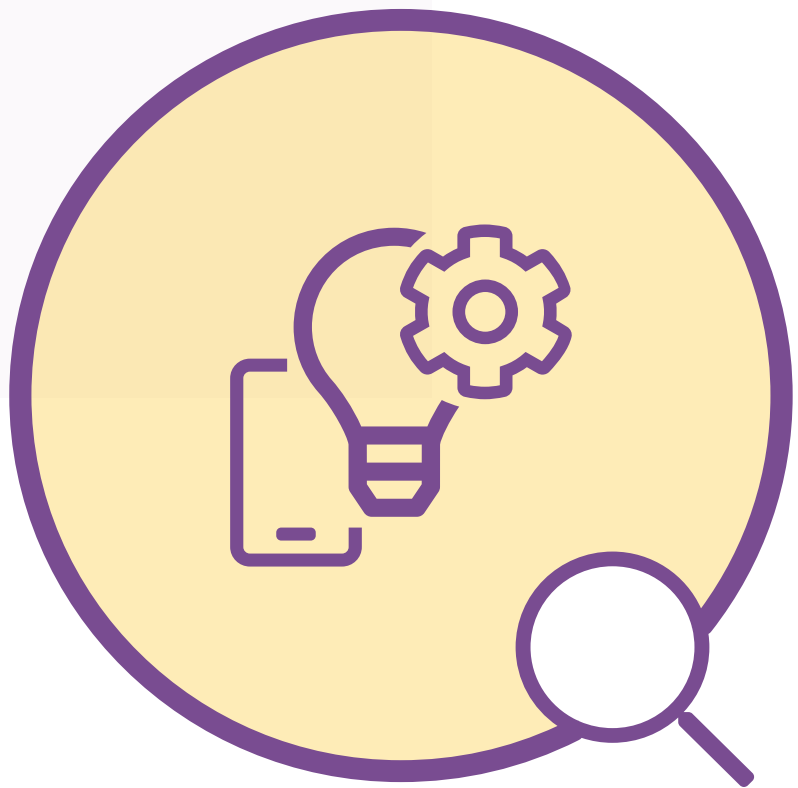# DISTANCE EDUCATION: TEACHING AND LEARNING IN A PROJECT-BASED WORLD

About the Author

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Pepy is an IB Diploma Programme Physics and Mathematics teacher, with an MA and PhD in Education. She is currently a Post Doctoral Researcher in teachers' education and also teaches at the University of Patras. As the Educational Consultant at 100mentors she empowers educators to turn theory into practice with educational technology solutions.

Contents

Introduction

Project-based strategies bring our students closer to the real world and, after all, that's our biggest task as educators. By adopting Project-Based Learning (PBL) as a key component in our instruction, we serve the project as the "main course" instead of "dessert": the project becomes the main lesson instead of its supplement.

PBL is an inquiry-based approach that embraces the student as an independent learner and the teacher as a learner facilitator. Projects give students the perfect level of autonomy and let you go on with your curricular goals. It can transform in-classroom instruction, but it can also be the way to go when distance education is our only option. For learners who are at home, PBL will also keep their parents or caregivers happy: since students should work on their projects independently, these adults won't need to play the role of the "teacher." PBL won't "punish" students who don't have the ideal support systems - we, as teachers, meet them on the journey of their own progress.

Instead of staying still or struggling to keep our teaching style the same even during non-traditional conditions, we should see these missing contact hours as an opportunity to turn things around. We can revisit the content and the form of our instruction to adjust them to the particular requirements of distance education. This includes inquiry-based approaches and organic use of technology. PBL can foster both.

We deal with several projects every day - educational, vocational and personal projects - that keep running despite space and time restrictions. PBL is a smooth way to introduce this reality to our students, and allows them to practice their 21st-century skills in a safe teaching and learning environment. Through the implementation of PBL, we empower students' research, social, communication and self-management skills, especially in challenging periods when distance education is the only way to keep them developing.

In this guide you will find the *why,* the what and the how of PBL for getting started with project-driven instruction under a variety of educational conditions: in-classroom and out-of-classroom, synchronously and asynchronously.

