[On-demand Learning for Better Scientific Software: How to Use Resources & Technology to Optimize your Productivity](#)
IDEAS-ECP Best Practices for HPC Software Developers Webinar Series
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Q: In the graphic on slide 17, do you have recommendations for engaging learners in all those different arenas?

Elaine: Yes, I do! Many of the suggestions I have are dependent on context, culture, situation, audience, etc. If you have specific questions on how to engage others (your team, organization, students) in transmedia learning with new media, don't hesitate to reach out. Each of these areas is a robust presentation in itself!

Q: The transmedia learning framework (TLF) and storytelling arcs are a good outline for how we are self-learning and engaging information in today's world. One could have this in mind when developing one's own HPC "products". In other words, couldn't we implement these various self-learning tools into our plans so that the impact of our HPC software is greater? I suppose some platforms would be more applicable than others. How does one get started down this path, in other words how to prioritize which tools one should use first etc.?

Elaine: I love this question. Yes, your comment about implementing various self-learning tools into your HPC "software product" plans to increase impact, is a great, actionable goal. Any team that would like to pursue this with IDEAS-ECP should not hesitate to contact us. We can easily begin a PSIP (Productivity and Sustainability Improvement Planning) activity around the use to transmedia learning frameworks (TLF) for HPC and scientific computing "products." I'm personally very motivated to engage with the ECP community.

Regarding your question about getting started with prioritizing platforms, media, or content, I would answer this question differently if I were prioritizing content and designing a TLF for myself (an individual) or for a team, or "team of teams." If prioritizing for yourself, allow yourself to be pragmatic--that is, be realistic about the amount of time you have to devote to whatever you are learning. For example, if you know you are busy, but can commit to 10 minutes per day, start by choosing content that you can consume (start and finish) in a 10-minute period. The reason I suggest this, is because especially as you get started you will want to create learning habits that provide opportunities to "hook" yourself on a neurological level--you want to anticipate the activity, then reward yourself, to leverage the dopamine seeking-reward loop. This hook will be important in the beginning to generate the motivation you'll need to engage with content and tools more deeply over time. To recap: with regard to prioritization, think about 1) the amount of time you have, 2) the modality you prefer (at least to start), and 3) what content

will allow you to start and finish (a.k.a. accomplish) your objective or goal in the time allotted. You will want to see yourself immediately making progress toward your goals.

If I were to answer the same question and design a TLF for a team, I would have similar considerations, but my design would be more complex. This is actually the topic of another webinar or presentation on designing transmedia learning. If you'd like me to present this topic to your team or organization, let us at IDEAS-ECP know.

Q: If you're coming at this from an instructor's perspective, how much do you need to educate your learners on the ins and outs of the TLF? Or is it sufficient to incorporate a handful of these different media into the learning experience and trust that it'll just work out?

Elaine: This is a great question! As an instructor, it's important to realize that if you are asking your learners to learn outside of the classroom, or formal environment--the learner is in control. Once a learner enters an informal, self-paced learning environment, they will likely redesign, and personalize their learning. They should feel empowered to make learning most productive for themselves, to maximize their productivity, which is what the webinar was actually about. So, as an instructor, I believe it is most important to educate learners about the transmedia learning framework (TLF) and give them the tools they will need to make smart choices (discernment) while they learn *in the wild*. Instructors aren't able to control what, why, how, or when they learn. Having the tools and skills to be productive and effective while learning in the wild will increase the likelihood of their transfer of learning--which is what we really want. We want learners to employ skills and knowledge across many different domain areas.

Q: I see the relevance of the points you raised in section 2 of the presentation (making learning stick, self-directed, and self-regulated learning). Two main challenges with self-paced learning, in my experience, are 1) selecting appropriate difficulty, and 2) engaging with others (which helps me stay engaged). Any comments or recommendations?

Elaine: Yes, thank you for raising these questions. In each case having a heuristic, or approach, for moving forward would help you address these challenges. The TLF is meant to provide a heuristic that is flexible and applicable to a variety of circumstances.

Regarding selecting the appropriate level of difficulty for your transmedia learning experience, you may decide to gauge difficulty by the amount of time it takes to finish a task, whether your interest level is high, or whether you are easily prone to distraction. In many cases, you'll know if something is too easy or difficult--try to answer this question on a visceral level--ask yourself if you are engaged during and after the learning. Try a variety of media and modalities, especially some that you have never tried before. Look for something that takes you out of your comfort zone. You may surprise yourself. :-) The transmedia learning framework is meant to provide ways to think outside the box about learning, or what we normally consider education. The TLF is a way to employ new media in a way that is going to augment your learning experience, to include engaging yourself at the neurological level.

Regarding engaging with others, it can be difficult, especially if you don't know where to start. It sounds like your question is about how to meet others who are engaged in learning about a particular topic, or becoming part of a community of practice. For example, let's say you are learning Git on your own. Try to find folks familiar with Git (or learning Git) in your organization, or network so that you can bounce ideas off them. Go to colleagues you know well and ask them if they know anyone who knows Git well enough to help you. Ask them to introduce you. Try what social scientists call a "snowball sample," that is, leverage your colleagues to talk to their peers on your behalf to increase your community, one by one, or until you get involved in a community of practice that is right for you.

You can also crowdsource answers to questions you may have while learning. Consider following experts on social media to augment your immersion in community and with social learning.

Q: I just feel content selection is mostly through trial and error. Any benchmarking?

Elaine: Great point to end our conversation. Since everyone is different, and circumstances are different, it will seem like trial and error until you gain more experience, and can employ a set of heuristics for content curation that work for you. This may involve looking at reviews or other expert evaluations. Don't forget that as members of the HPC community, you've amassed a number of skills you can apply to discerning whether the content you have curated will be useful. If you are learning Git/GitHub or Python, you can go to [Better Scientific Software](#) for resources or view the webinar slides and video.

To recap: I've provided guidelines and a transmedia learning framework (TLF) for content curation, story development, and platform selection that are actionable. Think about how you will stay engaged while learning, build skills to add to your HPC ethos, and co-create content for others. Share your story with [us](#). Thank you, and best wishes!

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