



Smithsonian
Science Education Center



NESST



Building and Maintaining Successful Professional
Learning Communities:

A Toolkit for Evolving Emergent, Transdisciplinary Communities of Practice

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Smithsonian Science Education Center

The Smithsonian Science Education Center (SSEC) is an education organization within the Smithsonian Institution. The SSEC's mission is to transform K–12 Education Through Science™ in collaboration with communities across the globe. The SSEC promotes authentic, interactive, inquiry-based K–12 STEM teaching and learning; ensures diversity, equity, **accessibility**, and inclusion in K–12 STEM education; and advances STEM education for sustainable development. The SSEC achieves its goals by developing exemplary curriculum materials and digital resources; supporting the professional growth of K–12 teachers and school leaders; and conducting outreach programs through LASER (Leadership and Assistance for Science Education Reform) to help schools, school districts, state education agencies, and ministries of education throughout the world implement inquiry-based science education programs.

Smithsonian Institution

The Smithsonian Institution was created by an Act of Congress in 1846 “for the increase and diffusion of knowledge . . .” This independent federal establishment is the world’s largest museum, education, and research complex and is responsible for public and scholarly activities, exhibitions, and research projects nationwide and overseas. Among the objectives of the Smithsonian is the application of its unique resources to enhance elementary and secondary education.

NESST

NESST is the Network for Emergent Socio-Scientific Thinking. Housed at the Smithsonian Science Education Center, it is a global network comprised of youth, educational innovators, business leaders, STEM professionals, organizations, and communities interested in transforming STEM education for sustainable development. Committed to thinking differently through the lens of **emergence** and complexity, NESST reimagines education for life on a sustainable planet.

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Professional Learning Community Guidebook

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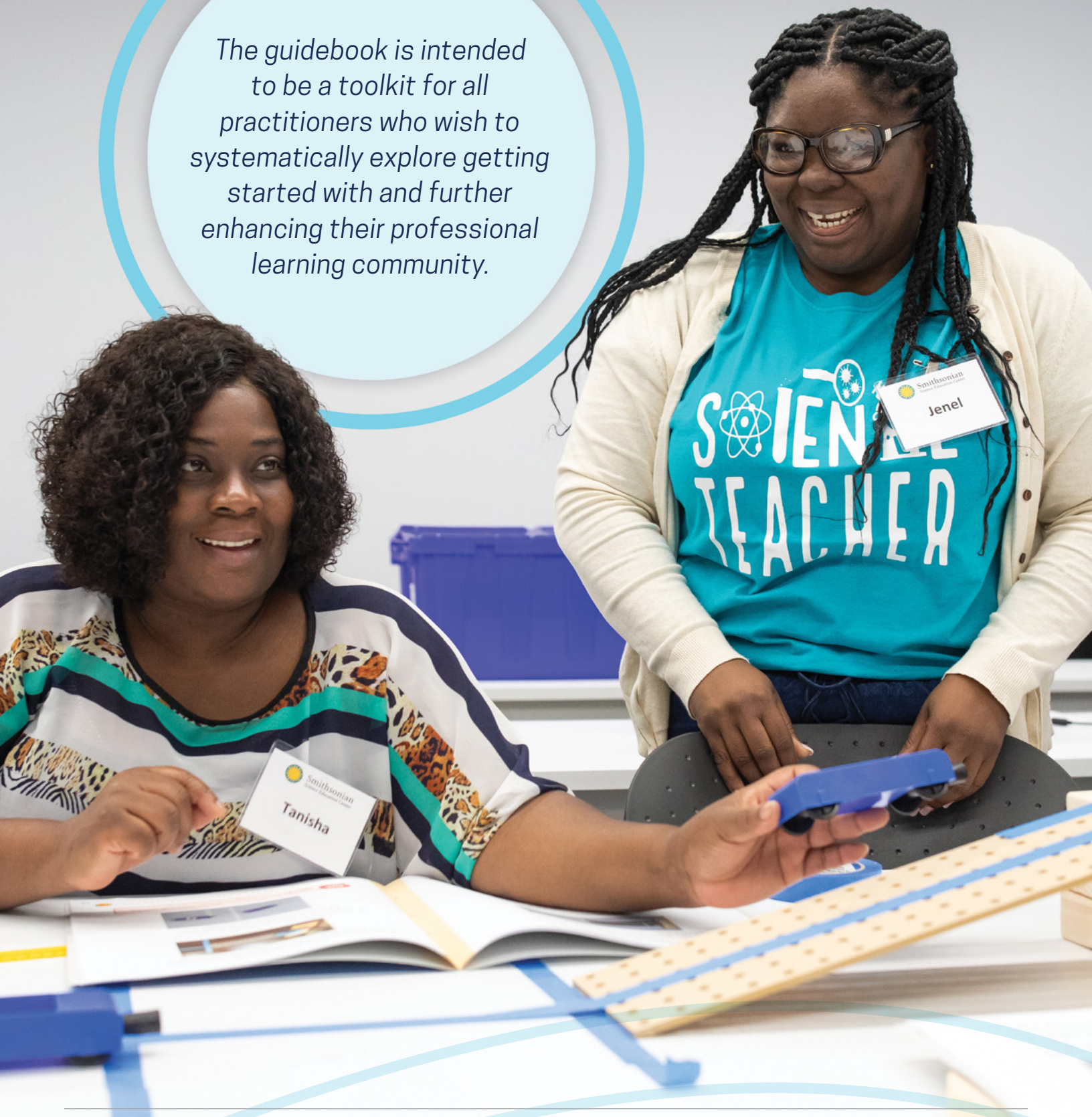
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The guidebook is intended to be a toolkit for all practitioners who wish to systematically explore getting started with and further enhancing their professional learning community.



About This Guidebook

This guidebook is designed to help you generate successful **professional learning communities** (PLCs) by providing a set of steps you may wish to consider when developing, recruiting for, and facilitating PLCs. Some aspects may not be relevant to your PLC (each PLC is unique), but this guidebook provides the structure to get started. In following the steps laid out in this guide, you will engage in a systematic approach to building your own PLC that is designed to be sustainable and impactful for your intended community.

Building and Maintaining Successful Professional Learning Communities: A Toolkit for Evolving Emergent, Transdisciplinary Communities of Practice is designed to facilitate the design and/or the further development of successful PLCs. The guidebook is intended to be a toolkit for all practitioners who wish to systematically explore getting started with and further enhancing their PLC. The toolkit is extensive, and therefore it is anticipated that certain sections may be more useful, based on your own experiences and engagement with PLCs. The scenarios in the next two sections will provide some direction for which sections will potentially be the most useful for building and sustaining an impactful PLC.



About NESST

This guidebook is the result of the work of the Network for Emergent Socio-Scientific Thinking (**NESST**). Housed at the Smithsonian Science Education Center, NESST is a global network comprised of youth, educational innovators, business leaders, STEM professionals, organizations and communities interested in transforming STEM education for sustainable development. Committed to thinking differently through the lens of **emergence** and complexity, NESST reimagines education for life on a sustainable planet.

NESST serves many different groups of people including youth, formal and informal educators, academic researcher and education scholars, and scientists and industry professionals. Network members have the opportunity to exchange, collaborate, and learn together through Smithsonian-led programs and projects. One such project is the PLC guidebook that you are reading now.



About the PLC Guidebook creation

This guidebook was created by a PLC that is a part of NESST. This PLC was specifically interested in identifying and understanding best practices for convening a diverse group of practitioners and professionals to make change. This process began with a basic literature review, some of which you will see in the suggested reading at the end of this document. The group defined how to create a PLC and identified best practices for growing and maintaining strong communities of practice. The guidebook you see here is, in fact, the output of a multi-year PLC which saw fluctuations in leadership, membership, focus, direction, and engagement. These are things that you may experience with your PLC as well. By engaging in the creation of this content as scholar-practitioners, we provide a unique lens for this work.

Who is this Guidebook for?

PLCs are common in education, and this guidebook was written by a group of educators. It is therefore well aligned to groups working in schools, districts, ministries of education, universities, or informal education organizations. However, the concepts and approaches throughout this book can easily be applied to other industries or groups seeking a collaborative and responsive approach to creating a community of practice. Some of the examples used in the guidebook do specifically reference educational programs, but we encourage anyone who is curious about forming communities of practice to take the ideas, resources, and best practices found throughout these pages and apply them to their own context.

Building Successful PLCs

Professional learning communities (PLCs) can exist in any setting and have a variety of purposes. The common questions below provide details of who, when, and what PLCs are.

What is a PLC?

A PLC provides a space, virtually or physically, where different voices connect as a community. PLCs can be comprised of members from the same or different fields, and typically share goals and interests.

What do PLCs do?


A PLC's directive usually is to share ideas and knowledge with other members of a community. A PLC enables people to connect locally, nationally, and globally and allows different viewpoints to be examined. This range of perspectives can help bring more sustainable solutions to problems, issues, and goals that a PLC is focused on.

What are the aims of your PLC?

For a PLC to be successful (and manageable), aims and questions should be decided and agreed upon by the members of the group. Usually, this would start with three to four questions or aims, but these may change or develop as a PLC evolves.

What does a PLC look like?

One PLC may look very different from another PLC, because features such as the number of members, frequency of meetings, and locality are unique to each PLC. However, no matter what the purpose and intended outcomes of a PLC, there should be key points at which **norms**, recruitment, and engagement are revisited as the PLC evolves. There should also be opportunities for individual members of the PLC to provide feedback within their shared community to foster change.



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How to Get Started with Your PLC: Which One Looks Most Like You?

While this toolkit can be read in its entirety to provide a systematic approach to building a new **professional learning community (PLC)**, it can also invigorate and guide existing PLCs. The scenarios below provides a range of contexts that you might find relevant to your own circumstances and that can help you streamline how you use this toolkit to be more personalized to what you need.

