Eye on Security

Back to School: Training the Cyber Workforce in 2020

Transcript

Luke McNamara:

Welcome to another episode of the Eye on Security podcast. I am your host, Luke McNamara. With me today, we have two guests to discuss some of the education initiatives going on here at FireEye. I'm very excited about this, in part having been both a recipient and contributor of some of the initiatives and work these folks are doing. So we have here today Dawn Hagen, senior director for learning and development; and Dr. Brett Miller, managing director for education and training. Welcome to the podcast to both of you.

Dr. Brett Miller:

Thanks for having us.

Dawn Hagen:

Luke, happy to be here.

Luke McNamara:

So maybe we can begin with your roles and your teams, what they do here to kind of get us in the discussion around education initiatives here at FireEye. So Brett, we'll start with you. Talk a little bit about that.

Dr. Brett Miller:

Sure. Yeah. I'm responsible for our external training program. And in this sense, I'm responsible for the delivery of our product agnostic courses to our clients across the globe. My team consists of about nine members whose roles include project managers, instructors, and coordinators providing a full complement of training services to our clients. And this includes off-the-shelf training that's within our existing catalog. But as well as the identification of topics for the development and creation of new courses and customized content based on the respective requirements and objectives of our clients.

Luke McNamara:

And Dawn?

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Dawn Hagen:

Great. So my team is responsible for not only the development and delivery of internal education within FireEye, but we also support Brett's team in the delivery by creating the curriculum that supports all of our external education. So, I have four instructional designers, one project coordinator, and we work collaboratively with Brett's team, along with many of the other teams that we have at FireEye that focus on education.

Luke McNamara:

And I told you I was going to ask you this, but for anyone that's ever had the pleasure of taking one of your internal courses here at FireEye, there's a very specific set of things that you bring to those courses. Can you talk a little bit about what those are and why you bring them?

Dawn Hagen:

Absolutely. So, when I teach or when several of our team members teach our internal leadership and soft skills classes – and even if I'm teaching some of our technical classes internally – I have tabletop toys. And these can be twist-its. They can be fidget spinners. I have a series of constructors that we use. And I just spread those out throughout the classroom. And it's a really great way to get us all engaged. But actually there's research that shows that if you start to kind of lose interest if you tactically engage with something, it actually re-alerts your brain.

So I bring those training toys into my classroom. I have an entire backpack that goes with me whenever I was teaching in-person classes. And I'm so glad you love them, Luke, and they made an impression. So I sometimes don't get that warm fuzzy from all of my classes. So I'm glad that it at least makes a great impression on several of you.

Luke McNamara:

No. it's clearly stood out. And I think that definitely the science behind that plays out in terms of being able to retain information from that. So unfortunately for everyone who are now taking remote courses, you will not get to experience the joys of that. But hopefully in the future.

Dawn Hagen:

Yes. Hopefully we'll be back to that soon.

Luke McNamara:

Yes. And one of the things that I think – because there are so many different education and training initiatives that are taking place at FireEye – maybe I think it would be helpful for folks to understand sort of the evolution of these initiatives. Walk me through where things have come from to where we are now in terms of, again, all these different training programs, some of which are internal; but then also obviously a lot of the external stuff that we do. So Brett, maybe start with you.

Dr. Brett Miller:

Yeah. We have a really holistic training portfolio that we can offer our customers. For those customers looking for a better understanding on how to best utilize our products, we have a suite of approximately 24 courses available for delivery, both in-person and remotely. From the product agnostic perspective, we have a robust curriculum of about 26 courses. And this includes courses in the area of intelligence, incident response, malware analysis, advanced acquisition and testing techniques; along with a suite of fundamental courses, as well.

And we work very closely with a group that provides product training to our customers; often collaborating to provide collection of specific product and product agnostic training to meet the needs of our clients. And this has been really a great collaboration over the past couple of years.

And one of the examples that I'd really like to share in terms of the collaboration is the cross-pollination of our product instructors into the agnostic training area. All of our product agnostic trainings are delivered with a full-time instructor coupled with a practitioner from the respective training area. And I often like to tell clients that the person teaching your course this week can very well have been involved in responding to the most high-profile breach the previous week.