Why bother with Project-Based Learning?
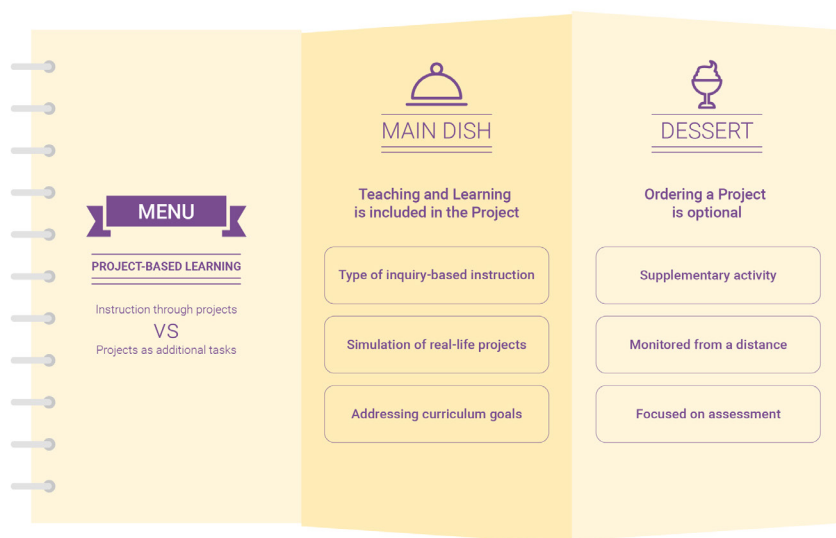
Why bother with Project-Based Learning?

Student projects: connecting teaching and learning goals

It is common, as educators, to find ourselves initiating or supervising a bunch of different student projects. In the IB, we have extended essays, internal assessments, personal projects; in national curricula, we have contact hours or thematic weeks dedicated to projects; in clubs, we prepare projects for competitions and fairs. In other words: projects are all over the place.

Students usually seem motivated, cooperative and gratified when implicated in a project. That's definitely encouraging for us, but our educational purpose is not merely to "keep them happy." What is usually missing from projects? A crystal clear strategy for activating teaching and learning requirements through project development. Curriculum or extra-curriculum goals should be addressed at all times, including both content and skills.
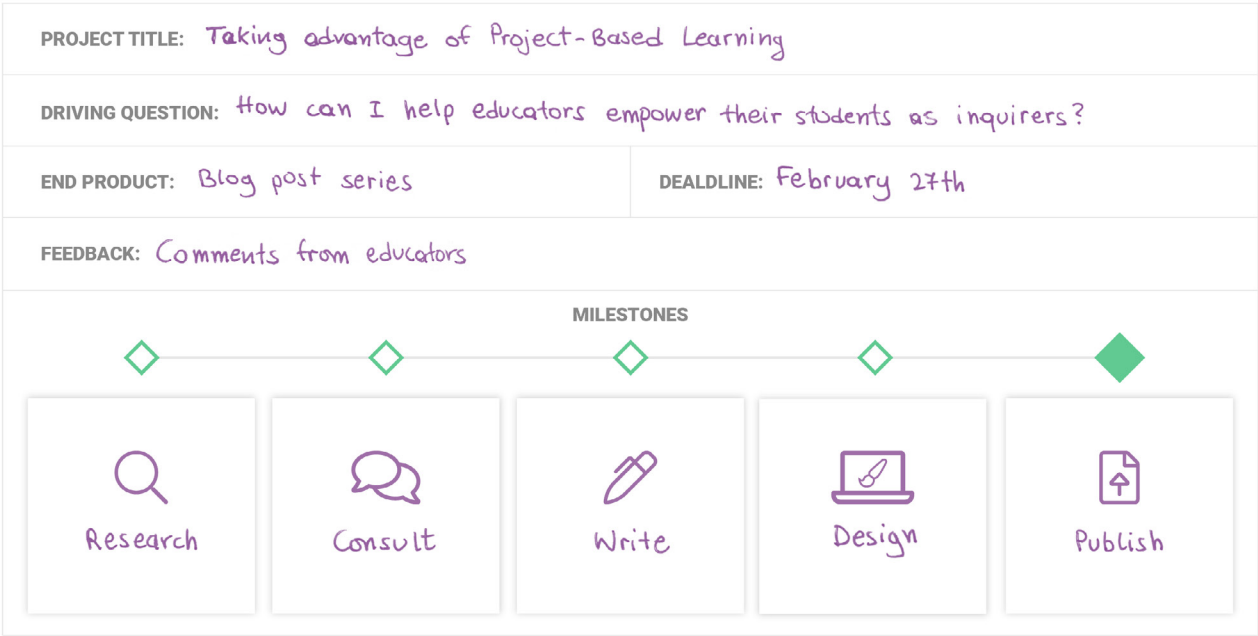
What is different about Project-Based Learning?

Engaging our students in Project-Based Learning is profoundly different from assigning a project to them. This is the distinction between projects served as "main courses" and projects served as "desserts" (Larmer & Mergendoller, 2011). Projects as a "main course" mean that our instruction is the project, while as "dessert" the project follows the instruction as an additional part.