SCENARIO A

Creating a PLC with staff in your workplace

You are a principal in a school and you want to create a community of practice that focuses on intertwining **socio-scientific issues** within the curriculum.

What you might want to think about:

- What staff may attend?
- How can you foster a more collaborative approach as a network and remove any power dynamics?
- What are your tangible outcomes?
- How often would you meet?

Which sections of the guidebook might be the most useful: Stage 3, Stage 4, and Stage 5 will be useful in the early stages to remove power dynamics that may exist in the workplace and help establish collaborative **norms** in a new context.

SCENARIO B

Creating a PLC with wider peers/industry

You want to connect with peers from similar companies or industries that are focused on more sustainable practices. You don't know any of your peers and will be reaching out to form a new network

What you might want to think about:

- How are you going to make the initial connections?
- What incentive do you think members will need to maintain involvement?
- How are you going to get to know each other and establish norms?

Which sections of the guidebook might be the most useful: Stage 1 and Stage 2 will be of particular importance to communicate with and recruit colleagues from a wider sphere to your PLC.



SCENARIO C

Creating a PLC with youth stakeholders

You recently worked on a project with a group of young people who want to stay connected. These young people are geographically separate but have collectively produced some resources online.

What you might want to think about:

- How will you maintain and grow this group?
- What will your new goals and aims be?
- What might need to change?
- How might you expand on the work already completed?

Which sections of the guidebook might be the most useful: Stage 7, Stage 8, and Stage 9 will encourage you to reflect on your current (successful) PLC and provide some signposts for where the next steps might take you.

SCENARIO D

Restarting a PLC

You ran a network once a week that aimed to connect educators and researchers about changes in the Anthropocene. It began successfully but has recently fizzled out. You now want to restart this network

What you might want to think about:

- What were the specific events or timeline in the PLC where members started to disengage?
- Did you have clear goals and aims?
- How can you adjust the format/frequency?

Which sections of the guidebook might be the most useful: Start with Stage 8 and use some tools/ exercises to reflect on the existing network. This will then provide you with some action points. You may then wish to reestablish your network using all the stages sequentially.

SCENARIO E

Maintaining your established PLC

You have been involved in an international committee that focuses on emergent ideas related to socio-scientific issues. You have generally good engagement and members of the PLC continue to contribute. You are looking to ensure members remain committed and satisfied within the PLC.

What you might want to think about:

- What processes and systems do you have to check in with members?
- How might you gauge and establish accountability for PLC members?
- How are you celebrating successes and recognizing outputs?

Which sections of the guidebook might be the most useful: Stage 6 and Stage 7 will encourage you to engage in some action planning for the future of your PLC and consider whether you need to reaffirm any shared goals.

SCENARIO F

Linking your PLC to industry champions

You lead a STEM-focused PLC that aims to bridge the gap between classroom theory and real-world industry practices. To achieve this, you're seeking to establish meaningful partnerships with industry champions — companies and/or professionals who can offer practical insights, resources, and mentorship that will enhance both teaching and student learning experiences.

What you might want to think about:

- What industries align with the goals of your PLC?
- How can industry partners contribute to your PLC?
- What are the shared benefits for the PLC and industry?
- How can real-world challenges be integrated into your curriculum?
- How will you measure and sustain success in this collaboration?

Which sections of the guidebook might be the most useful: Stage 2 will be of particular importance, as this will help you consider who to recruit and why the PLC would be mutually beneficial. Stage 6 is also a key section to help you review and plan actions to drive your PLC forward.

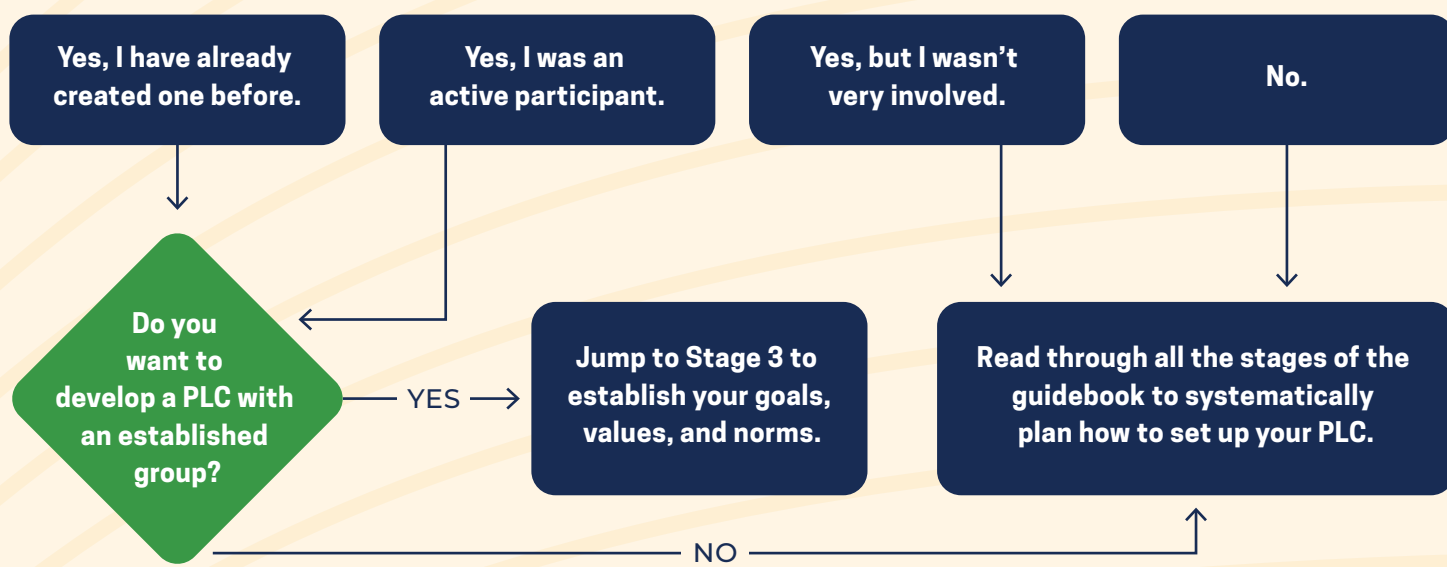
Feeling like none of the scenarios above resonated with you?





Use the flow chart on the opposite page to determine where to begin with the PLC Guidebook.

This guidebook is intended to provide a toolkit for anyone who is trying to develop a PLC.

However, each PLC is unique because the creators and participants of each community have their own unique requirements. Therefore, to help you get the most out of this guidebook, use the flow chart and summary boxes here to help you decide which sections will be the most useful.

HAVE YOU ENGAGED WITH A PLC BEFORE?



-  **Stage 1:** This stage focuses on the initial planning of your PLC and setting initial goals and the intended vision for the group.
-  **Stage 2:** This stage focuses on recruiting participants to your PLC.
-  **Stage 3:** Once you have your group, this stage guides you to establish goals, share values, and agree on norms.
-  **Stage 4:** This stage gets you to think about the process of conducting your PLC. For example, when, where, and how you will convene?
-  **Stage 5:** This stage suggests roles and responsibilities you may wish to define within your group.
-  **Stage 6:** Once you have established your PLC and have clear goals, this stage will support the creation of action plans and outline steps to achieve those goals.
-  **Stage 7:** This stage allows for reflection and realignment to the PLC goals, values, and norms that were developed in Stage 3. These consistent touchpoints are especially important in emergent PLCs.
-  **Stage 8:** This stage provides a wide range of tools to help maintain and grow your PLC in a variety of contexts.
-  **Stage 9:** This final stage provides signposting about how, why, and when you may wish to evolve or dissolve your PLC.

Implementing Your PLC: Considering How to Recruit and Collaborate Effectively




Stage 1: Planning your PLC

In the initial stages of creating a **professional learning community (PLC)**, thoughtful planning is crucial to ensure its long-term success. This section of the guidebook is designed to walk you through the foundational steps necessary for establishing a strong and purposeful PLC. Here, you'll find guidance on articulating clear aims and goals that will govern your community and help you prepare for the procedural aspects that will support its ongoing development.

By focusing on these key areas, you'll be able to create a PLC that not only meets the immediate needs of its members, but also fosters a culture of continuous improvement and collaboration. Whether you're just starting, or looking to refine an existing PLC, the insights and strategies provided in this section will help you lay a solid foundation for meaningful and sustained professional growth.

Articulating the aims and goals of the PLC

The Network for Emergent Socio-Scientific Thinking (**NESST**) brings together young people, educators, scientists, researchers, community leaders, and museum professionals dedicated to educating for the future. Together, this group is working across borders, disciplines, and generations to understand how the fields of STEM Education for Sustainable Development (**STEM4SD**), **Emergence**, and **Socio-Scientific Issues Education** come together to address the most significant global issues of our time, such as those outlined by the **United Nations (UN) Sustainable Development Goals**.



*Establishing a
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growth tool.*

Establishing a PLC can be an effective professional learning and growth tool that enhances participant learning. A critical step in establishing a PLC is to create a shared mission and vision, as well as shared values and goals. Establishing a PLC can be challenging, which is why ensuring that the identified goals and objectives are shared by all participants. Some guiding questions to help a new PLC think through what those goals and objectives might include are:

- What is the purpose of this group?
- Who are we hoping to impact through this collaborative effort?
- What are we collectively willing to commit to?
- What are the non-negotiables for our group?
- How might we define indicators of progress?
- How might we track progress?
- What is the WHY for this group?

Consider articulating your PLC's unique goals, in addition to the overarching goal list above. And remember that a PLC's focus may shift over time, so regularly checking in on goal alignment with your members is an important step.



Toolkit: Messaging development graphic organizer

This graphic organizer can support the PLC membership by refining the group's message and generating starter questions for conversation.

