

Annual Review | 2019

PEPPERDINE INFORMATION TECHNOLOGY

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Seeing the Light

*The TechLearn
conference brings
faculty and staff
from multiple
Southern California
institutions together
in Malibu (Pages 6-7)*

*Seaver College
Professor
Cecile Santos*

Let the Gaming Begin

Pepperdine University expanded its athletic footprint in 2019, entering the digital arena by launching its esports program in winning fashion



Left, Pepperdine Esports team member Andy Yu watches as Yelim Lee practices Overwatch in the Genesis Lab inside Payson Library.

There's a new game in town, and at least one segment of Pepperdine's student athletes knows that its playing field extends beyond Malibu to the entire world. Esports landed in impressive fashion at Pepperdine in 2019, and the University team has already tasted tournament victory.

"I went to a national conference for campus recreation directors last spring," said Pepperdine University Director of Campus Recreation and Esports Robb Bolton. "With all the buzz around esports, I needed to determine the interest from students and stakeholders at the University."

"We put up some posters around the Malibu campus in April to gauge interest in gaming," said Genesis Lab Co-Director Anna Speth. "We quickly garnered about 80 responses which is quadruple the average for activities like this. That list is now closer to 200 and eventually transformed into the Gaming Club."

Popularity, timing, and opportunity pushed things into high gear.

"Next, I formalized a partnership with Genesis Lab Co-Directors Landon Phillips and Anna Speth who agreed to house our esports program," Bolton noted. "Then we secured funding through the student government association to invest approximately \$20,000 in gaming technology. We also have a partnership with Advancement who has been helping to see what we can do about getting possible sponsorships and support for the program."

Support has been growing rapidly for esports in general from high schools, universities, and into the private sector. Approximately 100 high schools comprise the North American Scholastic Esports



Federation, with 56 of those schools in Southern California and another 32 in the northern part of the state. Dating back to 2014 when Robert Morris University instituted a scholarship-eligible League of Legends team, more than 130 colleges and universities in America have a varsity Esports program. That puts Pepperdine Esports at the epicenter of a cultural behemoth that extends well beyond gaming. But, it still must fit with the school's values.

"Pepperdine is trying to be part of the solution for some of the negative issues in gaming like online toxicity and exclusivity," Bolton said. "We want to make it welcome and open for everybody that wants to play."

The Long Game

"We're also really looking at connections with academics," Bolton noted. "Landon Phillips is hoping to teach a first-year seminar class on gaming and technology to help us verify the student demand."

"Eighty percent of kids between eight and 17 years old play video games," said Bolton. "So, we have a large pool of potential future students to pull from. We're going to recruit based on character because we still want good students here at Pepperdine."

The esports industry is growing so fast that higher education hasn't caught up in preparing candidates who are interested in working in traditional roles in gaming, including sports medicine, public relations, psychology, law, marketing, and more.

"The opportunity is there for a multi-disciplinary program once we map a curriculum for the gaming industry," Bolton said. "Right

now, esports is so new, they are hiring people and training them on the industry themselves."

Getting Schooled

If the proposed seminar is popular among students, Campus Recreation plans to expand the program.

"Once we prove there's a demand, the people in academics may start looking at how they can add or tweak the academic content for the gaming industry. We could eventually move toward either a certificate or a minor with the goal of creating a major and even a master's program down the road."

Scholarships, arena tournaments, sponsorships, and professional esports athletes earning six-figure salaries all contribute to a massive industry in its infancy. Estimates value the esports market at \$1 billion with growth expected to hit 50 percent in 2020. What's fueling that growth? Approximately 454 million fans on live streaming platforms are driving esports to compete with and surpass the popularity of many conventional sports at both the collegiate and professional levels. And Pepperdine is poised to claim its place.

"This fall we started the official club sport esports team with two games: League of Legends and Overwatch," Bolton said. "But, we recently added Super Smash Bros. due to the high demand."

A few short months later, Pepperdine's esports team won their first West Coast Conference tournament just before Christmas. The online event had more than 84,000 unique visitors.

"There is so much potential amongst us, and all of us have a strong dedication to the team despite our skill differences," said Pepperdine's Overwatch Team Captain Yelim Lee. "We support each other to rise together as a team."

"Our League of Legends team won the WCC Invitational, and they had been a team for just two and a half months. That's a pretty big accomplishment," Speth noted. "I think esports is just going to continue to grow and cement itself within the collegiate scene. I'm also really excited for the opportunities that gaming will present."