MENU

PROJECT-BASED LEARNING

Instruction through projects
VS
Projects as additional tasks

MAIN DISH

Teaching and Learning is included in the Project

- Type of inquiry-based instruction
- Simulation of real-life projects
- Addressing curriculum goals

DESSERT

Ordering a Project is optional

- Supplementary activity
- Monitored from a distance
- Focused on assessment

PBL is a type of inquiry-based instruction. As any non-traditional teaching and learning strategy, it demands extra effort on our part to convert our lessons from teacher-based to student-based. It requires a different mindset and time to re-organize things - but it doesn't have to be all-consuming. In fact, this approach allows more asynchronous teaching in comparison to traditional instruction.

Is it worth our time?

So, why do it? Let me give you an example. As part of my work as an educational consultant, I became involved with a STEM project competition. I started wondering about the qualities and logistics of PBL, mostly for formal settings. After my brief research, this seemed to be such an interesting subject that I decided to write a series of mini-blog posts about it, which ultimately came together as this eBook.

PROJECT TITLE:	Taking advantage of Project-Based Learning	
DRIVING QUESTION:	How can I help educators empower their students as inquirers?	
END PRODUCT: Blog post series		DEADLINE: February 27th
FEEDBACK: Comments from educators		

MILESTONES

Research	Consult	Write	Design	Publish

Looking back at my project outline, I realized: this is how we work and live in the 21st century. Although getting our projects in-line is what we mostly do in real-life conditions, we often neglect to teach this project management process to our students. Brainstorming, organizing, reaching out, collaborating, troubleshooting and reflecting are all parts of a project - so, let's give them the opportunity to practice that in advance in a safe classroom environment. It's a skill that they will always remember they learned in our classrooms. And they can practise it especially when they're not in our classroom.

Introducing Project-Based Learning to your students can be *your* next project.

Instruction-driven project vs Project-driven instruction

Instruction-driven project vs Project-driven instruction

Student projects seem to be gaining ground as a key component in education and training. We can all agree this is a good thing. Educational curricula finally reach out to the real world and attempt meaningful connections with it, plus they seem to comply with the research results in the field. Practically speaking… how do we do it in our classrooms - physically or virtually?

As educators, we deal with our students' projects in many frameworks, but mostly because projects are requisite in the educational program we apply. This means that, more often than not, we supervise a project from a distance for an extended period (e.g. IB projects) or we dedicate one or two contact hours per week for a course labeled as a "project" (e.g. national curricula courses).

This is better than nothing, but still, this is far from what we call "Project-Based Learning" (PBL). PBL suggests quite a different teaching and learning approach, under the umbrella of inquiry-based instruction. Personal projects and "project-time" promote inquiry as well, in comparison to our traditional lecture-presentation mode, but they only work when used as a supplement to our usual instruction.

However, our "usual instruction" is not always feasible - especially when our only option is education from a distance. On such occasions, traditional projects can't be executed meaningfully, and should be completely dismissed: if we haven't served the "main course" to our students, we can't possibly suggest they should go on and have their "dessert."

What we need is to turn our traditional process upside-down: the project should be the instruction, and any teacher interventions should be the supplementary material. This might seem new and strange for classroom settings, but consider how real life works: we get on with our personal and vocational projects, and only every now and then do we get feedback on them. Do we have consultants and supervisors? Yes. But we get the job done; with lots of initiative, improvising, creativity… and mistakes.

WHERE PROJECT-BASED LEARNING EXCELS
AS COMPARED TO TRADITIONAL PROJECTS

This is the kind of ownership we should offer to our students too, to get them ready for tertiary education, work, and life. And to help them not only to learn, but to delve into the subject we teach and, at the same time, help us accomplish our curricular - and further - goals.

The delightful Project-Based Learning paradoxes

PBL is "a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks" (Markham, Larmer, & Ravitz, 2003).

We, as educators, have to organize, supervise and assess these PBL lessons. From the very beginning of this very ambitious, but totally-worth-it project, we should be aware of two paradoxes tied closely to this approach.

The first paradox is that "less teacher talk requires more teacher time", while the second is that "free-ranging self directed inquiry depends on a tight structure design" (Cornell & Clarke, 1999). But, I guess you suspected both.

Don't let these paradoxes put you off - remember: bringing PBL into your classroom (physically or virtually) is your project. Like any other project, it has its challenges. Let's start by exploring the successful techniques that expert teachers in PBL can teach us.

Seven techniques to get started with Project-Based Learning

Seven techniques to get started with Project-Based Learning

So far, we have discussed why educators should bring Project-Based Learning (PBL) to their classrooms and what differentiates this instructional approach from traditional student projects. Following up, we present seven techniques a teacher should use to successfully manage a PBL instruction, especially in a distance education setting.