Conversation Prompts	PLC Discussion Responses
Who is your audience?	
What is the major concept or idea you want to communicate and why is it important?	
What kind of background or contextual knowledge would your audience need to understand this concept?	
What are the challenges of communicating this concept?	
How are you communicating the positive impact of understanding and/or putting this concept into action?	
What is your call to action connected to this concept? What are the next steps?	



Stage 2: Recruiting participants

Recruiting the right participants is a pivotal step in building a thriving PLC. The success of your PLC depends not only on its structure and goals but also on the active involvement of committed and engaged members. This section of the guidebook is dedicated to helping you navigate the recruitment process, offering strategies and tools to attract participants who will contribute to the community's success.

Here, you will find practical advice on identifying and reaching out to potential members, as well as templates and resources to streamline your recruitment efforts. By focusing on targeted recruitment and thoughtful engagement, you can ensure that your PLC is comprised of individuals who are aligned with its mission and motivated to collaborate, share insights, and grow together. Whether you're assembling your PLC for the first time or expanding an existing group, the guidance in this section will equip you with the tools needed to build a dynamic and committed learning community.

Recommended recruitment strategies

This stage provides possible strategies for recruiting members for your PLC and onboarding participants. By sharing some potential recruitment methods, examples of language, and things to consider when approaching these different layers of PLC formation, we hope this can serve as a guide to ensure your PLC includes a diverse range of perspectives and can support new participants.

STEP 1 Identify diverse membership needs

Establishing an **inclusive** PLC requires addressing the varied needs of your members. **Accessible, multi-modal** communication and diverse perspectives in terms of age, background, and role are critical to inclusion. When a PLC is mindful of who it involves and makes space for the people who are often left out, that PLC can better serve its members, making a real difference in members' lives. The following chart offers some guidance.

Theme	Guiding Question	Things to Think About
Accessibility	How can you best ensure that your PLC is serving a range of needs?	<p>Have you asked if there are any accommodations needed before the start of your PLC?</p> <p>Have you identified community or existing resources that can support your PLC's accessibility needs?</p> <p>Can you identify multiple ways of communicating, convening, and collaborating, and present that as a menu of options for your PLC participants?</p>
Age	How can you best ensure that there are intergenerational perspectives being represented?	<p>Are there ways youth could be involved in this group?</p> <p>If you would like to limit the PLC to your colleagues, what are some additional ways to include the youth perspective?</p> <p>Within your field, what are some ways you can provide space for multiple generations to be part of this work?</p>
Background	How can you best ensure diversity in the backgrounds and perspectives represented in your PLC?	<p>Once the PLC is formed, are you able to acknowledge who is not in the room and seek out ways to ensure multiple perspectives are being taken into account?</p>
Roles	How can you best ensure that there is diversity in the roles represented in your PLC?	<p>Who are the stakeholders you would like to be part of this group?</p> <p>Who do you think makes the decisions in your community?</p> <p>Who do you think is typically not included in decision-making but should be?</p> <p>If you're establishing a PLC only within your organization, how can you advertise this opportunity in a way that seems meaningful for a range of roles (for example, if you're in a school, recruiting teachers, administrators, parents, community partners, etc.)?</p> <p>Are there specific roles or voices you want to make sure are included?</p>

STEP 2 Determine number of participants

When determining the number of participants for your PLC, it's important to strike a balance between having enough members to foster diverse ideas and perspectives and ensuring the group remains manageable and focused on its goals. Consider how many participants will allow for productive discussions, collaboration, and active participation. Keep in mind that commitment levels may fluctuate, with some members leaving or becoming less active over time, so it's wise to account for potential attrition. A flexible approach will help maintain momentum and ensure the PLC continues to function effectively even if participation changes.

STEP 3 Key messages for recruitment

Because PLCs serve the broad purpose of improving the skills and knowledge of participants through collaborative study, expertise exchange, and professional dialogue, they often function as a form of **action research** (that is, to continually question, reevaluate, refine, and improve learning strategies and knowledge). Meetings are goal-driven exchanges facilitated by stakeholders with a common vision for shared outcomes. To help recruit stakeholders who are interested in that common vision, some key messaging prompts might include:

- Join us to set in motion a growing global network of stakeholders working with real-world experts to make the world a better and more sustainable place.
- As a PLC member, you can make a difference in the world, learning about significant issues in science in just a few hours a month.
- You can help us share this optimistic vision for the future and engage others in the movement. A few hours a month can make a big difference.
- Join this PLC movement to discover, understand, and act on local scientific issues and their connection to education.
- This is your opportunity to bring to your community new ways of thinking and acting for a better world.
- Please fill out this survey to help us identify community needs, learn more about individuals or organizations already working in this space, and gauge membership interest in our upcoming PLC.

STEP 4 Onboarding PLC participants

Determine Introduction Method

- How do people in your community usually introduce themselves? What information about themselves do they include? Perhaps use a method of introducing yourselves that showcases a connection to your community.

Time Commitment

- What time commitment makes sense for this group?

Growth and Goal-Setting

- What do you want to get from this experience?
- Create a shared vision with group members for what you want this experience to be. Group goal-setting might include:
 - Professional goals: “I aspire to integrate project-based learning in my curriculum,” or “I want to develop partnerships with local industries.”
 - Personal goals: “I aim to improve my work-life balance,” or “I want to enhance my skills in educational technology.”
- Encourage members to review these goals regularly, celebrate achievements, and provide support and accountability to one another as they work toward their shared vision.

Frequent Checkpoints

- Establish dates and times when the group reevaluates how things are going.

Foundational Materials for All

- Having shared definitions is key. Co-create a suite of foundational materials that support new members and external stakeholders in understanding the core ideas of your PLC. This could include (but is not limited to) a one-pager, key research papers, links to videos, etc.

NOTES



Stage 3: Establishing initial goals, values, and norms

For a PLC to be effective, processes and procedures should be established to provide guidance for how the group agrees to interact with one another and develop a shared understanding of the group goals. The following steps provide a template for what your first meeting might look like, followed by other activities that are designed to take place in the early stages of your PLC; these concepts will be revisited in Stage 7. It will likely take a few meetings to get your PLC up and running, but laying the foundation for trust and focus will support your PLC in the longer term. If you are bringing together a new group of participants who don't all know one another, plan a whole meeting for introductions and Step 1, below, with additional meetings for Steps 2 and 3.

STEP 1 Framing the *why*

Once you have agreed on a time and place for your first meeting, your first meeting should establish the *why* of your PLC. This will enable members of the PLC to focus on outcomes from the very start, which can be motivating and beneficial for all involved. For the first meeting, it might be useful to provide members with some prereading activities, so they can prepare and have notes to bring to the first session.

Framing the *why* gets to the heart of the common vision outlined in Stage 2, Step 3: Key Messages for Recruitment. This will be a guide that the PLC continually comes back to, to frame their discussions and action items.

An example of the first meeting is presented in the meeting guide to the right. The guide also notes some possible feedback opportunities that will encourage members of the PLC to share their ideas.



Toolkit: Framing the *why* meeting guide

Activity	Description	Notes
Prereading	Key articles or videos, PLC outcomes, and related texts	
Facilitation Ideas	Begin the conversation around a central question. Facilitate group discussions around key observations and learning from the readings and videos. Brainstorm all ideas about the focus, goals, and outcomes of the PLC.	
Discussion Tools	Shared documents Online surveys Roundtable (each member has two minutes to share their prereading thoughts and ideas)	
Reflection	Reflect on the conversation and continue research into the ideas that surfaced in the open discussion. Come to the next meeting with your ideas.	

STEP 2 Developing values to curate a community of purpose and practice

The prompts and activities that follow are designed to assist you with developing a shared set of values during the early stages of developing your PLC. Some of your first meetings could include:

Value-generating activities

- Discussion topics: What does engagement in this PLC mean to you? Create a purpose statement collaboratively.
- What are the hopes, aspirations, and dreams this community has for our society?
- What are the skills and habits of mind our community members need to address in a rapidly changing and complex world?
- What are the implications for the learning experiences we provide in our current education systems?

- For the first weekly prompt, consider watching a video, such as the one on the **United Nations (UN) Sustainable Development Goals**.

- Video link: <https://www.youtube.com/watch?v=RpqVmvMCmp0&t=1s>
- Reflect on the video and respond to the following questions:
 - As you saw in the video, the UN Sustainable Development Goals include 17 goals. Which goals are you most passionate about?
 - How do you see yourself and your community reflected in the goals?
- Capture the comments and highlight the similarities among the responses.

STEP 3 Establishing norms

Effective PLCs generally have a set of **norms** that govern individual behavior, facilitate the work of the group, and enable the group to accomplish its task. Abiding by norms is especially important for PLCs to increase productivity and effectiveness, to ensure that all members have the opportunity to contribute, and to keep the dialogue open and respectful, even when members disagree.

PLC norms development process

- Ask group members to think of a past negative experience they have had serving on a team or committee and identify a specific behavior that stopped progress.
- For each negative action identified by PLC members, establish a positive commitment statement (a norm) the PLC should adopt to prevent the past negative experience from occurring if everyone adheres to that norm.

Tips for establishing team norms

- Each PLC should establish its own unique list of norms.
- Norms should be stated as commitments to act in certain ways, rather than belief statements. For example:
 - Commit to the group's goals: Show up prepared and engaged each week, committed to contributing thoughtfully to discussions.
 - Ensure equal participation: Encourage everyone to contribute to the discussion, ensuring that no one dominates the conversation and all members are given a chance to participate.
 - Ask questions for understanding: If something is unclear or you don't agree, ask questions to understand rather than to challenge.

- Norms are reviewed at the beginning of each meeting so that PLC members internalize those norms.
- One norm should require the PLC to assess its effectiveness periodically. This assessment should include a review of PLC members' adherence to the team norms and whether others should be added.
- A few key norms (five to ten) are more effective and easier to follow than a longer list. Any violations of PLC norms should be addressed respectfully.



