

REFLECTION

Reflection in the extended essay

- Reflection in the extended essay focuses on the student's progress during the planning, research and writing process. It is intended to help students with the development of their extended essay as well as allowing them the opportunity to consider the effectiveness of their choices, to re-examine their ideas and to decide whether changes are needed.
- The emphasis in the extended essay is on **process** reflection, characterized by reflecting on conceptual understandings, decision-making, engagement with data, the research process, time management, methodology, successes and challenges, and the appropriateness of sources.
- Students will be encouraged to informally reflect throughout the experience of researching and writing the extended essay, but are required to reflect formally during the reflection sessions with their supervisor and when completing the Reflections on planning and progress form.

Reflection in the extended essay

Student reflection in the extended essay is a critical evaluation of the decision-making process. It demonstrates the evolution and discovery of conceptual understandings as they relate to the research question and sources. Reflection demonstrates the rationale for decisions made and the skills and understandings developed, as well as the authenticity and intellectual initiative of the student voice. Effective reflection highlights the journey the student has taken to engage in an intellectual and personal process as well as how it has changed him or her as a learner and affected the final essay.

As a part of the extended essay, students will be expected to show evidence of intellectual growth, critical and personal development, intellectual initiative and creativity. This should be facilitated by the use of the Researcher's reflection space. The most successful students will be able to show an appreciation that learning is complex and that they are able to consider their actions and ideas in response to challenges that they may experience during the research process.

The depth of reflection will demonstrate that the student has constructively engaged with the learning process. Such engagement provides evidence that the student has grown as a learner as a result of his or her experience. More importantly, it demonstrates the skills that have been learned.

These skills may include:

- *critical thinking*
- *decision-making*
- *general research*
- *planning*
- *referencing and citations*
- *specific research methodology*
- *time management.*

Reflection must be documented on the *Reflections on planning and progress form* and is explicitly assessed under assessment criterion E (engagement).

Criterion 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, and is based solely on the candidate's reflections as detailed on the RPPF, with the supervisory comments and extended essay itself as context.

Level	Descriptor of strands and indicators
0	The work does not reach a standard outlined by the descriptors or a RPPF has not been submitted.
1–2	Engagement is limited. <ul style="list-style-type: none"> • Reflections on decision-making and planning are mostly descriptive. • These reflections communicate a limited degree of personal engagement with the research focus and/or research process.
3–4	Engagement is good. <ul style="list-style-type: none"> • Reflections on decision-making and planning are analytical and include reference to conceptual understanding and skill development. • These reflections communicate a moderate degree of personal engagement with the research focus and process of research, demonstrating some intellectual initiative.
5–6	Engagement is excellent. <ul style="list-style-type: none"> • Reflections on decision-making and planning are evaluative and include reference to the student's capacity to consider actions and ideas in response to challenges 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.

Preparation for the first reflection session

As preparation for their first reflection session, students should do the following.

1. Think about subjects and areas of particular personal interest and do some initial background reading into a subject and topic of their choice.
2. Using this as a starting point, explore a variety of possible research topics.
3. Read the subject-specific section of the *Extended essay guide* for the subject they are interested in, paying particular attention to the nature of the subject and the treatment of the topic.
4. Undertake further background reading and begin to gather information around their area of interest. This exploration should give rise to a variety of topics and questions that students can consider for further research. At this stage it is important that students consider the availability of reliable and valid sources for the topic under consideration. All of this should be recorded in their Researcher's reflection space.
5. Begin developing a research proposal which might include a MindMap[®] of ideas, an annotated article or preliminary bibliography. Additionally, students must already be thinking in terms of the following questions.
 - Is my topic appropriate for the subject I am considering?
 - Why am I interested in this area and why is it important?
 - What possible questions have emerged from my initial reading?
 - Are there any ethical issues that I need to consider?
 - What possible methods or approaches might be used for research in this area and why?

It is recommended at this point that the student–supervisor relationship is formalized and the student can consider himself or herself prepared for the first formal reflection session.

First formal reflection session

This initial reflection session should be a dialogue between the student and the supervisor based on the student's initial explorations. It is recommended that the student sends their supervisor an outline of their research proposal ahead of the meeting in order to give the supervisor the opportunity to review their work. This will ensure that the reflection session is focused and productive.

Topics of discussion that should arise during this session include:

- a review of the requirements and assessment criteria for the subject
- a review of ethical and legal implications, if applicable
- a dialogue about possible approaches and any potential problems that might arise
- a discussion of strategies for developing the student's ideas for the essay and expanding the research so that the essay starts to take form
- probing and challenging questions that will help the student focus their thinking; this should lead to the development of the student's working research question
- an outline of the next steps that the student should undertake in order to refine their question; this should take the form of a research and writing timeline.