So the experience provided to our students is extremely powerful in that they get to really learn from the very best and truly get to learn from those with the boots on the ground. And having our product instructors delivering the training – help delivering the training – and involved with the practitioners helps to really ensure that we're up-to-date, and we can share real-world knowledge and ensure that's incorporated into our product forces, as well.

Luke McNamara:

Yeah. That practitioner-led approach seems to be, I think, one of the real critical keys to success that I've seen in terms of classes that I've been able to sit in or participate in. And I think it's noteworthy in part one of the reasons that I want to have this conversation with both of you is often when you hear about cyber workforce development with a shortage in this industry and space, it's often I feel like treated as if it's one sort of set of skills, or training individuals to fill one singular role.

When the reality is that there's a variety of positions, and skill sets, and just speaking to working on the services side, the intel and the consulting folks; just the wealth of experience and different backgrounds and perspectives that people bring to this job, you really realize that having a varied skill set, having many different types of tools in the tool kit is really needed to do the work of security in organization. And I think it's great to see that the fact that we're, the curriculum encompasses a lot of different skill sets that often overlap, but in some ways are very, very different.

So in terms of the curriculum that we have for some of these external courses, have there been certain things that have kind of been kind of at the core of that early on and others that we've added to, as we've heard from customer interest? What has that evolution been like in terms of from the market, from the customers, the things that we started with compared to where we are now?

Dr. Brett Miller:

Yeah. That's a great question. When I started at Mandiant about five years ago, we had a collection of about nine courses; primarily in the areas of incident response and malware analysis. And over time, we consistently worked to develop new courses based on our customer needs – and the market trends, for that matter. And to a large degree at the time, we were really just delivering in-person courses, private courses.

And this left a lot of room for improvement on our end, which we recognized and have really worked to address over the years. For instance, because our courses were only available privately, an individual was unable to gain access to our courses. Likewise, if a customer had three students that wanted to attend training, a private course really wasn't an option, or it just was financially irresponsible.

So one of the steps that we took was to start a public training program, where individuals in smaller groups could gain access to our training. And today, we're at a point where about 60 percent of our courses are available for the general public to take and to purchase individual seats. And I hope to really continue to build on these offerings, as well.

Another area that we've really branched out into was we've partnered with an organization called Emerging Ed to bring a number of our courses online in CVT format. What's different about these CVTs, however, our courses actually have a synchronous component associated with them. And that we hold office hours once or twice a week that gives the students the ability to reach out to instructors and discuss any concepts or have any questions addressed or answered that they may have from the course content.

And also as part of this partnership, we've expanded access to our courses. For example, both the University of Tennessee and Purdue Global are now offering our courses through their professional development programs.

Dawn Hagen:

And let me chime in on that, too, that I think another thing that makes those – in particular those emerging ed courses – very unique is they were built based on our existing course curriculum. So our tried-and-true classes, like Windows Enterprise Incident Response, that have been taught – network traffic analysis – that have been taught and consumed by thousands and thousands of students and revamped by our own practitioners probably quarterly, so that they're getting that real-life application that, Luke, you mentioned earlier. So those are another great selling point of what that is different than some of the other off-the-shelf options that people will have in the industry.

I do also want to circle back to what you said about that curriculum development, and how that comes to be, and where we see that happening. And one thing that I want to note is that we get those ideas, those thoughts, from many different places. As Brett mentioned, I joined FireEye about seven years ago, and we had about those seven or eight core classes. And since that time, we have grown exponentially, and those ideas for new courses come from a variety of places. Sometimes it's from a client that requests a customized course.

For example, our cyber intelligence foundations class, which is an extremely popular Intel class, was actually a part of an initial ask from a client. And we've taken that and we have improved it, expanded it, gone forward. And that has now become one of our most popular courses in the private and the public realm. We have a very high enrollment rate there. And we've really taken the initial piece of content we've developed and just streamlined that, improved it based on client feedback and our own internal feedback from our students that attend at FireEye.

We also have things that come out of fruition from within our own ranks. So, we just completed a class that was based on the security and the software development life cycle. And that was something that was brought to us by one of our team members. We developed it internally. We piloted it internally. And now it is in our course catalog, and we'll be offering that versus a public course. And I know that Brett has started to see interest of this with our clients, too.

We are also working on two other new classes: threat detection engineering and incident response for everyone, which will be probably hopefully hitting the market in Q1 2021. And those classes, again, came from ideas from our practitioners and based on what we're seeing in the market. So we see development of courses come from many different avenues, as you were kind of alluding to earlier, Luke.