Toolkit: Establishing group norms with your PLC

Consider these possible themes as a guide to determining your unique PLC norms.

Themes to Consider	How Does Your PLC Interpret This Theme into Actionable Norms?
Respect: How do we show respect for ourselves, one another, and our time together? How do we celebrate or show appreciation?	
Listening: What does listening look like? How does one show listening or confirm they felt listened to?	
Open-mindedness: How will we demonstrate an open or growth mindset toward new information, perspectives, or experiences?	
Collaboration: How do we behave or speak when collaborating? How will we work together to address challenges?	
Violations: How will we react/what processes will we put in place if we feel another member has violated community norms?	

For additional support in establishing norms, see “Leveraging Norms for Difficult Conversations” (Polk 2016) in the Suggestions for Further Reading. In it, you will find specific information on learning how norms assist with challenging conversations (p. 1), example categories for norms and sample norms (p. 2), example processes for setting norms (p. 3), and strategies for addressing norm violations (p. 4).



Stage 4: Consider the PLC process with your group

After a few meetings, and once your **norms** have been established, you may wish to reflect on how the PLC is working for those involved. This will provide an opportunity for people to give their insights and feedback on the initial experience of participating in the PLC. It will help you determine if the norms identified in Stage 3 are functional for this group. To do this, you may consider conducting a survey.

Ask each team member to reflect on and record group behaviors that they consider ideal for each of the categories in the table on the next page. After everyone has written down their ideas individually, make a combined list of norms by merging similar ideas and clarifying as needed. A functional norms list should be manageable (five to ten norms at the most). Ask if everyone can comply with the list of norms. If anyone dislikes or cannot comply with the norms, review what is proposed. Determine whether the group can support the norms before the group officially adopts them.

A functional norms list should be manageable (five to ten norms at the most). Ask if everyone can comply with the list of norms.



Toolkit: Formalizing your PLC process

Consider These Questions	Proposed Process or Procedures
Time: When do we meet? Will we set a beginning and end time? Will we start and end on time?	
Listening: How will we encourage listening?	
Confidentiality: Will meetings be open? Is what we share in this meeting considered confidential?	
Decision-making: How will we make decisions? Will we reach decisions by consensus?	
Participation: How will we encourage everyone's participation? Will we have an attendance policy?	
Expectations: What do we expect from members?	

If you would like more information on reflecting and processing with your PLC, please refer to Stage 7.

Once you have reflected on the process, either through a survey or a conversation, you will have the information you need to start to move your PLC forward into action. This understanding of your group's needs should also provide you with information to outline the structure of your group meetings. For the meeting structure, you may consider:

- Is there a specific way your group would like to open a meeting?
- How will you identify the topics to be discussed during the meeting?
- Will there be a formal agenda? Who will be responsible for adding and prioritizing agenda items?
- How will you identify and flag things that need to be brought up in future meetings?
- Is there a way the group would like to close meetings?



Stage 5: Define roles and responsibilities within your group

Once you've set up your PLC meetings, it is important to consider the different roles that might be formally or informally assigned within the PLC, and whether these roles should be fixed or rotate through the group. As a group, identify the roles needed during a meeting, using the roles and responsibilities in the table below as a guide. Identify whether someone will always have the same role or whether the roles will rotate, and if they are rotating, how often they will change and how they will be assigned.

Roles	Responsibilities
Facilitator	This person sets the general structure of the meeting and will keep the discussion flowing but still focused on key questions.
Recorder or Note-Taker	This person captures key discussion points to keep a record of the meeting that is shared with the members afterward.
Timekeeper	This person helps maintain the general structure and facilitates the flow of the meeting, with a focus on timeliness.
Norms Manager	This person ensures that established norms are followed and reflects on changes in dynamics.
Visuals Manager	This person manages slides and other resources that will be used in the PLC meetings.
Encourager	This should be the role of all members, but there may also be a specific person who encourages all members to be actively involved, so different voices can be heard.
Negativity Eliminator	This person is mindful of the tone of the conversation and ensures that it does not become too uncomfortable or discouraging for members of the PLC.
Social Coordinator	This person organizes team-building activities or informal gatherings among PLC members.
Celebration Lead	This person recognizes and celebrates the accomplishments, big and small, of the PLC and its members.

Leading a PLC

Understanding leadership styles and different approaches to leading a PLC can enlighten members and encourage open conversations about who might be best to lead the group in particular tasks. The section below explores these different approaches and places this leadership style in the context of engaging in a PLC.

Recognizing your leadership style

Some of the roles and responsibilities suggested within the structure of PLCs are essential to ensure that the discussions and decisions made in PLC meetings are producing tangible outcomes. Understanding leadership styles can help motivate members and contribute to the PLC's sustainability. However, to ensure that the people who undertake these roles are aware of their own strengths and weaknesses and how they might affect the dynamics of the group, it is useful to be aware of one's own leadership styles. These different approaches, especially the facilitator of the group, can influence the way direction is given and levels of participation. The table here offers some examples.



Leadership Style: Autocratic

What This Looks Like: This type of leader provides clear expectations for what needs to be done, when it should be done, and how it should be done.

What This Might Look Like in Your PLC:

- ➕ Lots of progress and clear direction for the PLC.
- ➖ PLC members may feel like they don't have a voice or autonomy.



Leadership Style: Democratic

What This Looks Like: Democratic leaders offer guidance to group members, but also participate in the group and value input from other group members.

What This Might Look Like in Your PLC:

- ➕ Lots of opportunities to share ideas and experiences that can influence the outcomes of the group.
- ➖ Members may not always feel timely progress is being made.



Leadership Style: Laissez-faire

What This Looks Like: These types of leaders often leave the decisions to the group members.

What This Might Look Like in Your PLC:

- ➕ The members of the PLC are able to guide the group's direction.
- ➖ Without a clear voice of authority, final decisions may take a long time to be agreed upon.



Leadership Style: Transformational

What This Looks Like: These leaders are very passionate and energetic. They motivate members to participate and to want to achieve their goals, and they focus on the organization's potential.

What This Might Look Like in Your PLC:

- + All members of the PLC believe in the success of the group and can see how this will have a positive impact on their wider goals.
- Sometimes members can take on extra responsibility and may not be able to manage a larger workload.



Leadership Style: Transactional

What This Looks Like: This leader provides lots of supervision and guidance, so participants know what needs to be achieved and what the outcomes will be.

What This Might Look Like in Your PLC:

- + Members of the PLC understand what they will receive from being part of the group and feel supported in achieving this.
- If members feel like they are not gaining something in return for their participation, they might disengage.



Leadership Style: Situational

What This Looks Like: This style of leadership is highly influenced by the environment and specific situations.

What This Might Look Like in Your PLC:

- + The leader has a strong voice and provides direct actions for PLC members.
- Due to the emergent nature of a PLC, a change in situation might mean the leader cannot adapt to this changing environment and may end up providing little or no guidance.

To help build self-awareness about how a particular leadership style might affect the success of your PLC, you can find many online resources to help identify your leadership style.



Stage 6: Action planning and doing some work (6-month review)

Regular meetings should involve open discussions, resource sharing, and progress updates. Key members will take on roles to streamline meetings, while subgroups focus on specialized tasks like curriculum development or community engagement. Educational stakeholders might plan integrated lessons and activities, ensuring these issues resonate with students while supporting critical thinking. The PLC should monitor progress through reflective discussions, ensuring the work evolves in response to outcomes and community needs.

STEP 1 Setting goals

Once **norms**, recruitment messaging, roles, and aims are established for the PLC, the day-to-day work focuses on consistent, collaborative efforts toward embedding **socio-scientific issues** into your context. A good place to start is by aligning goals and developing a shared understanding of the key issues, especially once the PLC members have gotten to know one another a little and can draw upon each member's experiences and strengths. This can then help you create some action points and measurable goals to motivate and encourage members of your PLC.

There are a few toolkits for action planning on the next page.



Toolkit: Following the SMART (Specific, Measurable, Achievable, Relevant, Time-Based) action planning tool

Add as many actions as appropriate.



Specific

What exactly do you want to do?

Add action point/goal

Sample goal:

Integrate new curriculum into all 5th grade classrooms.



Measurable

How will you know you have achieved this goal?

What will your outcomes be?

Every teacher will provide a timeline for integrating the curriculum to ensure that it is taught by the end of the school year. Teachers will share student work as a demonstration of implementation.



Achievable

Is this a realistic target? (Consider any constraints you might encounter.)

Plan how this will be achieved in the time frame and which members are responsible.

The curriculum will be integrated by providing teachers with adequate training, giving them time to prepare for the integration, and providing regular meetings to review how they are implementing it.



Relevant

How does this step help you achieve the overall goals of your PLC?

Link this action to your PLC goals.

The PLC's goal of innovative teaching requires our participants (5th grade teachers) to implement new and different things in the classroom space, beginning with this curriculum.



Time-Based

What is your deadline for achieving this action?

Provide a deadline for your action.

The curriculum will be integrated and taught by the end of the school year.

Source: Doran 1981, 35 – 36.



Toolkit: A more open action plan that can be used for smaller activities, or with a smaller PLC group

Add as many actions as appropriate.

Task	Person Responsible	Notes/Updates	Deadline
Your action point	Who is involved with this task?	Things to note/discuss in the next meeting/review.	When does this need to be achieved?
Sample action: Integrate more opportunities for educators to learn from one another through classroom observation time.	Person 1: Connect with administrators to support this program. Person 2: Set up the schedule of classroom visits.	Participating educators can sign up on the sign-up sheet, and then notify their peers of what they will be teaching during the classroom visits.	Everyone will sign up for observations by the end of the month. Observations will be completed by the end of the quarter.

NOTES



Toolkit: The RACI (Responsible, Accountable, Consulted, Informed) Matrix is another way to conduct and track your work



Task/Activity

Identify the task or activity that you are doing as a part of your PLC.