NOTE: Following this first session, the student is required to complete the first student comment section of the *Reflections on planning and progress form* and submit it to their supervisor who must then sign and date the form. Please refer to the section "Protocols for completing and submitting the *Reflections on planning and progress form*" for more information.

Preparation for the interim reflection session

Between the first and second reflection session, students can engage in informal conversations with other people, such as subject teachers, the extended essay coordinator, the librarian or their supervisor. They must also ensure that they are progressing with their research plan.

In preparation for the interim reflection session, students should have:

- attempted to refine a focused and appropriate research question
- significantly deepened their research and recorded pertinent evidence, information or data in the Researcher's reflection space
- reviewed and consolidated the methodologies they are using
- formulated arguments based on the evidence that they have collected
- added to the working bibliography for their research.

The interim reflection session

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. They must also be able to discuss any challenges they have encountered, offer their own potential solutions and seek advice as necessary.

During this session the supervisor might discuss:

- 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.

By the end of the interim reflection session both student and supervisor should feel satisfied that there is:

- a clear and refined research question
- a viable argument on which to base the essay
- a sufficient range of appropriate sources
- a clear vision for the final steps in the writing process.

Between the interim session and the completion of the extended essay, students should continue to see their supervisor as appropriate to their needs, although the third and final reflection session should not take place until after the extended essay has been completed and uploaded for submission.

NOTE: Following this interim session, the student is required to complete the second student comment section of the *Reflections on planning and progress form* and submit it to their supervisor who must then sign and date the form. Please refer to the section "Protocols for completing and submitting the *Reflections on*

Preparation for the final reflection session (*viva voce*)

Supervisors must have already read the final version of the essay, sent to them by the candidate, before this session takes place.

Students should bring the following to this session:

- 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.

NOTE: It is important to note that students must not be allowed to make any changes to their extended essay after this meeting. Once they have submitted the essay as final to their supervisor, it is the supervisor's responsibility to ensure that changes are not made. This is particularly important for schools who allow candidate upload of the essay.

Final reflection session (*viva voce*)

The *viva voce* is a short interview between the student and the supervisor, and is the mandatory conclusion to the extended essay process. Students who do not attend the *viva voce* will be disadvantaged under criterion E (engagement) as the *Reflections on planning and progress form* will be incomplete.

The *viva voce* is conducted once the student has uploaded the final version of their extended essay to the IB for assessment. At this point in the process no further changes can be made to the essay. The *viva voce* is a celebration of the completion of the essay and a reflection on what the student has learned from the process.

The *viva voce* is:

- an opportunity to ask the student a variety of open-ended questions to elicit holistic evidence of the student's learning experience.
- an opportunity for the supervisor to confirm the authenticity of the student's ideas and sources
- an opportunity to reflect on successes and difficulties encountered in the research process
- an aid to the supervisor's comments on the *Reflections on planning and progress form*.

The *viva voce* should last 20–30 minutes. This is included in the recommended amount of time a supervisor should spend with the student.

In conducting the *viva voce* and writing their comments on the *Reflections on planning and progress form*, supervisors should bear in mind the following.

- The form is an assessed part of the extended essay. The form must include: comments made by the supervisor that are reflective of the discussions undertaken with the student during their supervision/reflection sessions; the student's comments; and the supervisor's overall impression of the student's engagement with the research process.
- An incomplete form resulting from supervisors not holding reflection sessions, or students not attending them, could lead to criterion E (engagement) being compromised.
- In assessing criterion E (engagement), examiners will take into account any information given on the form about unusual intellectual inventiveness. This is especially the case if

the student is able to demonstrate what has been learned as a result of this process or the skills developed.

- Examiners want to know that students understand any material (which must be properly referenced) that they have included in their essays. If the way the material is used in context in the essay does not clearly establish this, the supervisor can check the student's understanding in the *viva voce* and comment on this on the *Reflections on planning and progress form*.
- If there appear to be major shortcomings in citations or referencing, the supervisor should investigate thoroughly. No essay should be authenticated if the supervisor believes the student may be guilty of plagiarism or some other form of academic misconduct.
- The comment made by the supervisor should not attempt to do the examiner's job. It should refer to things, largely process-related, that may not be obvious in the essay itself.
- Unless there are particular problems, the *viva voce* should begin and end positively. Completion of a major piece of work such as the extended essay is a great achievement for students.

NOTE: Following this final session, the student 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.

A blank or unsubmitted RPPF will score a 0 for criterion E.

