of the EE for first assessment May 2018. It must be submitted together with the completed EE for assessment under Criterion E.

Supervisor: *You must have three reflection sessions with each candidate, one early on in the process, an interim meeting and then the final viva voce. Other check-in sessions are permitted but do not need to be recorded on this sheet. After each reflection session candidates must record their reflections and as the supervisor you must sign and date this form.*

Overall questions for candidates to consider in preparation for these interviews:

- Have you demonstrated your engagement with your research topic and the research process?
- Have you highlighted challenges you faced and how you overcame them?
- Will the examiner get a sense of your intellectual and skills development?
- Will the examiner get a sense of your creativity and intellectual initiative?
- Will the examiner get a sense of how you responded to actions and ideas in the research process?

Criterion E: Engagement assesses the student's engagement with their research focus and the research process. It will be applied by the examiner at the end of the assessment of the essay, after considering the student's Reflections on planning and progress form.

Engagement is excellent (5-6 points):

- Reflections on decision-making and planning are evaluative and include reference to the student's capacity to consider actions and ideas in response to setbacks experienced in the research process.
- These reflections communicate a high degree of intellectual and personal engagement with the research focus and process of research, demonstrating authenticity, intellectual initiative and/or creative approach in the student voice

5-6 points out of a total of 34!

Please take this form very seriously. Reflection is an important part of the research process and an easy way to get points!!

Initial Reflection Session: Deciding on an area of research (150-200 words)

Focus: *Reflecting on topic choice, initial planning, background research, quality of initial Research Question, and possible research methods*

Overall Guiding Questions for this initial Reflection Session:

- *How did you go about deciding on what to research? Why did you choose your topic? Possible research approaches, methodologies? Anticipate any issues?*

Concepts to cover in this section of the Reflection Planning and Progress:

1. Interest in the topic, overall research theme
2. An awareness of the nature of research in the subject area
3. The challenges of narrowing down the research question
4. A brief evaluation/overview of how to research in the subject area

Things candidates should do before interview:

- Review the requirements and assessment criteria for the subject (consider ethical and legal implications, if applicable)
- Brainstorm possible approaches, research methodologies
- Brainstorm strategies for developing ideas for the essay, structuring essay
- Prepare questions that will help focus thinking; leading to the development of working research question
- Outline of the next steps to undertake in order to refine research question; this should take the form of a research and writing timeline.

Questions to help guide reflections on Initial Planning:

- What am I interested in researching and why?
- In reviewing the EE Guide for my subject group, what have I learnt and how has this helped me narrow down my Research question?
- What are my initial ideas on how to research this topic?
- In reviewing the EE Assessment Criteria, which aspects of the Assessment Criteria do I really need to work on?
- What possible question(s) might I research? How has this informed my research plan?
- In discussing with the Librarian about my research plan, how might I go about undertaking this research?
- Do I have access to appropriate sources?
- Are my chosen research methods appropriate for the subject I have chosen to complete it in?
- Are there any ethical issues I need to consider before pursuing this area of research?
- Is there sufficient focus to my research area?

Questions to help guide reflections on Background Research:

- What have I learned about my subject area so far?
- What questions are emerging? Are these similar or different to my initial questions?
- Given the initial reading I have undertaken on the subject, is my research question appropriate for the subject I am submitting my EE in?
- Is my research question manageable within the word limit of the EE?
- Will my research question allow me to think critically about the topic I am researching? If it suggests a descriptive response, how might I need to change it to allow for more critical thinking?
- Are there any challenges that I need to overcome in order to achieve my desired outcomes?

Possible evidence from Researcher's Reflective Space to bring to the session:

- Mind map
- Annotated sections of the *Extended essay guide*
- Annotated bibliography
- Annotated photograph, newspaper article, etc

Candidates must complete and submit their written comments for their final RPP Form no more than ONE week after the Reflection Session.

Interim Reflection Session: During the research process(150-200 words)

Focus: Reflecting on research process, preliminary outline, credible sources, quality of research, and reviewing viable argument.