Luke McNamara:

So, Dawn, walk me through this a little bit more. When it comes to curriculum development and figuring out, you know, we're getting requests from customers to address a certain training need, or to help kind of fill a gap in workforce education, it seems like we get also a lot of ideas from internal folks. Given the fact that when it comes to workforce development and cybersecurity, you're dealing with a wide range of maturity of different organizations, and that can vary – especially when you get into like geographic areas.

How do you think about, again, this sort of prioritizing certain topics, certain courses? And then the content for those courses, you're working with SMEs to pull stuff together. But then these courses have to be refreshed from time to time, too. What does that sort of life cycle typically look like?

Dawn Hagen:

So, we actually work with Brett pretty closely to determine. When somebody brings an idea to us, I go to Brett, and I say, "Is this something you've been hearing in your discussions?" So we kind of gauge it out that way to determine if it is an in-demand, if it's something that's worth us investing time in. So that's kind of our first step when we have those ideas brought to us.

Then we really do go into that course development life cycle, which consists of us starting a needs analysis. And so my instructional designers will work with the subject matter experts from within the business, the practitioners that are doing things on the front lines day to day. And we'll start to figure out what does that course outline need to look like? What are the end objectives? And one of the things that we've really been focused on, which really benefits our consumers, is that we are looking more at performance-based objectives.

So, in the past, it was more like this is what you should know. And now we're really trying to move more towards this is what you should be able to do. And by doing that on the front end, by doing that as part of our needs analysis and as part of our design document, then we are focused more on our exercises, and our activities, and our labs; and those things come out naturally as we're developing. And so we design that document. We move forward. We go through iterative processes with our subject matter experts, with our feeding content, instructional designers working with that person to build activities.

And I will say that in many of our classes, our lab-to-lecture ratio is about 70 to 30, which is great. We really don't want there to be more than 20 to 30 minutes of information sharing before a student is interacting with the instructor, they're doing the lab, they're doing a tabletop exercise of some sort. So we really want our classes to be focused on interaction and doing, versus just the ability of knowing how to do. Rather than just the ability of them knowing what we think they should know, but we want them to be able to do what we think they should be doing. And so that's kind of a focus that we've changed. Does that kind of circle back on your answer?

Luke McNamara:

Yeah. No. I think that's –

Dawn Hagen:

Does that circle back on your question? Sorry.

Luke McNamara:

No. That definitely provides some more kind of understanding of how those fit in. I like that focus on what you should be able to do. I think, again, highlights the very practical nature, I think, in which your organizations are approaching this beyond just a certification, get so many credits, and sign off that you've done something. We're really teaching to what are the actual skills that you need to have.

Dawn Hagen:

Yeah. And I wanted to circle back, too, on something that you said about how often we're updating content. And I'll tell you that for most of our popular classes, like the Cyber Intelligence Foundations of Windows EER, the Linux and Enterprise Incident Response; we're doing curriculum updates every three or six months. And so our courses are never stagnant. We are constantly updating content, going with the newest trends in the industry, taking feedback from class to class and making sure that we're implementing that on each quarterly or semi-annual curriculum or vision.

Luke McNamara:

And I know you both have referenced the cross-team approach to this. And I think we had a use-case, interestingly enough, recently with the Hunt Mission workshop. Can you speak to that a little bit and how that came together?

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Dawn Hagen:

Absolutely. So, we do have the Hunt Mission workshop, as you mentioned. And we also have the Cyber Threat Hunting class, which comes from our product training team. And so we have worked closely with that product training team in conjunction with the Hunt Mission workshop, and those two classes are taught together in many situations. And they complement each other. They've worked to make sure that the exercises balance off each other. And so that's a great example of how on our side and in conjunction with the Intel team we've taken that Hunt Mission workshop, and we've collaborated with the product training team to put together the content and make that a package deal to our clients and consumers.

Dr. Brett Miller:

And Luke, I'd follow on with that one of the things that we're really starting to see is there are many instances where a client is looking for a number of our courses to be delivered; whether it be product training, agnostic training, or customized training, or a combination of all three. And in these cases, we've created this concept of the Mandiant Academy. And it's not an academy in the sense that it's a physical facility, but more in a sense that these are larger engagements requiring more oversight, preparation and coordination to ensure a smooth delivery to the client.