Project-Based Learning (PBL) is "a student-driven process, which is only facilitated but not controlled by teachers. By focusing on the solving of real-life problems, PBL helps learners become autonomous learners". However, "the traditional approach prevails and teachers take centre stage, controlling and directing the learning process. Learners are mostly motivated externally and are not required to carry out individual or collaborative work which fosters learner motivation and autonomy" (Habók & Nagy, 2016).
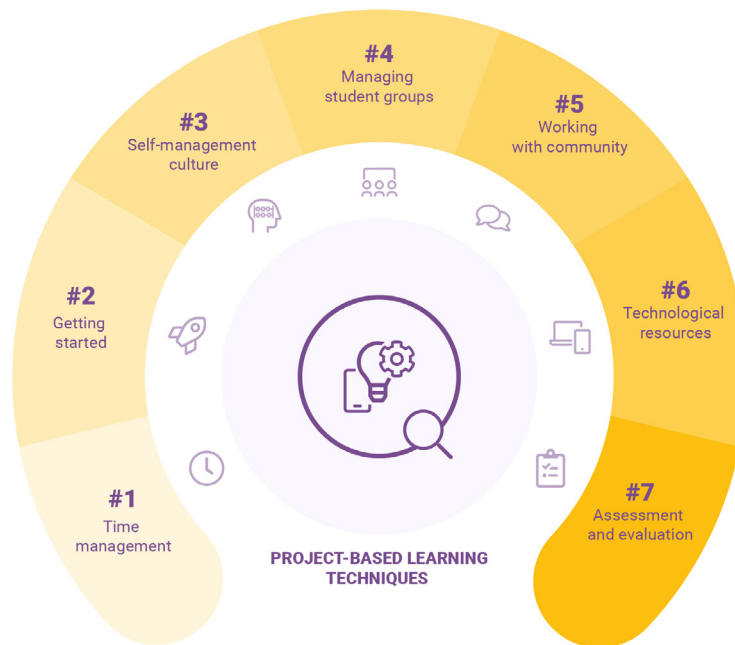
The above statements reflect the bitter truth. Many of us in the educational community recognize that PBL is a far more refined instructional strategy in comparison to the traditional lecture style. We may have also learned, probably the hard way, that traditional teaching is not sustainable in a distance education context. At the same time, we understand that applying PBL in our classrooms, physically or virtually, is easier said than done. It's reasonable that we feel a bit lost starting this ambitious, yet game-changing, project.

Fortunately, that is not the case for all educators: there are some among us that have already mastered PBL, and they can share their victorious tips. Let's see what are the building blocks for starting PBL on the right foot (Kokotsaki, Menzies, & Wiggins, 2016):

1.Time management: PBL requires different scheduling in comparison to a normal class. It's a process that students shouldn't be rushed into and can take unexpected turns during. Whether you meet your students in person or synchronously online, It would be best if you blocked out two contact hours in a row while implementing PBL. If you teach from a distance, the good news is that face-to-face meetings are not frequently required during PBL. In fact, PBL can run smoothly with minimum synchronous interaction than other modes of instruction.

2. Getting started: While introducing this new teaching and learning strategy to your students, make them feel safe by providing a rubric for them describing your expectations - you can easily get them started online. This will help mitigate their confusion and create confidence in achievable goals along the way. You can also open an asynchronous discussion and ultimately comply with the assessment criteria, so they know what they are after, and be on board mutually for this task.

3. Establishing a culture of student self-management: Jointly deciding upon assessment criteria with your students is a head start towards shared responsibility. They realize from the very beginning that they are no extras, but the main characters in this process. Passing on the torch of knowledge construction to them is crucial for the successful implementation of PBL. It is this empowering feature that makes PBL so effective - especially when our students are involved in a distance teaching-and-learning situation, where they're called on to become more autonomous.

4. Managing student groups: In a PBL setting, you don't get to lead: you have to monitor and manage projects' launch and progress from a distance - metaphorically or literally. For some teachers, it's hard to give up this control. You can ease into it by starting with group formations and ask students to keep a project calendar to which you can have shared online access, and check in periodically, while teaching remotely. Your students will also feel comforted by the fact that their efforts will balance both oversight and independence.

5. Working with others outside the classroom: It's important that students' projects escape school walls, even when they're not forced to do so - we can see this moment as an opportunity to have them experience this. A key component of PBL is that students get involved with interrogating real-life questions. To address both the what and how of their projects, they need to reach out to their community and, ideally, consult with experts that can offer valuable insight - thankfully, they're just a few clicks away.