Overall Guiding Questions for this interim *Reflection Session*:

- *Where are you now in the research process?*
- *What have you achieved so far and how did you manage this?*
- *What challenges have you faced and what strategies have you used to overcome these?*
- *What changes need to be made in order to complete this research?*
- *What have you learnt that might affect the way you continue?*

Concepts to cover in this section of the reflection:

1. This session is a continuation of the dialogue between supervisor and student in which the student must demonstrate the progress they have made in their research.
2. They must also be able to discuss any challenges they have encountered, offer their own potential solutions and seek advice as necessary.

Ideas candidates should consider in preparation for this interview:

- A completed piece of sustained writing from the student in order to ensure that they understand the academic writing requirements, including referencing formats
- Whether an appropriate range of sources has been accessed and how the student is critically evaluating the origin of those sources
- What the student now has to do in order to produce the full draft of their essay, and ways and means of breaking down the task into manageable steps.

Questions to help guide reflections on *interim research stage*:

- Do I have sufficient data/information to begin formulating an argument?
- If I do not have sufficient data/information, how will I go about resolving this? Can it be resolved?
- To what extent does the data/information I have relate to my proposed research question?
- Has the data/information collected taken me in an unexpected direction?
- Are there still questions/issues that I am unclear how to resolve?
- Am I keeping to a schedule with the writing process?

Questions to help guide reflections on *interim writing stage*:

- Do I have a reasoned argument that can be sustained throughout the essay?
- Am I able to make coherent links between different points made and the evidence presented?
- To what extent have I answered my research question?
- What reasons may have affected my ability to answer my research question?
- If I have been selective in the evidence presented in my essay, can I justify my choices?
- Is there a clear summative conclusion, and does this reflect the discussion that has taken place?
- To what extent do I think I have fulfilled the expectations of the extended essay as a task?
- Has my research resulted in me changing my perspective or views on the topic in question?
- What strategies have I employed that have worked particularly well at this stage of the process?

Possible evidence from Researcher's Reflective Space to bring to the session:

- Introduction of the essay
- Annotated sections from books, journals, articles, etc
- Reworked research question
- Examples of data/information collected from research
- An outline of the main argument
- Timeline
- Working bibliography

Candidates must complete and submit their written comments for their final RPP Form no more than ONE week after the Reflection Session.

Final Reflection Session: the Viva Voce! (150-200 words)

Focus: Celebration! Reflecting on what have a learnt about research in general, ATL skills, and in personal development?

Overall Guiding Questions for this final *Reflection Session*:

- To what extent were your initial ideas realized?
- Were your original plans/ideas realistic and appropriate?
- What have you learnt about yourself as a researcher, as a learner, and a person?

Concepts to cover in this section of the reflection:

1. Evaluate emotional relationship with the research process and the final essay itself
2. Outline the basic roadmap of the research challenges
3. Evaluate lessons learnt

Supervisors must have already read the final version of the essay, available to them on the e-coursework system, before this session takes place.

Ideas candidates should consider in preparation for this interview:

- Extracts from their RRS that illustrate how they have grown as learners through the process of reflection
- A willingness to share their personal experience and to discuss the skills and development of conceptual understandings that they have acquired through the completion of the extended essay.

Questions to help guide reflections on *Final Planning*:

- To what extent has my thinking been confirmed or changed about my chosen topic as a result of my research?
- What strategies did I employ that proved particularly effective in the research process?
- What skills have I developed and how might these be useful in the future?
- What improvements might I suggest to my own working practices?
- How might different research strategies have impacted my outcomes?
- What did I learn about myself as a learner in this process?

Possible evidence from Researcher's Reflective Space to bring to the session:

- Annotated sections from Research Reflective Space

Following this final session, the candidate is required to complete the last student comment section of the Reflections on planning and progress form, sign and date it and submit it to their supervisor, who must then add their own comments, sign and date the form.

The supervisor must then upload the form into the e-coursework system, confirm the authenticity of both the form and essay, and submit them to the IB for assessment as one portfolio.