Responsible

Identify the party who is responsible for undertaking this task.



Accountable

Identify the person or persons who are ultimately accountable for this task being completed.



Consulted

Identify who needs to be consulted to complete this task. Who do you need advice from? Who do you need to work with who is not in your PLC?



Informed

Identify who needs to be informed along the way. Who needs to be regularly updated, what information do they need, and who will be the one to update them?

Sample action using the RACI Matrix

Integrating socio-scientific thinking into a school curriculum

Task/Activity	Responsible	Accountable	Consulted	Informed
1. Identify key socio-scientific issues	Who will be responsible for leading the research and identifying the issues?	Who will ensure that the key socio-scientific issues are identified correctly?	Who should provide expert input to help identify the most relevant issues?	Who needs to be updated on the identified issues?
2. Design lesson plans with socio-scientific integration	Who will develop the lesson plans that incorporate socio-scientific thinking?	Who will oversee and approve the final lesson plans?	Who should be consulted to provide feedback on the lesson plans?	Who needs to be kept informed about the progress of lesson plan development?
3. Teacher training on socio-scientific pedagogies	Who will be in charge of organizing and delivering the training for teachers?	Who will be accountable for the success and quality of the training?	Who should be consulted to contribute to the content of the training?	Who needs to be informed about the training schedule and details?
4. Pilot integrating the curriculum in classrooms	Who will implement the pilot curriculum in classrooms?	Who will ensure that the pilot is conducted effectively and is monitored?	Who should be consulted to ensure the pilot is aligned with educational goals?	Who needs to be informed about the progress and outcomes of the pilot?
5. Assess student outcomes	Who will lead the assessment of students' learning outcomes?	Who will be accountable for the accuracy and reporting of the assessment results?	Who should be consulted to ensure proper evaluation methods are used?	Who needs to be informed about the results of the assessment?

Source: Jacka and Keller 2009.

STEP 2 Enacting your action plan

You may wish to consider some of the following activities as actions that your PLC will take. Any of these can be input into the outlined action planning templates.

Explore an Issue

- Share research, case studies, or data related to your chosen topics.
- Facilitate group discussions on the ethical, social, and scientific dimensions of each issue.

Plan Classroom Integration

- Collaborate on lesson plans and activities that incorporate socio-scientific issues into science, technology, engineering, and math (STEM) or social science curricula.
- Create student project frameworks that address real-world problems.

Engage the Community

- Plan events, workshops, or public discussions that involve parents, local experts, and stakeholders.
- Use relevant local issues as a bridge for community-school partnerships.

Train Teachers on Specific Pedagogies

- Organize professional development workshops to train teachers on how to effectively integrate your selected pedagogies into their teaching.

Collect Data and Create Research Publications

- Your PLC may wish to think about the research potential of the work you are doing, and will need to gain approval to start the data collection process.
- Once you have collected data, you can discuss how you want to analyze, present, and disseminate your findings.

Assess Student Outcomes

- Conduct assessments to measure student understanding and engagement with your selected issues.
- Plan formative and summative assessments to gauge how well students apply what they are learning in real-world contexts.

Develop Tools for Professional Use

- Create a glossary for shared vocabulary inside the group and illustrate it with case studies, so those outside the group have a richer understanding of the terms you have used.
- Synthesize your group's criteria for evaluating resources used within this topic into a simple tool others can use to quickly determine whether a resource on this topic is right for their purposes.

Plan Strategically for Your Classrooms, School, or District

- Identify strengths, weaknesses, opportunities, and threats related to socio-scientific integration.
- Identify available resources and any gaps that need to be filled.
- Outline tasks, assign responsibilities, and set deadlines for effective execution.
- Set criteria to assess the impact of the PLC's work.
- Regularly discuss successes and challenges to adjust strategies.
- Review goals regularly and adjust strategies based on feedback and outcomes.

NOTES



Stage 7: Reflect, refocus, and reaffirm goals, values, and norms

Continued touchpoints are important for members to collaborate, share ideas, and learn from one another. By meeting frequently, members can engage in meaningful discussions, exchange best practices, and explore new strategies to improve their professional practice. This collective learning enhances the overall effectiveness of the PLC and promotes reflection. Frequent touchpoints also provide opportunities for self-reflection, growth, and an opportunity to refocus. PLC members can engage in discussions that prompt them to critically analyze practices, reflect on their successes and challenges, and seek feedback from one another. This reflective process supports continuous improvement and helps members refine their practice.

Reflection can also help adjust the PLC to better support an individual's needs personally or professionally. For example, a young researcher may be looking for chances to publish papers, and after discussion the PLC could assign them a mentor or create a working group that identifies research opportunities in the field or within the PLC. Another person may find that it is hard for them to commit to the PLC during a certain time of year that is busier in their life or job (for example, the start of the school year, or a holiday time). In this case, the PLC may choose to change meeting times or commitments to suit this person's individual needs.

Tips to begin frequent touchpoints for reflection

- Develop a plan for continued touchpoints for PLC members. At least twice a year is recommended. A group calendar may be shared to track meeting dates. Each time you do meet to reflect, try to schedule the next time for reflection.
- If your reflection times are not separate from your regular meetings, begin meetings with time for reflection. If reflection is left until the end of the meeting, it may continually get pushed off.
- If it is helpful for the group to have a written record, create a document and ask people to write a short (two- to five-sentence) reflection after each meeting. This may help people identify trends over time that they would like to speak about.
- Assign someone or a group the role of reflection facilitator to create some ownership over this time.

Once touchpoints for reflection have been established, there are several tools that can be used to make those touchpoints productive and focused.

The toolkit on the next page shows an example of what a meeting may look like that will encourage members to revisit their initial goals, values, and norms (as established in Stage 3).



Toolkit: Reaffirming norms and focus areas

Activity	Description	Notes
Premeeting Work	Administer a survey (see <i>Administering a reflection survey</i> for an example), the <i>Collaboration and feedback channels template</i> , or other prework to help people come prepared with a cohesive set of thoughts.	
Facilitation Ideas	<p>Revisit the <i>Framing the why</i> conversation from Stage 3. Record any additional ideas or questions.</p> <p>Engage in conversation around the survey or toolkit questions members filled out before the meeting.</p> <p>Provide opportunities for clarification and reclarification of shared values and norms.</p> <p>Capture ideas for future reference.</p>	
Discussion Tools	<p>Breakout rooms</p> <p>Polling tools</p> <p>Padlets or notetaker applications</p> <p>Chat features</p>	
Reflection	Collectively generate a list of norm statements.	
Offline Work	PLC facilitators can compile the norm statements and refine them for the next meeting.	



Toolkit: Administering a reflection survey

One way to determine whether PLC members feel the set norms and goals are an integral part of their experience is to administer a survey after norms and goals have been in place for a period of time. The survey can then be used to help PLC members clarify expectations regarding how they will work together to achieve their shared goals.

Use the following ratings to reflect on your experiences as a member of a collaborative PLC.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I know the norms and protocols established by this PLC.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Members of this PLC are following the established norms and protocols.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This PLC maintains its focus on our established goal(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This PLC is making progress toward our established goal(s).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The PLC experience is having a positive impact on my personal growth and work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Providing a space for open-ended comments is also recommended to capture additional thinking and feedback. For example:

- Would you like to share any additional comments or feedback?
- Are there any lingering questions about the PLC norms?



Toolkit: Collaboration and feedback channels template

This template is designed to gather feedback from members of the PLC and help the group adjust activities based on their personal and professional needs. It helps identify the preferred modes of collaboration, necessary adjustments, and suggestions for improvement. This toolkit ensures that all members can participate effectively and maintains a supportive and adaptive learning environment.

How to use the template

1. Members fill out the template to provide details about their current workload, preferences for collaboration, and any personal/professional needs that may affect their participation.
2. PLC leaders review the gathered information to make necessary adjustments, such as modifying schedules, formats, or content delivery, ensuring **inclusivity** and responsiveness.
3. This template can be used regularly to continually monitor members' evolving needs and ensure the PLC remains flexible and supportive.

Feedback Section	Guiding Questions	Responses
Member Name	What is your name?	
Current Role and Workload	What is your current role, and how would you describe your professional workload (light, moderate, heavy)?	
Preferred Mode of Collaboration	What mode of collaboration works best for you right now? Do you prefer synchronous or asynchronous activities?	
Personal/ Professional Needs	Do you have any personal or professional circumstances that require adjustments to your participation?	
Adjustments Requested	What changes in scheduling, learning materials, or meeting formats would help you participate more easily?	

Feedback Section	Guiding Questions	Responses
Topics of Interest for Future Sessions	What topics or skills would you like the PLC to focus on in future sessions or collaborations?	
Feedback on Recent Activities	How do you feel about recent activities? Were they relevant and accommodating to your needs? How could they be improved?	
Suggestions for Improvement	How can the PLC be more adaptable and supportive of personal/professional needs?	
Availability for Mentorship/Peer Support	Are you available to mentor someone or offer peer support? Are you looking for guidance?	
Preferred Communication Channel	How would you prefer to receive communications from the PLC leadership and peers?	
Preferred Frequency of Participation	How often do you prefer to engage in PLC activities? Would you like to reduce or increase your participation?	

It is recommended to provide a space for open-ended comments to capture additional thinking and feedback alongside this toolkit. For example:

- Would you like to share any additional comments or feedback?
- Are there any lingering questions about the PLC norms and organization?