6. Getting the most out of technological resources: Technology transforms the way projects are done, and we should indicate to our students the proper ways to use technology in every project step. They can explore ideas, communicate with teammates, establish connections with third parties, record their progress and create their end product. The project-technology connection list is endless, and this is one of the main reasons PBL works so well in distance education settings.

> In the 21st century, working outside the classroom and getting the most out of technological resources are two interrelated practices in our students' eyes. To facilitate them hitting these two birds with one stone, we can introduce them to the 100mentors app.

> The 100mentors app gives students the chance to explore issues related to their projects from different perspectives. Experts from all around the globe can respond to their wonderment questions and make their projects stand out.

7. Assessing students and evaluating projects: Project assessment should be looked at from several perspectives. There is individual work and there is teamwork; process and end-product; self-assessment and peer-assessment. So don't feel trapped into traditional assessment methods that don't fit PBL - this is a time to explore new forms that work for you and your students. And most importantly: leave room for reflection. Students will put great effort into their projects; they deserve some time to consider what went well and what went wrong.
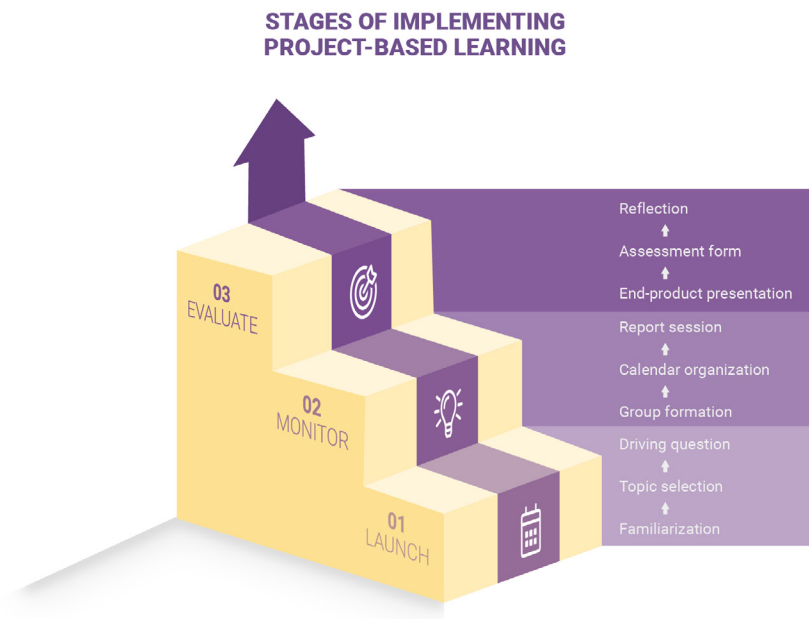
Still, this is only the beginning. Now that we have acknowledged our responsibilities and strengths about PBL, we are ready to break down the project as a process and get things rolling.

The three stages of Project-Based Learning

The three stages of Project-Based Learning

Let's find out what ingredients we need and how we can make the PBL recipe, together. We divide the PBL process into three major stages: 1) launching, 2) monitoring, and 3) evaluating student projects. We can also break down these stages to smaller pieces to gain full control of our instruction:

STAGES OF IMPLEMENTING
PROJECT-BASED LEARNING

03 EVALUATE
Reflection
Assessment form
End-product presentation

02 MONITOR
Report session
Calendar organization
Group formation

01 LAUNCH
Driving question
Topic selection
Familiarization

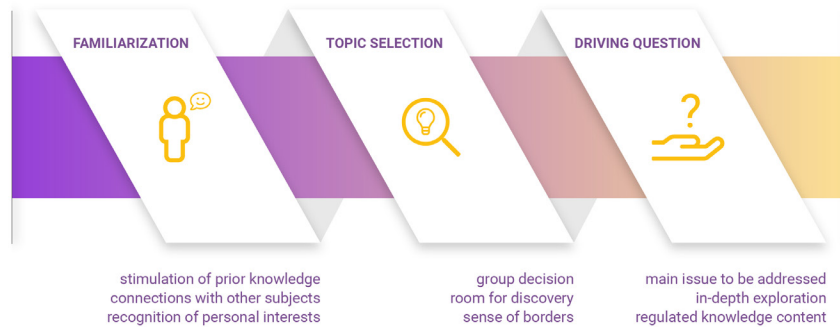Following up, we'll examine each stage in detail.

Stage 1: Launching Project-Based Learning

Project-Based Learning (PBL) is inquiry-driven instruction in its very best. We can use it when we teach at school or from a distance. Although it's appealing, and we'd love to get started with it as soon as possible, it has its prerequisites. Firstly, it demands a change of mind about the role that projects play in everyday lessons. Secondly, we have to design the whole process in advance.