Please refer to the section "Protocols for completing and submitting the Reflections on planning and progress form" for more information.

Please remember that the RPP form constitutes the main assessment material for Criterion E. It is thus imperative that it be taken very seriously.

RPP Form: Candidate's Comments...

[Home](#) > [In practice](#) > [Teacher support material](#) > [Pedagogical support for the EE](#) > [Reflection and the EE](#) > Supervisor comments and analysis

Candidate's comments and analysis:

The RPP Form records reflections on your planning and progress, and the nature of your discussions with your supervisor. You must undertake **three** formal reflection sessions with your supervisor:

- First formal reflection session should focus on your initial ideas and how you plan to undertake your research;
- Interim reflection session is once a significant amount of your research has been completed;
- Final session will be in the form of a viva voce once you have completed and handed in your EE.

The RPP Form acts as a record in supporting the authenticity of your work. The completion of this form is a mandatory requirement of the EE. It must be submitted together with the completed EE for assessment under criterion E.

Criterion E (engagement) assesses the student's engagement with the research focus and the research process. It will be applied by the examiner at the end of the assessment of the essay, after considering the student's RPPF.

Example 1 - History

First reflection:	I knew from the outset that I definitely wanted to research Lebanese history, because I am from Lebanon and I think having a personal connection is unique. In our first meeting I wanted to know how to approach the civil war—I asked my supervisor what aspects to focus on, and what the time frame should be (1975—?). We decided on discussing the causes of the war, because there is the most room for analysis here. Also, if only the causes are discussed, the essay does not need to go into an in-depth investigation of the actual war. The discussion gave me a better sense of direction for my research.
Interim reflection:	I have been finding it very difficult to find monographs with drastically different viewpoints, so my supervisor suggested a few sources. Outside of historiography, I have managed to find a lot of information on details of events leading up to the civil war. With help from my supervisor, I have been able to successfully finish my research and begin writing. I've learned that it is important for this essay not to simply be informative, and this has made me realize how significant historiography is. My supervisor thinks I need to find historians with conflicting viewpoints in order to successfully achieve a balanced argument.
Final reflection: Viva Voce	I think my initial plan for the EE was maintained throughout both the research process and the actual writing process. I managed to accomplish a lot with the help of my supervisor and I learned a lot about organization and how important it is to be diligent when crafting an essay like this.

Think/Pair/Share:

- Strengths/Weaknesses of Comments?
- Do they provide enough evidence to support criterion E – Engagement?

Example 2 - Studies in language and literature

First reflection:	I picked my topic, which was post-traumatic stress disorder. Then I decided to pick the subject area, which was English, with the help of my supervisor. I have decided to do two books that have similar settings, which is war. This first discussion really helped me understand what I needed to do in terms of research. Since my subject area is English, there don't have to be
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	many other sources to research, but I have to make sure the books I pick have enough elements to compare. I will start by looking at <i>Extremely Loud and Incredibly Close</i> by Jonathan Safran Foer and <i>The Things They Carried</i> by Tim O'Brien and analyse PTSD in characters and how the authors reveal themes relating to PTSD.
Interim reflection:	When I went to this meeting I knew that one thing that needed to be changed was my research question. I had learned this about half way through reading my second novel because I realized there wasn't much to write about if I kept my original question, so I kind of went backwards with my topic selection. People suffer from PTSD after a traumatic event, so the fact that the majority of the plot takes place during the war doesn't quite work. I discussed this with my supervisor and we came up with "How does literature present the effects of war on the mind?" My supervisor also introduced me to the English database on Gale, and helped me find resources on the exact topic I'm now researching—an article on Mental Health in <i>Slaughterhouse 5</i> was really helpful and I think I will switch to this book instead of using Foer's novel.
Final reflection: Viva Voce	Throughout the EE process, I did stick to my basic topic (PTSD). However, the research questions I originally planned to use didn't work out, because I didn't have enough literary features to write about. In the end I used a quote sheet we had been given in class. This was probably the most useful tool for writing the essay. Essentially, it helped not only with organizing my thoughts, but in determining whether or not the quote would be relevant to the research question. Although the process in writing the extended essay was very tedious and rigorous, it was also a very valuable experience. Relating specifically to my topic, I really enjoyed analysing PTSD in literature. I have always been interested in how the brain functions and disorders associated with the brain. I chose the topic and the novels because I wanted to gain more knowledge about how the brain is affected by external factors such as war, as well as improve my English writing skills at the same time (killing two birds with one stone!). Regardless of the marks I will eventually receive, whether they are good or bad, I am glad to say that this experience will greatly help me at college in the future.