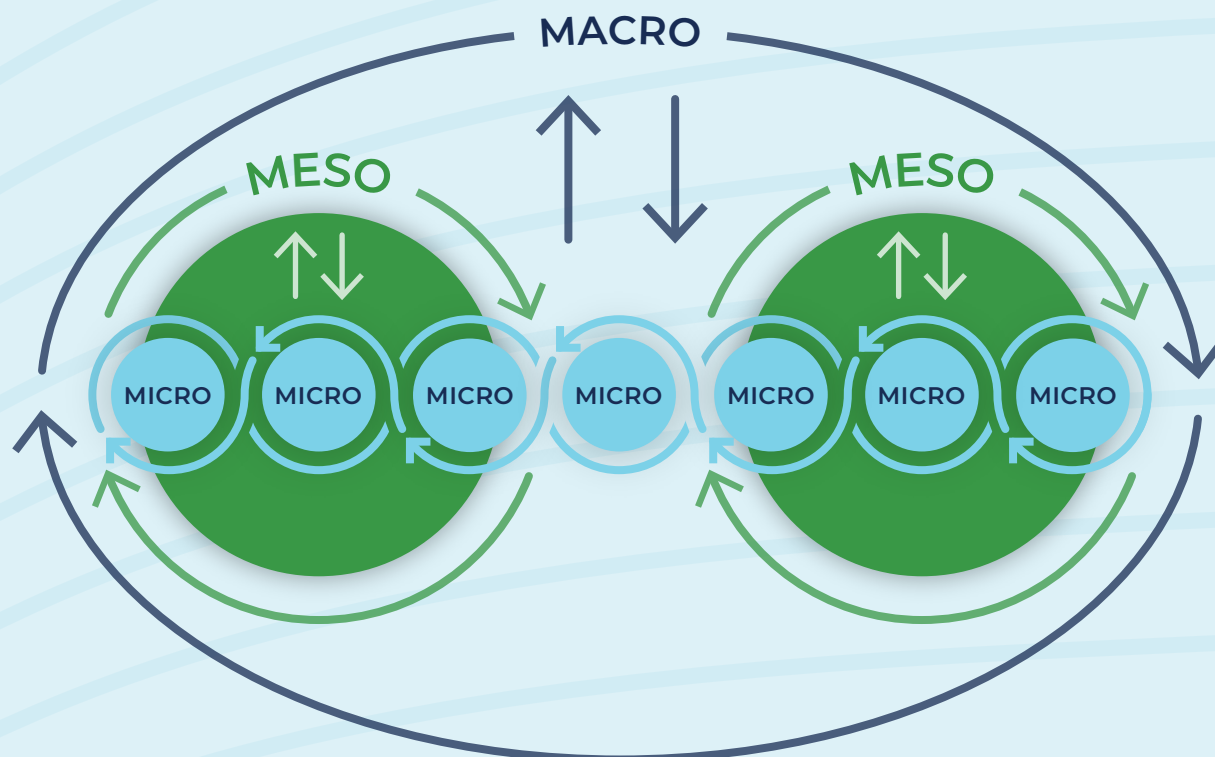


Stage 8: Maintaining, responding to, and growing your PLC

This section provides a range of tools and activities that are designed to facilitate the maintenance and success of your PLC. There is a troubleshooting section that addresses common challenges, reflection tools to monitor and respond to your PLC to ensure it doesn't become stagnant, and tools that may help you understand the dynamics within the group.

Remember, PLCs involve people who also have other responsibilities. Maintaining and driving your PLC forward can feel hard at times — that's normal. There may be a natural ebb and flow to your PLC during challenging times of year, or when people have competing priorities.

This section offers valuable information and guidance to support you in navigating these challenges effectively. Common challenges have been categorized based on their time scale (as shown in the image below). Micro-level challenges arise based on meeting structure and process; they affect work being done now and in the next three to six months. Meso-level challenges are those that prevent meaningful work from taking place on the project level, or work with milestones that might be six months to a year away. Macro-level challenges occur when there's a mismatch between the operations of a PLC and its long-term goals and vision. Issues may arise across multiple levels as processes and work from each level feed into the other ones. Refer to the sections that are most applicable to your current PLC situation.





Toolkit: Maintaining a PLC: Common maintenance challenges

These tips are designed to offer reassurance and help for everyone pursuing a successful PLC.

- Common Problem:** Not everyone in the PLC may feel comfortable and confident expressing themselves if they are not invited to do so specifically. For some people, the idea of being put on the spot would terrify them.

Possible Solution: Send out a rough agenda or pretasks for members to complete before the meeting, so if they are asked to share their thoughts, they have some idea prepared.
- Common Problem:** There will be a natural ebb and flow to your PLC. Sometimes people may just be busy with other commitments, and so it happens that there are a few meetings where little progress is made or few members show up.

Possible Solution: If this happens at just one or two meetings, it could be nothing to worry about; life can get busy. You can use the toolkit resources in this section to review the PLC if you feel like things are slowing down.
- Common Problem:** Not all PLCs feel productive at first. It may seem as if there is a lack of tangible outcomes.

Possible Solution: Use a PLC meeting to identify and agree on clear, measurable goals and commit to regularly reviewing progress on those goals. A good start is to have your PLC reflect on the outcomes they would like to see take place, helping everyone to feel a part of the process and responsible for the outcomes.
- Common Problem:** If you notice that PLC participants are disengaged, frequently checking their phones, always having cameras turned off for virtual meetings, or showing little interest in the discussions, engagement may be strained within the group.

Possible Solution: Incorporate time for members to voice their concerns and share successes to improve morale and strengthen commitment to the group's goals. Incorporate time to share in smaller groups, where people may feel more comfortable or have more camaraderie.
- Common Problem:** One member of the PLC group is dominating the conversation, leaving little room for others to contribute.

Possible Solution: Consider implementing a structured discussion format with designated speaking times for each member, to ensure balanced participation. If it feels appropriate, consider speaking one-on-one to the person who is dominating the conversation.
- Common Problem:** PLCs can often get off topic, or spend too much time on one thing, preventing the group from covering the entire agenda.

Possible Solution: Establish time limits for each agenda item and appoint a timekeeper to ensure the meetings stay on track. Consider scaling back meeting agendas if people need the time and space to share more deeply.

❗ **Common Problem:** The person who has become the natural leader of the group seems to be doing all the work and driving all the conversations forward.

💡 **Possible Solution:** Consider whether you are (still) the right person to lead. It may be time to pass leadership off, or work to share the leadership roles. Refer to the leadership styles and meeting roles in Stage 5.

❗ **Common Problem:** The PLC has project(s) they are working on, but are struggling with the emergent nature of PLC work. Some members are stuck in a spiral of conversation about what they are supposed to be doing, can't figure out how the PLC connects to their personal work, or are taking the projects in directions that don't fit the purpose of the PLC.

💡 **Possible Solution:** Review PLC **norms** and goals and ask each subgroup to come up with one step they could take with their project to align it with each norm and/or goal of the PLC. Ask the group to reaffirm their commitment to the PLC, and to confirm that their projects are aligned with the PLC as a whole.

❗ **Common Problem:** Members start to feel disconnected from the PLC or are overwhelmed with work-related or personal responsibilities and slowly but steadily start to leave the group.

💡 **Possible Solution:** Consider meeting one-on-one with members who are considering leaving and invite them to take a leadership role in the group to ensure that it is meeting their personal and professional needs. Re-examine the communication platforms you are using to make sure they are as accessible and as culturally relevant as possible, taking into account both members' geographical contexts and professional cultures.

❗ **Common Problem:** The initial goals of your PLC have changed.

💡 **Possible Solution:** Go back to Stage 1 and do the *Articulating aims and goals of the PLC* activity. Then go to Stage 6 to create an action plan based on your new goals.

The following are a series of toolkits that will help you to address and manage the most common PLC challenges. If you are concerned about how your PLC is unfolding, consider using one of these toolkits with your PLC members to identify the best ways to move forward.



Toolkit: PLC member attrition and platform accessibility

This toolkit helps identify factors that lead to attrition (reduced participation) among PLC members. It also examines how the **accessibility** and cultural fit of the chosen collaboration platform affects participation. The information that can be gathered will help you take steps to reduce attrition and ensure the platform meets the diverse needs of all members.

How to use this toolkit

1. Use this toolkit to regularly collect feedback from members on their participation levels and reasons for attrition.
2. Assess whether the current communication and collaboration platforms are accessible and culturally appropriate for all members.
3. Use the insights to improve participation by adjusting the platform, communication strategies, or collaboration formats.

Section	Guiding Questions	Responses
Member Name	What is your name or alias?	
Current Level of Participation	How frequently do you participate in PLC activities?	
Reasons for Reduced Participation	Have you experienced any personal, professional, or platform-related challenges that led to reduced participation?	

Section	Guiding Questions	Responses
Challenges with Current Platform	What challenges, if any, do you experience when using the current PLC platform (such as Zoom, Slack, Google Workspace)?	
Importance of Platform's Cultural Fit	Does the current platform align with the common practices and communication culture of the group? Are there any cultural considerations that affect usage?	
Platform Accessibility	How accessible do you find the platform in terms of your location, technology, and available resources?	
Preferred Alternative Platforms	Is there another platform that you feel would be more accessible or suitable for the group's culture and collaboration style?	
Personal/Professional Barriers	Are there any personal or professional barriers preventing your active participation (such as time zones, health, workload, caregiving responsibilities)?	
Suggested Improvements to Increase Engagement	What changes (scheduling, platform, format, etc.) would encourage you to participate more actively?	
Preferred Mode of Communication	How do you prefer to communicate with the PLC leadership and peers?	
Other Considerations	Are there any other factors that should be considered to improve participation and ensure that the platform is accessible and fits the group's needs?	

Responding to the ebb and flow of a PLC

When working together in a community, it's important to recognize that the dynamics of the work will change based on goals, structure, and team capacity. This cyclical nature is especially found during emergent work, because, just as in nature, it takes time for new relationships or systems to grow together.

However, observing or waiting for emerging dynamics to coalesce may place members and/or leaders of the PLC in a place of uncertainty or discomfort. It may even feel as if the PLC is falling apart, going in a different direction than intended, or just stuck. **So, how do you recognize whether the PLC is falling apart or the capacity of the PLC is just low or currently in transition?**

Ebb and flow at the micro-level: meetings

To get a holistic picture of the PLC, it often helps to examine it from different levels of scale.