And we certainly see a lot of growth in this area, which is often focused on larger organizations in governmental departments and agencies. We operate under this umbrella. We can really have that cross-collaboration between the consulting services team and the product team.

Luke McNamara:

Yeah. I think that's an interesting thing to go into a little bit more. Because it's kind of the other end of having classes that a single individual can sign up for in the public, to something where you have – and maybe it's a government customer that has a very specific package they're looking for in terms of education and training, but then also might have that need on a recurring basis, or have that over a very large set of skills that they want folks trained up on. What do we typically see in those sorts of requests, where someone is looking at something that the subset of Mandiant Academy courses would fall into?

Dr. Brett Miller:

I would say it's kind of across the board. You know, you see customers looking for off-the-shelf courses, or customized courses. But we've also, as part of the academy program, just started a workforce development program. And the concept here is that we work with the individual clients to tailor the training for their employees – or cross-trainees, for that matter – into respective areas. So you had mentioned the malware analysis, the incident response, and the different types of areas within the cybersecurity realm.

And so, for example, imagine somebody coming out of college with a computer science degree, and bring brought on board to be an incident responder. And so we would work with the organization to develop a tailored pipeline of training, whether it be four, six, eight weeks in duration; depending on the need of the customer, to better prepare that employee to start

working on the job. And again, depending on the client, we can deliver this training on a reoccurring basis, pending on need, or work with that client to properly train their in-house instructors to deliver the content.

Luke McNamara:

And you've kind of referenced a couple different sort of organizations or entities where people get some of this education. They get on-the-job. They get it increasingly at universities. And then I think you're seeing kind of variations, now, even at universities, where it's not just courses in the computer science department, but other parts of the organization that are offering courses related to cybersecurity.

In terms of where FireEye might partner next, or where we kind of fit in this larger ecosystem, how do you see that shaping and playing out in terms of maybe potentially working with some of these, or filling in where there may be gaps in education and training and other areas?

Dr. Brett Miller:

Yeah. That's a great point. We are certainly starting to see a shift in our clientele, if you will. Traditionally, it has been folks that were in the business needing an assistant to train their people. But now we see this shift towards more of the university realm. I had mentioned earlier that through our partnership with Emerging Ed people from the University of Tennessee and Purdue Global have access to our trainings.

But we're also seeing universities reach out asking us to help develop their curriculum. You have the traditional curriculum that you would normally find at a university, but the practicality aspect that we bring to the table, as well. And I certainly think there's going to be a lot more interest in that in the coming months and years.

Luke McNamara:

And so one of the things I also wanted to touch on here, going back to your prior comment about Mandiant University not being a physical building. And of course, during the pandemic over the last six or seven months – it feel like 70 months, I guess, in some respects – we've continued to deliver education and training and doing that online. I'm sure some of those components have worked better than others.

But in terms of from a delivery standpoint and factoring in things like, Dawn, you were talking about labs earlier and the amount of labs that we do, are there aspects of how we've changed how we're delivering these courses that you think will stay post-pandemic? And maybe even other areas where the delivery of that, you've thought of new and creative ways that may kind of expand and change beyond even what we're doing today?

Dr. Brett Miller:

Yeah. COVID certainly threw a wrench into what we had planned on doing this year. And obviously, it was not something that any of us could have anticipated. Prior to March, 99.9 percent of our courses were delivered in person, on-site. And we always had a plan to offer

remote training, but being one never to let a good crisis go to waste, the education team was really able to quickly pivot and deliver our trainings, or make our trainings available solely remotely.

And if you would have asked me back in April what the education program or what the outlook was for the year, you probably would have seen a face with a lot of concern. But I'm really happy to say that due to a lot of hard work, cross-collaboration across all the education teams, and just a laser focused on meeting the needs of our clients, we've really successfully migrated to a remote environment, to where 60 percent of our courses are now available and online.

And in fact, the feedback that we've received from our customers has been extremely positive. And it's one of those areas that I've really placed a focus on watching, as it was really important for me to ensure that we're providing the same quality of training remotely that we're known for in person. And Dawn's team was a huge factor in our ability to transition to remote delivery. But she also really helped to ensure our expected level of quality. And Dawn, if you wanted to talk about your portion there.