Think/Pair/Share:

- Strengths/Weaknesses of Comments?
- Do they provide enough evidence to support criterion E – Engagement?

Example 3: Visual arts

First reflection:	After a brainstorming session with my classmates I found that I got very passionate about the depiction of women in society. I come from India and there has been a lot of media attention recently on the treatment of women in our culture and society and this is something that deeply concerns me. Every day the newspapers are full of headlines on the topic of women and I would like to look at the perception of Indian women in both the present and the past. My supervisor has advised me to discuss further with the students from other cultures to get a clearer understanding of my research question.
Interim reflection:	As suggested by my supervisor I have spoken to many students from different backgrounds and realize that gender discrimination is experienced around the world. I didn't realize this as I thought it was only really bad in India. This has made me more passionate about this topic. From a personal reflection I experienced while in art class I noticed that depending on how I am feeling I draw differently. If I am unhappy or feeling negative my drawings will reflect this. This led me to think how emotion can relate to culture. I think it is really interesting to observe this through artwork. Therefore, I have chosen to research the depiction of women under the subject of visual arts and I have started to interview students that study art and those that don't to see how different the perceptions are. The perceptions are really different, and many interviewees believe that emotion plays a big part. After talking to my art teacher, I decided it would be good to compare two artists and investigate how their emotional background and

	culture influenced their depiction of women in their work. I have chosen to look at the artists Chagall and Sorolla. My supervisor suggested I consider my sources as I should not just rely on interviews.
Final reflection: Viva Voce	On reflection it is really interesting to see how much my EE research changed over time. I kept my initial idea of looking at the depiction of women but after lots of discussions and reading on the internet my thoughts expanded. Interviewing people as a technique confirmed my idea that emotion and culture are related but also made me consider other perspectives that I had not thought about. My passion for the plight of women intensified after speaking to other nationalities and I hope my essay can help change perceptions. Studying the two artists gave me further evidence to back my research and going through the process with my supervisor was really helpful in making my thinking clear.
Think/Pair/Share: <ul style="list-style-type: none"> • Strengths/Weaknesses of Comments? • Do they provide enough evidence to support criterion E – Engagement? 	
Example 6: Biology	
First reflection:	I knew early on what I wanted the focus of my EE to be. I wanted to choose a personal interest as I knew that would increase my engagement with the subject matter. I brainstormed a few ideas with the PE staff and decided on researching the effectiveness of whey protein supplements for building muscle, within the subject of biology. I am interested in the science behind protein supplements and will investigate the different amino acids that make up the whey protein. My supervisor suggested I look into an appropriate timeline for my research and set out a clear method for investigation.
Interim reflection:	I have had many discussions with professional bodybuilders and also the PE staff at school and after considerable reflection, I have set out a concrete method of investigation that will take place over the course of 8 weeks and includes constant variables such as which areas of the body will be measured and what exercises will be done through the course of the investigation. After advice from bodybuilders I will also factor a two-day rest and recovery period each week so that the amino acids will be able to increase muscle mass and size. My supervisor has asked me to think critically about my sources, so I will seek advice again from the PE staff and professional bodybuilders to ensure I have the most up-to-date information. The scientific content of my research is very important to me and I have considered a variety of sources to ensure credibility of my research.
Final reflection: Viva Voce	I thoroughly enjoyed researching this EE. However, I do feel on reflection that I realize that my data is completely invalid as I only had a sample size of one. If I had done this as a pilot study and then continued to increase the number of subjects, then this would have produced much more effective data and improved my research. I actually decided to experiment on myself because I was not sure about the ethical guidelines. In addition to my personal investigation, researching the essential amino acids leucine, lysine, valine, phenylalanine and methionine present in whey amino acid consumption has given me a strong scientific background to my overall understanding of the effectiveness of whey as a muscle developing supplement. I would advise other students who undertake the EE to be clear on their research question from the start as it focused my investigation and allowed me the space to structure the essay with room for adjustments to my plan.
Think/Pair/Share: <ul style="list-style-type: none"> • Strengths/Weaknesses of Comments? • Do they provide enough evidence to support criterion E – Engagement? 	