First, take a look at your PLC from a micro-level scale. How did the last three to five meetings go?

☒ Did discussion feel productive for community members?

☐ Did community reflections/discussion show a movement toward consensus on a new idea, vision, goal, or action?

OR

☐ Did community reflections/discussion show an exploratory or investigatory nature regarding a new idea or dynamic that emerged/came up/was noticed in the group?

☒ Were any actionable items set for the following meetings?

☐ Were the actionable items completed by the deadline/within a reasonable amount of time?

AND

☐ Were actionable items distributed among community members so the burden of executing on community goals is shared and not dropped on a single individual?

☒ Was there any reference to the meso-level goals of the group to check progress/revise the goals based on something new that has emerged?

☐ Do actionable items/discussions move toward achieving current meso-level goals/growth?

OR

☐ Do actionable items/discussion show a new, emergent direction that requires a revision or a rethinking of the meso-level goals?

If all three of the major category boxes were checked and four of the subcategory boxes were checked, your PLC seems to be active. Check the meso- and macro-level sections to make sure you are in alignment with your larger vision.

If all three of the major category boxes were checked but some items in the subcategories were not, your PLC may need to revise how it works on the micro-level. Read the corresponding advice below for how to move forward.

Discussion unchecked – You may have a stagnant PLC or need to change your micro-level structure.

- If discussion is not productive or is circular, try having members write out their thoughts about the topic, and then analyze them for common features or ideas. You could also have community members do short (five-minute) presentations to get their viewpoint across in a limited amount of time.
- If coming to a consensus is a problem, try a consensus-building exercise such as pooling ideas and then eliminating less important features. Or find a slow consensus. Find a partner, and as a pair find consensus on which part or parts are most important. Then in a group of two pairs you find consensus. Then in a group of four pairs you find consensus. Keep adding together groups until you have found a community consensus.
- If equitable discussion is a problem, try different approaches. You could use the indigenous North American talking stick, or decide on a discussion protocol that includes speaker time limits and respectful feedback to ensure everyone gets time to be heard.
- If finding a topic for discussion is difficult or members fall back into current groups or positions in the PLC, encourage members to make new connections. A simple way to do this is to provide a directory of headshots and bios for people to see others' areas of expertise, or host skill-share presentations for 10 or 20 minutes at the beginning of each meeting, where members are given the chance to share their expertise with the group.

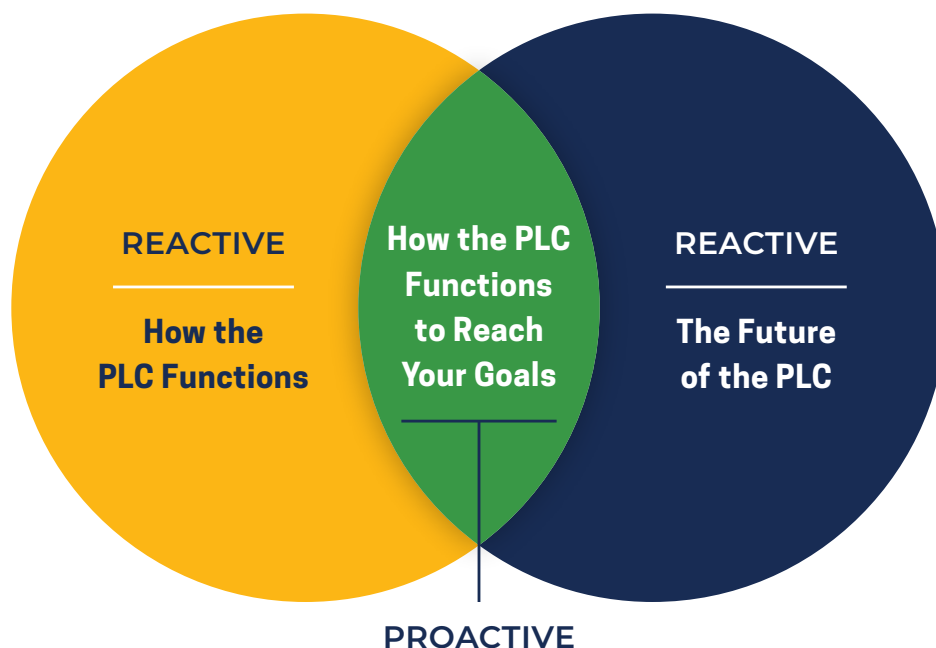
Actionable items unchecked – You may have a stagnant PLC due to low capacity or over-reliance on one or a couple of individuals.

- To make sure actionable items are equitably distributed and are completed on time, check in with the status of the group. If you find this is a continuing issue, you may want to regularly incorporate a check-in about individual capacity into your meetings. One possible check-in may be to ask members to state: "What do I need and what can I give right now?" (See Lin & Perry, 2022 under suggested reading list.)
- If actionable goals cannot be created because community member capacity for the PLC work is low, that's okay. You might be in an ebb period of the PLC. If this doesn't change after a few months, it may be time to have a more serious conversation about how the PLC could be better integrated into work members are already doing, or if it could be built into strategic plans of the organizations that community members are already a part of.

If equitable discussion is a problem, try different approaches.

Meso-level goals unchecked – You may need a stronger, proactive sense of direction.

- If micro-level goals don't refer back to the macro- or meso-level goals of your PLC, build in a time during meetings to connect with meso-level goals every four to eight weeks, and/or macro-level goals every 12 to 16 weeks, to stay on course, account for emerging directions, and reemphasize the larger goals.
- If micro-level goals are constantly changing direction and are not matching with meso- or macro-level goals, your PLC may be in a reactive state instead of a proactive state. Reactive-to-proactive can be a difficult shift to make, as it requires a change in both operations and culture. A first step to making that shift is to create two visions for the PLC. One vision will focus on the future the PLC is trying to create; the other vision will focus on the how the PLC ideally functions. Then you can try to find areas in those visions that overlap and refocus on **how** your PLC functions to reach your goals.



Ebb and flow at the meso-level: keeping momentum

The meso-level stage is focused on moving forward with your action plans and progressing toward completing projects that meet the PLC's long-term vision. This level is often hard to analyze, as many complex processes are occurring at this time scale: New plans are made and projects continue to be revised. It can be hard to know when a project is just under revision and when action has stalled completely. Another important aspect to look at on the meso-level is celebrating work that has been completed, so the group recognizes that it is moving toward the shared vision of the members and remains energized to continue.

Some strategic planning, as in the toolkit on the next page, may help align the goals of each project with the goals of the PLC and identify action steps to take, possible challenges to overcome, revision points, and celebration points.



Toolkit: Template to keep projects on task on the meso-level

Project Plan

Background

What has happened up to this point? Where do you feel you are getting stuck or having success?

What beliefs, norms, knowledge, resources, systems/structures, or circumstances have been assets to you so far?

What beliefs, norms, knowledge, resources, systems/structures or circumstances have been obstacles to you so far?

Goals

Write down the short-term goals of your project.

Refer back to your PLC norms and goals. Revise project goals to be in alignment.

Actions

What actions can you take in the next three to six months to work toward the goals you just stated?

How can you use the assets you identified in the Background section to help you meet these goals?

What obstacles/challenges you identified in the Background section or new challenges might you encounter? How can you plan to overcome them?

Revision and Celebration

Are there any points you can identify where it might be a good time to stop, reflect, and revise your plans to accommodate for what you've learned?

Are there any points you can identify that signify an achievement/call for celebration? How do you want to celebrate the work you achieved? How do you celebrate your work outside the PLC?

Ebb and flow at the macro-level: long-term engagement and goals

When trying to figure out whether the participation within the PLC is in its natural ebb of the cycle of engagement or starting to fizzle, you could take a step back and evaluate this on the macro-level. To do this, you can use a critically reflective model to take on board participants' experiences, plus guidance and advice from the literature. An example of this would be to adapt and adopt Brookfield's (1995) four lenses; this was initially intended for teachers, but has been adapted below as a tool for reflecting on your PLC.



Autobiographical Lens

Your own experience of being a participant within a PLC can help inform the current experiences others may be having. An ability to use your autobiographical lens will enable you to identify key aspects that have previously motivated you, and thus, review current norms within the PLC.



Lens of Colleagues/Peers

This lens can help reduce the idea of imposter syndrome by encouraging critical conversations with your peers/colleagues, which may enable you to check, reframe, and broaden your PLC practices.



Participants Lens

This lens is about using participants' voices to review the current procedures of the PLC and encourages members to review how and what is being gained by those within the PLC.



Lens of Literature

This can provide another form of a critical friend, whereby other empirical evidence and theoretical perspectives about PLCs can help you to reflect on your current PLC.



Stage 9: Concluding, evolving, or growing your PLC

It's time to end your PLC. Or is it?

Most PLCs are designed to meet a need, solve a problem, or develop a specific collaboration. It's likely that the original goals of your PLC will eventually be met, and there will come a time when you will need to either close your PLC or reinvent it to take on a new mandate.

The biggest challenge you may face at this phase of the PLC is determining if it is, in fact, time to conclude or evolve. Some of the tools in Stage 8 may be useful to help you determine whether the PLC is stagnating momentarily, or you have met the goals of the group and it is time to conclude. If your group collectively feels that the goals of the PLC have been met, have a discussion about the next steps for you individually and as a group.

There are several approaches to concluding or evolving your PLC. The toolkit on the next page will help you explore them.