RRS

Researcher's reflection space

Student reflection in the extended essay is critical. Effective reflection highlights the engagement of the student in an intellectual and personal process and how this has changed the student as a learner and affected the completion of that individual's essay. For those students who have completed the Middle Years Programme, the researcher's reflection space (RRS) can be compared to the process journal. The IB considers this to be a central component of a successful research process as it:

- supports student learning, thinking and critical analysis throughout the research process
- helps to stimulate discussions between the student and supervisor
- aids the reflection process.

The nature of the RRS

Use of the RRS is strongly recommended as it will allow the student to more clearly articulate and understand their decision-making process. It supports learning, thinking, critical analysis and evaluation, and contributes not only to the development of a successful extended essay but also to skills and competencies for pathways beyond the Diploma Programme.

The RRS is a personal learning environment that can be either a physical or virtual support tool. It is a space in which students are able to record reflections on what they are reading, writing and thinking. The use of the RRS will help students to prepare for their reflection sessions with their supervisors and inform the discussions that take place. In preparing for their reflection sessions students could use their RRS to:

- record their reflections
- respond to artefacts, such as photos, newspaper clippings, twitter feeds, blogs, and so on
- respond to prompts and questions that may arise in the students' subject areas, TOK classes or other aspects of the Diploma Programme
- create MindMaps[®];
- record emerging questions.

The idea of the RRS is not new and many students already keep research journals in the planning, researching and writing phases of their work on the extended essay. Encouraging students to develop a RRS will provide benefits in terms of the management of their workload and focus on their extended essay.

The role of the RRS

Created by students to support their engagement in the planning and decision-making process, the RRS helps to develop critical and evaluative thinking skills. It is also a planning tool that helps to scaffold the development of approaches to learning skills and conceptual understandings that occur throughout the research process. Additionally, the RRS tracks the evolution of thought as it relates to the development of an argument. It helps the student to personally connect to the topic and may motivate them in meaningful ways to successfully complete the extended essay. Finally, supervisors will be able to more effectively authenticate the student voice in that the RRS links directly to elements that will eventually be found in the essay itself. The RRS is intended to make the entire supervision process more meaningful.

Insights and information recorded in the RRS are expected to form the basis for and find direct expression in the essay, reflection sessions and *Reflections on planning and progress form*. Students are expected to share excerpts from the RRS in discussions with their supervisor. Using these reflections as a point of reference in their supervision sessions, students will be able to:

- demonstrate their planning
- discuss what they are learning
- evaluate their progress.

The student–supervisor relationship

Students can use the RRS to prepare for their reflection sessions with their supervisors.

Reflection session	Description
The first reflection session	Students are encouraged to include in their RRS examples of initial topic exploration, possible sources and methods, preliminary research questions and their personal reactions to the issues. In attending their first reflection session with their supervisor, students can use notes made in the RRS as the basis for discussion as well as to demonstrate the progress students have made in the research process.
The interim reflection session	As their RRS develops, students can demonstrate the progress of their thinking, the development of their argument and raise any questions they may have with their supervisor. At this stage the RRS may include reactions to readings, progress in the timeline for completion of the extended essay, a possible outline of arguments, challenges encountered and the strategies used to overcome them.
The final reflection session— <i>viva voce</i>	During the <i>viva voce</i> , which takes place at the completion of the extended essay process, the RRS can form the basis for discussion about the process of completing the essay. Students can show what they have learned about the topic, the research process followed, their own learning, as well as outlining new questions they have uncovered. Most importantly, during the <i>viva voce</i> the RRS may help to highlight the personal significance of the work to the student and ultimately contribute to the supervisor's report.

Tip

While use of the RRS is not mandated, the IB considers the development of the RRS an essential element of good reflective practice as it will help the student to not only scaffold the extended essay process but also to build skills which transcend the task itself and prepare the student for university study and beyond.

A well-used RRS will aid the reflection sessions students have with their supervisor, as elements of it can be used to stimulate and inform discussion. This will help students to move towards a more evaluative understanding of the research process and the choices they make as part of this.

Finally, the RRS will contribute to a richer and more personally rewarding experience with the extended essay overall.

Reflecting throughout the research process

Reflection is a continual process. If you are constantly considering the decisions you are making in the extended essay (EE) process, you are better able to avoid the common pitfalls of independent research. Reflection also helps you plan, allowing you to monitor your progress.

The following table identifies three stages in the review process and the kinds of questions you can usefully consider at each. It also suggests what evidence you might use in your reflection sessions to demonstrate your progress and learning.