Example 8: Maths

First reflection:	My interest in fractals came from a class I had in theory of knowledge where I was asked to create a presentation about art. I am not really interested in art, but I am very interested in mathematics so I started looking for a connection between art and mathematics. I looked into how mathematical functions can generate patterns that could be classified as art and I found that the topic of fractal geometry fits this quite well. While researching fractals, I soon realized that there is a lot of maths behind it all that cannot be explained in a theory of knowledge presentation and this is why I decided I would revisit this topic and write my extended essay about fractals. My supervisor suggested expanding my sources.
Interim reflection:	As advised, I have done a great deal of reading on the topic of fractals, which is reflected in my bibliography. On further investigation into fractals, and particularly the work of Benoit Mandelbrot, Pierre Fatou and Gaston Julia, I decided I wanted to explore further the mathematics behind their sets and compare their findings. I have refined my research question to reflect this. RQ: "What is the relationship between the Mandelbrot set and the Julia set; and how can these sets be expressed mathematically?"
Final reflection: Viva Voce	The process of writing my EE has been a fascinating one. I have particularly enjoyed discovering the connections between maths and art through this research. I don't feel so alienated from the topic of art any more. I have read a great deal on the topic of fractals both online and in print, which has really informed my research and helped refine my research question. It is interesting to reflect on my extended essay journey, which started from a TOK class and grew into something that crosses a few subjects. I am proud of my research.
Think/Pair/Share: <ul style="list-style-type: none">• Strengths/Weaknesses of Comments?• Do they provide enough evidence to support criterion E – Engagement?	

RPP Form: Supervisor's Comments...

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Supervisor comments and analysis:

The supervisor writes her or his comments after conducting the viva voce with the student. The comments are summative in nature. They should reflect the whole process and the student comments made in their reflection sessions—initial, interim and final (viva voce).

The examiner will assess the RPPF against criterion E (engagement), but the supervisor should not attempt to do the examiner's job with her or his comments. The supervisor's comments should provide supporting evidence and context for what the student has shown on the RPPF.

Criterion E (engagement) assesses the student's engagement with the research focus and the research process. It will be applied by the examiner at the end of the assessment of the essay, after considering the student's RPPF.

Example 1

Supervisor's comment	<p>The candidate's connection with her topic is of a rather personal nature: as a matter of fact, one would be hard-pressed to identify an example that would hit closer to home. The student is Lebanese and lived in Lebanon, raised by a Shia Muslim father and Sunni mother.</p> <p>The EE process turned out to be a rewarding one, as it offered the candidate the unique and invaluable opportunity to study and begin to understand a conflict that she was aware of but not familiar with in terms of the historical significance of names, events and places. By looking at the facts, the student discovered that the underlying cause was religious factionalism.</p> <p>In addition, the candidate was surprised how she was able to maintain an objective distance from the topic, despite her background.</p> <p>One difficult aspect involving the research process was getting started in terms of laying the foundation and finding reliable historians. However, once started, and after finding several good sources, everything moved forward smoothly.</p> <p>Another challenge involved time management and the writing and rewriting of the essay. In general, the student spent most of her time establishing how various religious groups in Lebanon viewed each other and, in relation to this, how to separate opinions from facts.</p> <p>Overall, in the candidate's assessment, the EE process was very much worth it. Main future application and benefit of having gone through said process is an awareness of the importance of managing one's time well by getting a head start and spacing out time wisely. The candidate appreciated how the personal nature of the essay made her motivated to want to write and research.</p>
Value of the comment	<ul style="list-style-type: none"> • Shows the student's personal connection to the topic as well as her struggles with the process of writing an EE. • Demonstrates how the student consciously avoided bias in her research despite her obvious personal connection. • Focuses on how the student developed good research and time management skills through her work on the EE while demonstrating perseverance in executing the final product.

