

NWCET Best Practices

Title: Learning Invention Lab (LIL)

Challenge:

The primary goal of the Maricopa Advanced Technology Education Center (MATEC) is to help educate and train the workforce for semiconductor manufacturing. In doing so, MATEC has started new educational programs and expanded its curriculum, services, and instructional materials and methods to its industry partners and customers. MATEC needed a way to share faculty-developed learning strategies and to broadly disseminate them. Commitments to class schedules made it difficult for the technical faculty to take time to collaborate with their colleagues and to develop new teaching strategies. Without collaboration or new ideas, classroom teaching could become stale and fail to address the changing needs of the student population.

Solution:

MATEC designed the Learning Invention Lab (LIL) to encourage sharing and collaboration to overcome some basic and common learning challenges faced by the technical faculty. LIL was originally conducted face to face in March 2003. During the first LIL, ten participants contributed their material and met to discuss the learning challenges they address. Upon completion of the face to face presentation, the goal was to widely disseminate the material and capture the learning that occurred at LIL. This involved taking copious notes and substantial record keeping plus getting the material out electronically. It seemed like double the effort and MATEC realized that conducting the event totally online would "cut out the middle man." LIL evolved into an interactive, online workshop. Faculty from across the country can now participate without ever leaving their offices and, by submitting all material online and participating online, the learning is captured real time. One faculty member reported it was a necessity that the workshop be online and not on-site. "It's really the only way I could have participated at all. It's not so much the travel cost but the disruption to classes."

In developing the concept, MATEC kept the technology simple by using PowerPoint, email, conference call, and an online forum/repository. The LIL itself lasts just three hours a day for two days. During those times, participating faculty log on to the MATEC Web Forums and call into a moderated conference call. No special software is required, just an Internet connection and a phone. During the LIL, each faculty member presents their learning inventions and time is provided for assessment and discussion using the tools in the forum. The presentations, as well as feedback and contact e-mail information, are all captured in the forums, allowing for further review and comments and broad dissemination. MATEC found very little difficulty in using the technology; unfortunately, any reuse or application of the learning once available on the web that is shared can not necessarily be documented by MATEC and might become stagnate.

One of the dangers MATEC faced when designing LIL was non-completion of all tasks. Attendees are required to do a few short "homework assignments" in the weeks leading up to the LIL. The activities provide information about the invention and the materials for demonstrating and implementing it. There is even an assignment to go online and learn the online forum tools that will be used during LIL as preparation. These types of preliminary activities for potential participants have worked out well.

The facilitators of LIL have had some challenges in reaching faculty and sustaining commitment (even though a stipend is provided upon completion of all LIL responsibilities). "Things come up," even with the flexibility and convenience of the format. MATEC was trying to mitigate this by offering LILs monthly. So when someone drops out due to lack of time, MATEC can offer him or her an alternative quickly and hopefully not lose the opportunity to share their invention. MATEC has started using their extensive mailing database that is constantly updated. This has allowed MATEC to reach faculty directly. Another tactic MATEC is considering is making part of the LIL "assignments" a faculty recommendation/colleague commitment from each faculty who participates in LIL.

Outcomes and Benefits:

Here is a recap of statements made by LIL participants:

- Sharing would not have been possible without the LIL format.
- A widely available tool (STAMP) that makes teaching circuits more structured and beneficial would not have been known if not for LIL.
- Participants are learning new/novel ways to address particular learning problems e.g. how to teach networking virtually and enhance teamwork at the same time.
- Many faculty members were not aware that MATEC provided a service like LIL; participants recommended that MATEC needed to do more of this.

For a more detailed description of the Learning Invention Lab, please see the official web site at www.matec.org/lil.

Next Steps:

MATEC would like to enhance the technology and perhaps move to some video capability. There is also a desire to enhance the dissemination capability and possibly a companion CD will be available in the future. In the meantime MATEC will turn its attention to truly developing a community by giving their participants a reason to return to LIL and by continuing to contribute and improve it. These activities will involve revamping the web site, providing more tools, and strengthening outreach efforts, for example.

MATEC recommends that it is essential to provide faculty with alternative ways to collaborate. Going online is a natural method of doing this. MATEC suggests keeping it simple and structuring the experience as much as possible. Our "assignments" and forum moderator have accomplished this for the LIL. MATEC would definitely recommend that potential administrators find ways to make this a valuable resource to their faculty; do not

let attendees just walk away after their participation, get them involved in ways that keep the information and interest flowing.

MATEC mentioned some of its strategies in their future plans, but the center's staff would add to this that a focused communication and marketing effort is needed. It is important to be persistent in both gaining participation and making this part of who you are and what you do. LIL is not quite there yet; it needs to have brand recognition, just like any other product.

Key Issue:

LIL is based on the belief that MATEC can not do without feedback from our colleagues, every class, every presentation you make will get better if you collaborate and share your strategies and techniques. Technical faculty in electronics, manufacturing, and automation face very unique learning and teaching challenges such as how to reach various populations and how to bring abstract and difficult concepts to life. There is no one, right approach; it requires a variety and who has time to research and try out all of the techniques and products out there, or develop all of those on their own? With the development of the Learning Invention Lab, MATEC has taken the first step to begin the dissemination of these techniques and products for technical faculty.

Partners:

The MATEC development team:

Leslie Jabara

Kim Grady

Bryan McIntyre

John Olson

Maricopa Center for Learning and Instruction (MCLI) has provided guidance and many good examples. www.mcli.dist.maricopa.edu

See www.matec.org/lil for a complete list of all participants and supporters.