PBL "is considered to be a particular type of inquiry-based learning where the context of learning is provided through authentic questions and problems within real-world practices that lead to meaningful learning experiences" (Kokotsaki, Menzies, & Wiggins, 2016). In other words: we have to make sure that the topics and questions involved in the project are intriguing for our students, and relevant to their experiences, otherwise we are compromising their learning outcomes.

Let's start by tackling Stage 1, the launch of our project-based instruction:

KEY COMPONENTS FOR LAUNCHING
PROJECT-BASED LEARNING

FAMILIARIZATION	TOPIC SELECTION	DRIVING QUESTION
stimulation of prior knowledge connections with other subjects recognition of personal interests	group decision room for discovery sense of borders	main issue to be addressed in-depth exploration regulated knowledge content

1. Familiarization

A project in the center of instruction means that it can't just be the "dessert" but it also shouldn't be the "appetizer." Students must be familiarized with the content of the knowledge you approach. Having in mind the topic we plan to teach through PBL, we begin by initiating a rather general discussion around it. Our intention is to stimulate their respective prior knowledge, establish links to other subjects, and bring personal interests into the light.

If you teach from a distance, you can use two hours of synchronous time with your students to open this discussion for familiarization. But even if this is not an option for you, you can asynchronously guide them towards specific sources. Then, you can ask for a short essay or responses to a questionnaire - this is not a test, but rather how they touch base with the new content.

2. Topic selection

A topic sets the focus on the specific unit elements we want to teach and works as an "umbrella" that covers them all. It should be both precise and wide at the same time: students should feel that there is room for discovery, but also sense the borders of the topic.

This is the right moment to start giving students ownership of their project: have two or three different topics ready, so that they can collectively decide which one of these motivates them the most and has the greatest potential for exploration. "Involving students in the decision-making process is beneficial because they will feel more involved in the project on the whole" (Habók & Nagy, 2016). When working remotely, you can make an online poll out of this choice - it would be a fun activity - like virtually asking for a "show of hands."

3. Identifying a driving question

For each topic, we should also have two or three driving questions from which students can choose. The driving question refers to the specific issue that will be addressed by the end-product of their project.

A driving question should be open enough for in-depth exploration but not too wide in content, so students will stay focused. It may seem that it is just one question, but there is plenty of space for inquiry within it. In fact, it is far more complicated to answer one driving question than to tackle a list of basic information questions or problems with known methodologies (Wurdinger, Haar, Hugg, & Bezon, 2007).

If you have a small class, every team or individual can pick the driving question of their choice. In a large class, though, and especially in a distance education setting, it would be hard to monitor several different driving questions at once. Let's not forget: through these projects, we are, all the while, addressing our curriculum goals. We must stay focused on the specific content and skills that we need to cover, and multiple driving questions may be disorienting.

While launching PBL, don't forget that this approach relies on the use of technology and students reaching out to global communities - that's why it is ideal for remote teaching and learning. You can give them a head start by creating the project topic on the 100mentors platform so they can submit their questions. This process is the beginning of their inquiry. Experts around the world can give students insights and suggestions for their projects, for their work to touch base with the real world.

Coming up next: Stage 2, monitoring PBL.

Stage 2: Monitoring Project-Based Learning

Project-based learning (PBL) is "a student-centered form of instruction which is based on three constructivist principles: learning is context-specific, learners are involved actively in the learning process and they achieve their goals through social interactions and the sharing of knowledge and understanding" (Kokotsaki, Menzies, & Wiggins, 2016).

All features of PBL point us in the same direction: projects are students' business and teachers are merely their facilitators - this is good for both sides. It is our "bad habit" as educators to be extremely involved in their knowledge construction: we accelerate this process because we want to help them end their quests "in safety," or because we run out of time and can't wait until they get there on their own.

We should think of ourselves as supervisors of this whole process: we monitor and we intervene, but students' projects are not ours to complete. An interesting particularity is that within PBL, student monitoring actually works better in distance education settings: limited contact hours urge us to stick to our assigned role, and not step on our students' toes. What we can do is make sure that they team up effectively, plan their schedules efficiently, and encourage them to come forward with any issues promptly - in a proper fashion.

HOW TO MONITOR PROJECT-BASED LEARNING

1 GROUP FORMATION
2 ORGANIZING CALENDARS
3 REPORT SESSIONS

1. Group formation

Teamwork can uplift the benefits gained by project-based instruction under one condition: teams should consist of students that can bring different perspectives and skills to the table. While teaching virtually, forming learning groups like this is a chance to keep your students open to learning from one another - especially the ones that find teamwork challenging. Social learning doesn't have to stop outside the walls of the classroom. Since the project involves many different aspects starting from the concepts, and up to the development of the end-product, all students may contribute in some capacity.