Example 2	
Supervisor's comment	<p>The student chose this area because it relates to research he is currently involved in as a temporary intern at a local university.</p> <p>When discussing the EE process, he described how his greatest challenge was understanding the different journal articles he consulted. Because of the high level of knowledge needed to fully understand the concepts involved, he re-read the articles numerous times to try to comprehend the processes they employed.</p> <p>Through this approach, he has improved his use and understanding of scientific language and terminology, though his grasp of some of the concepts remains somewhat vague in the essay.</p> <p>The student showed himself to be something of a risk-taker in choosing to look at other scientists' research and data to come to new conclusions instead of doing his own experiment.</p>
Value of the comment	<ul style="list-style-type: none"> • Indicates student individual initiative and personal growth through engagement in the process. Even though the candidate's knowledge and understanding may be limited, this does not affect the level of engagement. • The level of student reflection is not indicated in the commentary.

Example 3	
Supervisor's comment	<p>I have worked with E over the last year leading up to the submission of her EE. Although E was somewhat slow in producing written work, she was engaged intellectually in the EE task.</p> <p>During the viva voce, E explained that she is passionate about visual arts but she wanted to analyse more current and pervasive texts in her EE, which led her to advertisements. Further, she chose her focus on company X since it is a multinational company with several brands around the world that she could analyse. She also explained that she liked the fact that company X has leading brands in the US and in Brazil, as she planned to analyse the use of language as well as images in the ads.</p> <p>E mentioned that she particularly enjoyed researching and analysing entire product ads and campaigns, yet she felt the need to select representative ads to analyse more carefully considering the scope of the EE. She also commented that she was surprised to find that beer advertisements are so culturally oriented.</p> <p>She explained that the difficulties she encountered in the EE were mostly within the writing process itself, as she struggles with writing generally. Thus, her advice to other students is to spread out the EE writing, so that there is more time to write and revise under less time pressure. Finally, E explained that she learned the value of time management through the EE, since she did not always manage her time well and she struggled to meet internal deadlines.</p> <p>E's comments during the viva voce illustrated a fairly good degree of critical analysis and depth of understanding of her research question.</p>
Value of the comment	<ul style="list-style-type: none"> • Indicates that the student was both engaged in the process of doing the EE and the topic of her research. • The supervisor clearly feels that the student has learned a lot through the process and has been able to some degree to reflect on this. There is also a clear insight into the rationale for subject choice in terms of the area of research.

IB Command Terms (Source: Command Terms in MYP and All new DP guides)

The command terms, previously referred to as action verbs or instructional verbs, have been used in the DP since its inception. The command terms are part of the assessment objectives in the DP and have been classified following Bloom's taxonomy of educational objectives. The DP Psychology guide states:

“In the learning outcomes the command terms are associated with assessment objectives 1, 2 or 3 and indicate the depth of understanding that is required of students in relation to each item of content. The grouping of command terms under assessment objectives reflects the cognitive demand of each term and is related to Bloom's taxonomy.” (Psychology guide, February 2009: 8)

The list of IB command terms has been revised for the DP with the aim that students and teachers across all IB programs share a common understanding of their meanings and precise definitions. Relevant sections of the command terms list have been included in the subject guides as an appendix.

Bloom's taxonomy	DP assessment objectives (example from group 4)	DP command terms (summary)
Knowledge Comprehension	Assessment objective 1	Define
		List
		Label
		State
Application Analysis	Assessment objective 2	Apply
		Describe
		Distinguish
		Outline
Synthesis Evaluation	Assessment objective 3	Analyse
		Compare/contrast
		Deduce
		Discuss
		Evaluate
		Explain
		To what extent

Command terms	Definitions
Analyse	Break down in order to bring out the essential elements or structure. To identify parts and relationships, and to interpret information to reach conclusions.
Annotate	Add brief notes to a diagram or graph.
Apply	Use knowledge and understanding in response to a given situation or real circumstances.
Appraise	Evaluate, judge or consider text or a piece of work.