Stage	Types of questions you may ask yourself	Evidence from my researcher's reflection space
Initial: Planning stages	<ul style="list-style-type: none"> • What am I interested in researching and why? • What are my motivations for undertaking research in this area? • How will I begin the research process? • Is my chosen topic appropriate for the subject I have chosen to complete it in? • Do I have sufficient knowledge of the subject area to fulfill the criteria of an EE? • What possible question(s) might I research? • 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? 	<ul style="list-style-type: none"> • Mind map® • Annotated section of the <i>Extended essay guide</i> • Annotated bibliography • Annotated photograph, newspaper article, and so on
Background reading stage	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Notes • Annotated article • Brainstorm of questions • Mind map® of potential challenges and possible strategies

	<p>researching? If it suggests a descriptive response, how might I need to change it to allow for more critical thinking?</p> <ul style="list-style-type: none"> • Are there any challenges that I need to overcome in order to achieve my desired outcomes? 	
Interim: Writing stage	<ul style="list-style-type: none"> • 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? • Given the data/information I have collected, do I need to reformulate my research question? • Has the data/information collected taken me in an unexpected direction? • Do I want to change course now? Is it too late? • Are there still questions/issues that I am unclear how to resolve? • Am I keeping to a schedule with the writing process? 	<ul style="list-style-type: none"> • Introduction of the essay • Annotated sections from books, journals, articles, and so on • Reworked research question • Examples of data/information collected from research
Final: Writing stage	<ul style="list-style-type: none"> • 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? 	<ul style="list-style-type: none"> • An outline of the main argument • Timeline • Working bibliography

<i>Viva voce</i>	<ul style="list-style-type: none"> • 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? 	
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Guiding student reflection

In critically reviewing your engagement in the research process, it might help to think in terms of three levels of reflection: descriptive, analytical and evaluative reflection. The table below gives examples of guiding questions to help with this. They are not exhaustive.

Level of reflection	Example of the kinds of questions students may have asked and answered of themselves
Descriptive	<ul style="list-style-type: none"> • What did I do? • How did I undertake my research? • What were the problems I faced? • Did my approach or strategies change throughout the process? • What have been the high and the low points of the research and writing process?
Analytical	<ul style="list-style-type: none"> • Was my research successful? • If I changed my approach or strategies during the process, why did I do this? • What did I learn from the experience in terms of my understanding of the subject area and/or the skills needed to undertake research? • How has my understanding of the topic and research process developed throughout the task?
Evaluative	<ul style="list-style-type: none"> • If I were to undertake this research again, would I do it differently—if so, why or why not? • What has affected this? • If I did do the research again, would I change the theories applied or the methodological approach? Would this have led to a different outcome? • What can I conclude from this? • Were the strategies I used for undertaking my research the most appropriate for achieving my outcomes? • What, if any, questions emerged as a result of my research that I was not expecting? Would these questions influence my approach if I were to undertake the research again?

Protocols for completing and submitting the *Reflections on planning and progress form*

Completing the *Reflections on planning and progress form* (RPPF) is a requirement for the submission of the extended essay. It plays an important role in the assessment of the final essay and of the student's engagement with the process of independent research. The following is offered as guidance for the completion and submission of the form.

Diploma Programme/extended essay coordinators, with the support of their school leadership team, must determine a system for the administration of the RPPF that ensures that both students and supervisors have access to it in order to complete the required summative comments. This system also needs to ensure the integrity of the form.



The following steps are offered as guidance:

1	Initial reflection session takes place.
2	Student is given a fixed time period in which to complete their first reflection comment. This time period should be short in order to authentically reflect the discussion that has taken place.
3	Supervisor date stamps and signs to authenticate the student comment. If the forms are stored electronically an electronic signature is permissible.
4	Interim reflection session takes place.
5	Student is given a fixed time period in which to complete their second reflection comment. This time period should be short in order to authentically reflect the discussion that has taken place.
6	Supervisor date stamps and signs to authenticate the student comment. If the forms are stored electronically an electronic signature is permissible.
7	Student submits to the supervisor the completed, final version of their extended essay, ready for submission to the IB. Once this is done, the essay is no longer available to the students and no changes are permitted. The supervisor is responsible for ensuring that no changes are made after that point if the school allows candidate uploads.
8	The supervisor reads the essay and then arranges for the final reflection session, the <i>vivo voce</i> , to take place.
9	The <i>vivo voce</i> takes place.
10	Students complete their RPPF by adding their final summative comments, sign and date the form before passing it to their supervisor.
11	The supervisor uploads the form on behalf of the student into the e-coursework system and adds their summative comment.
12	The supervisor then submits both the mandatory items—the essay and the RPPF—to the IB for assessment as one portfolio.

A blank or unsubmitted RPPF will score a 0 for criterion E.

An important note:

Once students have written their reflection and this has been signed and dated by their supervisor they must not make changes to these comments. Examiners want to see the progression of ideas through the three reflection comments and if students make amendments at a later stage of the process this will undermine the authenticity of their experiences and affect the way in which examiners apply criterion E.