Toolkit: Worksheet to determine PLC next steps

Your group is proud of the work you have done, and are planning to continue it in other ways, but have reached a natural conclusion to the PLC. **It is time to:**

What Are the Next Steps for Your PLC?	What Your Goals May Be	Action Steps
Honor the work that has been done, keep that work going in other ways, but close the group.	Acknowledge the achievements of the PLC while formally closing it, to allow members to celebrate their work and transition smoothly.	Organize a final meeting to review accomplishments, share reflections, and discuss next steps. Create a commemorative document or presentation that encapsulates the group's journey.
Evolve the group into something smaller, depending on the needs of the individuals and the community.	Transition the PLC into a casual support network, such as a Facebook group or text chain, to maintain connections while focusing on accountability and resource sharing.	Set up the online platform, invite all members, and establish guidelines for participation to keep interactions meaningful and purposeful.
Evolve the group into something bigger, depending on the needs of the individuals and the community.	Expand the PLC into a larger task force or think tank that addresses broader community challenges while harnessing the expertise of its members.	Facilitate a brainstorming session to identify collective goals, then develop a mission statement and action plan to formalize the new group structure.
Find a way to close out the group where the legacy lives on through a publication, a training tool, or another product, or by giving a presentation to share their work with the broader community.	Ensure the impact of the PLC lives on through a tangible product or presentation that showcases the group's work and lessons learned.	Assign members to collaborate on creating a publication or training tool and plan a community presentation to share insights and resources.

What Are the Next Steps for Your PLC?	What Your Goals May Be	Action Steps
Evolve the PLC to have a multiplicative effect. Each person from the PLC could take what they have learned and bring it to another community they are a part of, thereby creating exponential growth of their work.	Encourage members to take their PLC experiences into other communities, amplifying the reach and impact of their work.	Host a workshop where members can strategize on sharing what they have learned and create a toolkit or resource guide to facilitate these discussions.
Evolve the PLC through spin-off groups — maybe a small group is particularly interested in one aspect of the PLC’s work and wants to go deeper. They can establish their own PLC with a slightly different focus.	Allow for the formation of smaller, focused groups within the PLC that delve deeper into specific topics of interest.	Survey members for interest areas, then provide support for those wishing to establish spin-off groups, including setting goals and meeting structures.
Connect the PLC to industry or other fields.	Connect the PLC with industry professionals to enhance learning opportunities and real-world applications of the group’s work.	Identify relevant industry contacts, organize networking events or guest speaker sessions, and explore partnership opportunities for projects or initiatives.
Some of these approaches to evolving the group may be more sustainable if money, time, or space are constraints for the initial PLC.	Evaluate the constraints of time, money, or space when planning the evolution of the PLC, ensuring that new structures are feasible and sustainable.	Conduct a resource assessment with members to identify limitations, then prioritize actions that align with available resources and set achievable goals.

When it is time to conclude a PLC, it will be clear that this is the right thing to do. But the decision should not be taken lightly, and should not be made by one person. If the person who has been leading the PLC is feeling burnt out and is not interested in leading, it may be time for someone else to move into that role, or to share the burden of leadership. It is also always okay for individuals to bow out of a PLC for personal reasons or individual circumstances. **And if your PLC has completed the goals and it is time to conclude because the work is over, congratulations! You did it!**

When is it time to reevaluate PLC membership?

Breaking up is hard to do

In your PLC, circumstances may arise where, for one reason or another, a single person or small group doesn't share the same vision as the rest of the group, and their vision cannot be incorporated into the larger group. In this case, it's best for these individuals to acknowledge that the space isn't right for them anymore and develop their own plan for exiting the PLC. However, sometimes group members do not want to leave but continue to be unhappy or stop participating in an appropriate manner, affecting the rest of the group negatively. In this case, it's time to break up with that member.

First, have the leader of the PLC meet with that person individually to assess their needs. If a plan of support can be created, great! However, if no meaningful plan of action can be reached, or if the individual in question still is negatively affecting the group dynamic, you can move forward and compassionately let them go. **Here is some suggested wording:**

"I want to thank you for your participation in **PLC NAME**. We have enjoyed working and engaging with you. We have come to understand that the future trajectory of the PLC doesn't align with your needs and expectations. If you feel this is an incorrect assessment, please do let me know and we can have a separate conversation about it.

Optional, if it is appropriate: I hope you can join us at the next meeting to say goodbye to everyone, and so that we can celebrate your contributions."

OR

"We know your current circumstances are outside of your control, and we appreciate you participating as you could. However, as we move forward with **PLC NAME**, we would like to emphasize our commitment to participation and will be setting up firmer expectations and procedures around absences. We know that given your circumstances, it is unreasonable to hold you to those expectations. It is also unfair to other participants if we treat you differently in this regard. Because of this, we are not able to support you at this time. If things change in the future, we will let you know. You can also always reach out for individual support. Thank you for your contributions and best of luck until our paths cross again."

If this is a path you are considering taking with members of your PLC, be sure to investigate why you are taking this approach. If people are not attending regularly, if their words or actions are affecting the morale of the group, or if they are making others feel unsafe, this decision should be clear. If there are cultural or personal differences that are making the PLC challenging, dismissing someone for their background or viewpoints is likely an inappropriate choice, and one that may be exclusionary, or may uphold existing cultural biases.

When participants leave the group you may want to standardize the offboarding process. These may be people you want to work with again or engage in future PLCs, so consider recognizing their individual accomplishments and contributions to the group. You may also consider a standard exit interview for PLC participants to help individuals reflect on their time as a part of the PLC, and to support the future goals of the PLC.

Offboarding

Recognizing Accomplishments

As someone prepares to leave the PLC, it is important to recognize their accomplishments and contributions to the community. Take some time out of a meeting to acknowledge their work, or provide a certificate or letter of recognition.

Exit Interview

Collect information on the PLC experience through surveys or in-person focus group interviews.

Potential exit interview questions:

- How do you feel about the impact of this PLC?
- What factors are contributing to you exiting the PLC group?
- Was there a time when you felt proud of your work with this group? When was that?
- What obstacles did you run up against as an active participant in this group?
- Did you feel supported while engaging with this PLC? In what ways?
- How do you feel about the management of this PLC? Do you have any feedback or suggestions for how we can improve our processes?
- Anything else you'd like to share?

Bringing in fresh perspectives

You may also reach a point in your PLC where the group can benefit from new perspectives and ideas. If this is a way in which you would like to evolve your group, make sure you discuss it with the rest of the group to make sure they feel the same way. Based on your circumstances, you might revisit the recruitment approaches from Stage 2 when searching for new members. Perhaps there are new members whom it makes sense to bring into your group—for instance, if your department has a new employee who will be working on the same things as existing PLC members. In some cases, your PLC may benefit from new perspectives that are further afield. In this case, you may consider an open call or application process for the PLC to bring new voices or perspectives into the work.



How do you finish your work?

At the conclusion of your PLC you may be tired or experiencing sadness because it is over. But it is important to send your PLC off with some final ceremony. Remember to celebrate and acknowledge the work of all the members of your PLC. If possible, find avenues to share the work that your PLC has done. This might be something like a group reflection, sharing your work with a group of external peers, presenting at a conference, or sharing any outputs that you have on social media. This is a crucial step in the lifecycle of a PLC, as it helps to demonstrate the value of your PLC and the future possibilities that may arise. It may also inspire your peers to start PLCs of their own! Be sure to recommend this guidebook to them.

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Glossary

Accessibility: Accessibility means giving equitable access to everyone along the continuum of human ability and experience. Accessibility encompasses the broader meanings of compliance, and refers to how organizations make space for the characteristics that each person brings to the whole.

Action research: Action research is a philosophy and methodology of research generally applied in the social sciences. It seeks transformative change through the simultaneous process of taking action and doing research, which are linked by critical reflection.

Emergence: Emergence refers to the phenomena of a new or unique behavior or dynamic arising from the interaction of two objects or systems that would not arise otherwise. Emergence is surprising and complex because this new characteristic is not present in the individual object/systems.

Inclusivity: Inclusivity is the intentional, ongoing effort to ensure that diverse individuals fully participate in all aspects of organizational work, including decision-making processes. It also refers to the ways that diverse participants are valued as respected members of an organization and/or community. While a truly inclusive group is necessarily diverse, a diverse group may or may not be inclusive.

Multi-modal: A variety of communication approaches that are specifically designed for those you are communicating with.

NESST: NESST is the Network for Emergent Socio-Scientific Thinking. Housed at the Smithsonian Science Education Center, it is a global network comprised of youth, educational innovators, business leaders, STEM professionals, organizations, and communities interested in transforming STEM education for sustainable development. Committed to thinking differently through the lens of emergence and complexity, NESST reimagines education for life on a sustainable planet.

Norms: Norms are the common, shared behaviors of a group. They govern individual behavior, facilitate the work of the group, and enable the group to accomplish its tasks.

Pedagogies: Pedagogies are theories and practices of how people learn and how learning is influenced by cultural and political contexts.

Professional learning community: A professional learning community (PLC) is a tool used by a group of peers to collaborate, learn together, share diverse perspectives, and investigate a chosen topic.

Socio-scientific issues: Socio-scientific issues are topics that bring science together with other fields, often to respond to a moral or ethical dilemma. These issues require an understanding of science/scientific skills in order to engage with them in an informed way and better support community decision-making and social values around the topic.

STEM4SD education: STEM Education for Sustainable Development (STEM4SD Education) is an approach to education that promotes STEM education within a transdisciplinary framework, acknowledging the complex context of global challenges and the need for integrating values, ethics, and world views, with the aim of developing sustainability mindsets and using science to do social good.

UN Sustainable Development Goals: Seventeen goals for a better world created by the countries of the United Nations.

Value-generating activities: Value-generating activities are activities or prompts that can be used to help a group decide what matters to them or what they believe in as a group.

Thank You

PLCs are unique in nature, and therefore, we hope that this guidebook has provided practical ideas and solutions for creating, maintaining, or reinvigorating your own PLC. The toolkits and templates provided can be adapted to suit your personal needs, as these examples use a more educational and socio-scientific context. We hope you have found the content useful, and we welcome any feedback and success stories to help us grow and develop our own emergent practices.

Thank you for engaging with the material.

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