Argue	Challenge or debate an issue or idea with the purpose of persuading or committing someone else to a particular stance or action.
Calculate	Obtain a numerical answer showing the relevant stages in the working.
Classify	Arrange or order by class or category.
Comment	Give a judgment based on a given statement or result of a calculation.
Compare	Give an account of the similarities between two (or more) items or situations, referring to both (all) of them throughout.
Compare /contrast	Give an account of the similarities and differences between two (or more) items or situations, referring to both (all) of them throughout.
Construct	Develop information in a diagrammatic or logical form.
Contrast	Give an account of the differences between two (or more) items or situations, referring to both (all) of them throughout.
Deduce	Reach a conclusion from the information given.
Define	Give the precise meaning of a word, phrase, concept or physical quantity.
Demonstrate	Prove or make clear by reasoning or evidence, illustrating with examples or practical application.
Derive	Manipulate a mathematical relationship to give a new equation or relationship.
Describe	Give a detailed account or picture of a situation, event, pattern or process.
Design	Produce a plan, simulation or model.
Determine	Obtain the only possible answer.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.
Distinguish	Make clear the differences between two or more concepts or items.
Document	Credit sources of information used by referencing (or citing) following one recognized referencing system. References should be included in the text and also at the end of the piece of work in a reference list or bibliography.
Estimate	Find an approximate value for an unknown quantity.
Evaluate	Assess the implications and limitations; make judgments about the ideas, works, solutions or methods in relation to selected criteria.
Examine	Consider an argument or concept in a way that uncovers the assumptions and interrelationships of the issue.
Exemplify	Represent with an example.
Explain	Give a detailed account including reasons or causes.
Explore	Undertake a systematic process of discovery.
Formulate	Express precisely and systematically the relevant concept(s) or argument(s).

Identify	Provide an answer from a number of possibilities. Recognize and state briefly a distinguishing fact or feature.
Infer	Deduce; reason from premises to a conclusion. Listen or read beyond what has been literally expressed.
Interpret	Use knowledge and understanding to recognize trends and draw conclusions from given information.
Investigate	Observe, study, or make a detailed and systematic examination, in order to establish facts and reach new conclusions.
Justify	Give valid reasons or evidence to support an answer or conclusion.
Label	Add title, labels or brief explanation(s) to a diagram or graph.
List	Give a sequence of brief answers with no explanation.
Measure	Find the value for a quantity.
Outline	Give a brief account.
Predict	Give an expected result of an upcoming action or event.
Present	Offer for display, observation, examination or consideration.
Prove	Use a sequence of logical steps to obtain the required result in a formal way.
Recall	Remember or recognize from prior learning experiences.
Reflect	Think about deeply; consider.
Recognize	Identify through patterns or features.
Show	Give the steps in a calculation or derivation.
Sketch	Represent by means of a diagram or graph (labelled as appropriate). The sketch should give a general idea of the required shape or relationship, and should include relevant features.
Solve	Obtain the answer(s) using appropriate methods.
State	Give a specific name, value or other brief answer without explanation or calculation.
Suggest	Propose a solution, hypothesis or other possible answer.
Summarize	Abstract a general theme or major point(s).
Synthesize	Combine different ideas in order to create new understanding.
Use	Apply knowledge or rules to put theory into practice.

Places to go when in doubt:

IB EE Website

(https://ibpublishing.ibo.org/extendedessay/apps/dpapp/index.html?doc=d_0_eeyyy_gui_1602_1_e)

ISA Library Site

(<http://isa.nl.libguides.com/EE>)

Things to read when searching for understanding:

- IB EE Guide
- ISA EE Handbook

You can find all these materials on ManageBac