Student collaboration in the PBL context can enhance differentiated learning. On the one hand, each student can take advantage of their personal inclinations and establish connections with their favorite subjects. On the other hand, they can perform better if we allow them to progress at their own pace (Wurdinger, Haar, Hugg, & Bezon, 2007).

2. Organizing calendars

Students setting realistic timelines and deadlines for implementing their projects is essential for achieving their mid- and end-goals. Separating their overall work into stages and assigning specific jobs to each teammate promotes students' time- and self-management skills. They can and should take full responsibility for this process that will affect their projects at large.

We may suggest a time buffer, a wider spread of tasks or a heads up on time-consuming processes to help them map out their calendars. But of course, as they get their calendars in-line, they can always consult us. We can also offer an opinion on optimal ways to set up these project calendars, and remind them that we will keep track of their progress through it. Therefore, we should have some proposals for online tools ready to go.

        3. Report sessions
We should set specific dates on student calendars in which all teams should briefly report their progress. If you have been implementing PBL exclusively from a distance, you can arrange a live session to check in with your students. In case this is not possible, have them record and upload short videos sharing their work with you and their classmates.

This is our chance to sum up the goals they've already accomplished, linking them to specific project milestones. Students can mention any issues that came up during the implementation of their projects, and share ideas based on their experience so-far.

At this point, we can attempt a small intervention to their PBL: we can summarize the content and skills that should have been acquired up to this point, so we're confident that our curricular goals are on track. Doing so provides us an opportunity to turn their attention to noteworthy "knowledge gaps" they should address in order to pursue their project objectives more effectively. We can orient them towards their missing parts of the puzzle through a live session or asynchronously via multiple sources, including recorded lectures from us, online courses and relevant texts.

To sustain the inquiry-based character of PBL and keep your distance from traditional lecture-styled sessions, especially when you're all teaching and learning remotely, you can prompt your students to use the 100mentors app to submit their questions. When students generate focused questions, they climb the mountain of inquiry; formulating these questions and exposing them to the world is a major step towards reaching an answer.

Especially for PBL, which establishes connections between school subjects and the real world, our students can benefit greatly from answers gathered from experts all around the globe. We can give them the opportunity to make their project journey even more meaningful by giving access to 4000+ of these experts with 100mentors.

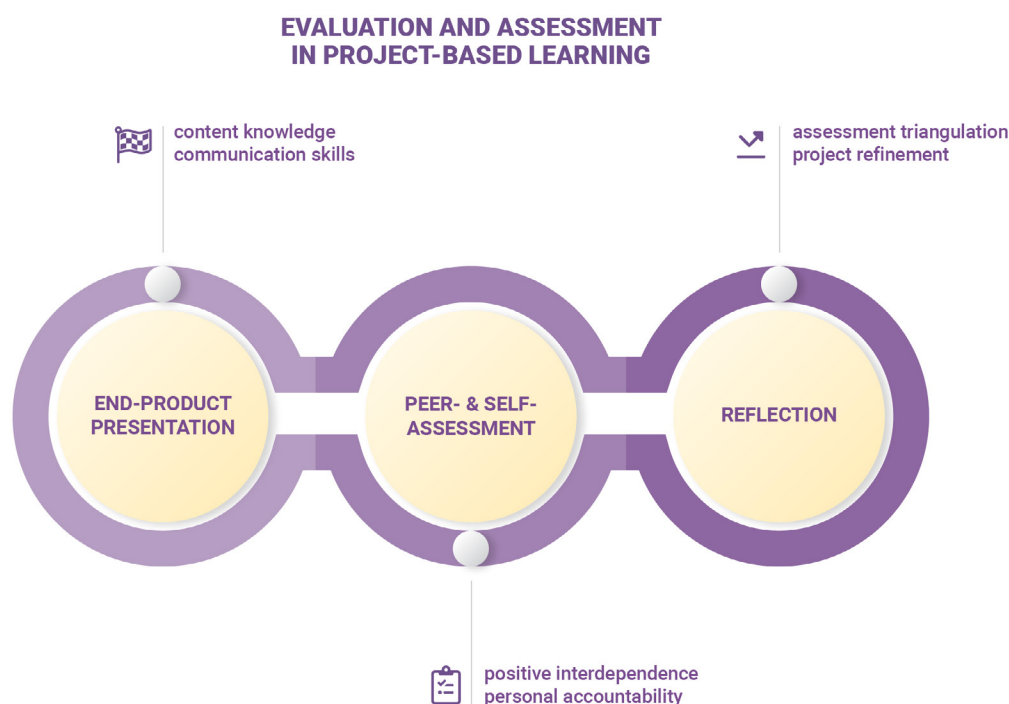Last but not least: Stage 3, evaluating PBL.