Dawn Hagen:

Sure. Luke, I absolutely think that there will be things that we did during this that will continue beyond even when we go back to in-person training. One of the big areas of focus that my team really tried to stress with our subject matter experts and our course developers was the need to have that level of interactivity just amped up to every like 10 to 12 minutes, you're having some type of an interaction with your online students. Because you don't have the ability of looking at people's faces, or looking out and seeing the glazed-over look like you would have, maybe, in a classroom. So you have to do more to stay engaged.

And so we've really tried to pivot on that. We've really tried to focus on that with our instructors and our course developers. So things like very six slides we've inserted a question. And so those will continue to be in our courses as we go back into in-person delivery.

We also did really focus on looking at how we can enhance our labs. This is something we really saw within our malware analysis courses, where the students weren't in a classroom with an instructor. The instructor wasn't circling around the room. We saw where there was a little bit more struggle with some of that. And the flair team has done a great job of going back and trying to enhance those labs, add things to the exercises to make them more user-friendly across all levels of skill. And I think that we're definitely going to see benefits of that even beyond being in a virtual training environment.

The other thing, too, is we just really have focused on trying to prepare our instructors. So we introduced a new platform that we had to train on. And we provided some education around that. We put together some resource guides. We really wanted to make sure that as we are sending our instructors out into this virtual world that they have the equipment they needed to be successful. And we have just continued to provide support from both and instructional design and coordination perspective, so that not only are instructors feeling supported, but in the end then our end users, our clients, are feeling they're getting the best experience they can, given the current situation.

Luke McNamara:
Yeah. I've been very impressed in how well your teams have adapted to that in these trying times, as they say.

Dawn Hagen:

[Laughs]

Luke McNamara:

So, I always like to kind of end the discussion talking about – whatever the discussion topic is that we cover here – where you see things evolving and going next. And we've touched on this some. But, whether it's from the customer side in terms of new different types of customers, customer needs changing, but then also that trickling into the curriculum, what we will see potentially down the road; referenced a few different courses to be on the lookout for. But how that might change going into next year. What do you guys see coming in the next year and beyond?

Dr. Brett Miller:

Yeah. So obviously, it's critical to evolve in this space. And people certainly learn in different ways. What's effective for one individual may not necessarily be effective for the other. So my focus is really ensuring that we have current content, and relative content; but also content in a manner in which it can be consumed in multiple ways. So I'm always looking for new ways to get that content out to the customer. And I fully expect that to be the case here in the next couple years.

Dawn Hagen:

And to just really dovetail off of what Brett said there, we want to make sure that from an internal perspective that some of those offerings – like, for example, the public education courses have been a huge benefit for us internally, because we can offer enrollment to our internal team members to go and learn that content, take those classes, provide feedback.

And that does two things, right? It first of all gives us really constructive feedback on how to improve our courses. And it also is improving the skill set of our internal teams, who then go out and interact with our customers and clients so that we have this really well-rounded holistic approach to what we're doing from learning from an external and an internal perspective. So we'll continue to focus on ways to bring that type of learning opportunity to our internal team members.

Additionally, we will just continue to focus on what I mentioned earlier; that approach of making sure that all of our classes are focused on how can I do this? Can I prove that I can do this? Versus this is just some information that I know. Because I think as we continue to grow and expand, and we look at more training that needs to be done across many different realms within cybersecurity, we need to make sure that that's the focus. It's not just like if I can recite some line of code, or tell you what this is. But I actually need to go out and actually prove that I

can execute on what I need to be doing. And that's where our focus will stay for the upcoming future.

Luke McNamara:

And the learning never stops.

Dawn Hagen:

It absolutely does not. But it's an exciting and fun journey. And I think that the last six months we have been busier than ever, which I personally enjoy. And I just really look forward to the next new adventure that comes around the bend.

Dr. Brett Miller:

[Laughs]

Luke McNamara:

Well, I definitely think that the focus on – the focus of the company at large on delivering expertise across all of our products and services is certainly an area where I think it's happening with the training, practitioner-led training, and the work that both your teams are doing. So again, as someone who's been a recipient of that, excited to see what's coming next. And thank you to you both, Dawn and Brett, for coming on and talking about what your teams are doing.

Dawn Hagen:

Okay. Thanks for having us, Luke. Appreciate it.

Dr. Brett Miller:

Thanks for having us.

Luke McNamara:

Take care.