Stage 3: Evaluating Project-Based Learning

What facilitates the implementation of PBL, and how can we evaluate the progress our students have made? "Modern digital technology, group processes of high quality, teachers' ability to effectively scaffold students' learning and provide guidance and support, the balance between didactic instruction with in-depth inquiry methods and well-aligned assessment have been identified in the literature as facilitating factors in the implementation of PBL" (Kokotsaki, Menzies, & Wiggins, 2016).

We've already covered almost all of the above features of Project-Based Learning (PBL) in Stages 2 and 3: launching and monitoring PBL. It is now time to break down the last stage of this process: evaluating projects and assessing students.

While project evaluation can be an interesting - even pleasant - process for educators, student assessment can be quite tricky. Many of us are concerned with the fact that PBL is a profoundly inquiry-based educational approach and it doesn't seem to be a good fit with traditional assessment methods. How do we respond to this challenge by assessing innovatively?

In PBL, we have our students solving real-life problems and we intend to empower their 21st-century skills; in other words, we establish meaningful connections between school and life beyond school. It goes without saying that we should assess both students and these outcomes in an equally "authentic" way (Bell, 2010). This includes the presentation of the end-product to an appropriate audience, peer- and self-evaluation through rubrics, and opportunities for reflection.

**EVALUATION AND ASSESSMENT
IN PROJECT-BASED LEARNING**

content knowledge
communication skills

assessment triangulation
project refinement

END-PRODUCT
PRESENTATION

PEER- & SELF-
ASSESSMENT

REFLECTION

positive interdependence
personal accountability

1. End-product presentation
This is the moment we have all been waiting for: our students are about to present the ultimate outcome of their project-based work. They may feel intimidated by this prospect, but they also may feel proud of their accomplishment. More often than not, they're right to be so.

If they don't have the chance to demonstrate their completed project to a live audience, it's a great opportunity for them to be creative and find alternative ways to present their project result - whether it's a video, virtual poster or a website.

Our students will be juggling with many aspects during their presentations: alongside content knowledge, they will have to display their research, thinking, communication and self-management skills, too. Therefore, when evaluating students' end-products, standardized tests are not the way to go. It would be better if we used a tailor-made rubric to cover the whole range of content and skills that should have been nurtured through these particular projects. This doesn't have to be as much work as it sounds.

        2. Peer- and self-assessment
Although a teacher-controlled assessment is an objective metric for students' performance, this "authentic" learning environment calls for a variety of assessment methods. Especially if students have been working in groups, teammates should evaluate each member's positive interdependence, and every one of them should be given the chance to estimate their level of personal accountability. To create a common ground for peer- and self-assessment, we can design a rubric in collaboration with our students, through an open online form.

Students don't assess each other's knowledge construction; they assess certain skills from the perspective of a "critical friend." Therefore, their peer-assessment rubric should examine "how well they contributed, negotiated, listened, and welcomed other group members' ideas" (Bell, 2010). Let them know that their goal is to provide constructive feedback that would emphasize their teammates' strengths, and mention where there is still room for improvement.

It will be interesting for you to see how well teacher- and peer-assessment fit with each student's self-assessment. Students evaluate their personal contribution to the project in terms of effort, motivation, and productivity. They should also take a critical look at their social interactions and communication endeavors, even if they took place exclusively through their - very familiar - social media. At the end of the day, they should estimate to what extent these factors affected their learning.

3. Reflection

The PBL process seems to be complete at this point - but it's not just yet. Each student has just been given a three-fold assessment, and now we should ask them to make sense of it. They should be given some time to triangulate these reports and realize what went well and what went wrong. To ensure their "active reflection," you may even allow your students to make some final refinements to their projects.

I guess that many educators now reading this are deliberating about how great all these assessment methods sound… but what about the mandatory formative assessment tasks? Will our PBL students perform well when the time comes?

Well, there's good news! Several studies across subjects indicate that students engaged with PBL outperform their peers that participated in traditional instructional settings (Bell, 2010). This refers to both standardized assessments and project tests. And beyond knowledge construction, our PBL students have cultivated a few crucial 21st-century skills along the way - teamwork, communication, and self-management.

Now we have all the necessary components to successfully implement PBL with our students - in close quarters or remotely. Keep in mind that this strategy requires efficient EdTech scaffolding and resourceful linking to a global community. With 100mentors, you can do both, inside or outside the classroom.

Get started free

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and receiving 100sec byte-sized video responses from
4,000+ mentors worldwide.

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GET STARTED FREE

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