"What you'll often hear from people hiring is that they're looking for an accountant," Speth said. "Now, they want someone who knows how to be an accountant, but if you're also a gamer and know how this industry works, that is a huge plus."

Share the Controller

"Esports would not be where it's at right now if we had not been able to form the partnership with the IT department, and Landon and Anna in the Genesis Lab," Bolton added.

Support from Pepperdine's administration was just as vital.

"President Gash carved out time because he wanted to learn about esports," Bolton said. "And after Nicole Taylor asked to meet with our esports team, she told me that it was one of the most impressive groups of students she's ever met, noting that they were very knowledgeable, intelligent, and extremely passionate."

And what about the Pepperdine gamers who aren't on the esports team?

"One of our main goals through Campus Rec is to try to build community here on campus and reach students," Bolton said. "Students playing video games in their rooms are usually playing on their own and not having a real social connection. With a gaming center and a team, we can bring these students out of their dorm rooms and into a common space where they can play together. Everybody wins."

Information Architecture

As Pepperdine looks to the future under President James Gash's three pillars of Faith, Fundraising, and Footprints, those plans will have plenty of support from the IT department. The CRM (constituent relationship management) team is building a foundation to help grow Pepperdine's outreach at this vital moment in the university's history.

"We're just one Pepperdine, not five," said Director of Enterprise CRM Lesbiz Tovar. "And we need to be one voice right now. I think the five schools are competing for the same thing, and I think it's time for us to join forces."

Tovar and the CRM team had been tasked with a project tagged as Recruitment 2.0. The initiative was an IT project aimed at leveraging the unharnessed power of data at Pepperdine's five schools and throughout the institution.

"In the fall of 2014, both PGBS (Pepperdine Graziadio Business School) and GSEP (Graduate School of Education and Psychology) started working in Salesforce as their CRM platform," said Tovar, referencing the popular CRM software known for organizing information and improving communication. "Seaver had already been using it, but they were doing so in a very Seaver-centric way."

"When the graduate schools came on board, Seaver had to realign their processes," Tovar explained. "And it worked, for the most part. Then in the summer of 2015, the Caruso School of Law (CSOL) and the School of Public Policy (SPP) jumped on board."

At the time, the Seaver Admissions department was using a third-party application called TargetX designed for recruitment and admissions. However, the app's limited functionality prevented it from serving as a solution for the graduate schools.

Off Target

"The TargetX niche is definitely small, private colleges, and they've been successful because they also include event and email functionality," Tovar said. "Unfortunately, the email functionality became unreliable. There were issues with deliverability, which is huge in higher ed, because we need to be able to communicate about campus tours, applications, and more. We had to have something we could trust."

Building a solid future for Pepperdine means maximizing the university's resources, as constituent relationship management blends familiar silos into a powerful home for our data

"The recruiting and admissions process is also a lot like sales: we need to be able to work through all the cold leads, inquiries, and so forth," said Tovar. "It functions just like a sales funnel. But, as we started expanding to other areas, TargetX couldn't do the things we needed it to do."

In 2015, the university purchased Marketing Cloud to connect to Salesforce so that users could sync the data. The project was an all-encompassing effort to take advantage of Marketing Cloud and find a new event tool so that the five schools could use Salesforce's native functionality.

Enter Recruitment 2.0

"The schools also spend a lot of money on application systems," said Tovar. "The application systems are repositories of basic information, and they're very costly and inefficient. There's a lot of process that goes into loading that information into PeopleSoft correctly, so we tied that into the project as well."

"With Recruitment 2.0, we tried to make Salesforce as 'vanilla' as possible to take advantage of its out-of-the-box functionality," Tovar said. "We tied in the education data architecture, because it allows us to track the multiple relationships that someone can have with the university. A person can be related to the university because they are an alumnus, a parent, an employee, a donor, or more. They have multiple relationships with Pepperdine, and the education data architecture allows us to track each relationship."

"This will allow us to separate different populations through the recruitment funnel, and we've also improved the reporting," Tovar said. "A lot of the schools had to pull reports from Salesforce before

TargetX and then do 'joins' and crazy operations within Excel to provide the right reporting. Now, they can do that all within the system."

"This gives us a clear home for purchased lists, online inquiries, and phone calls: all of that information was kept elsewhere previously," Tovar said. "We also have a dedicated space for applicants. That will help the admissions staff review applications along with the supporting documentation as well."

And the data won't be limited to what applicants have submitted. The new system will have test scores, enrollment, educational history, professional experience—if requested by the schools—and recommender information too.

Framing It In

"When applicants log into the community portal, Salesforce will house their applications," said Tovar. "Portals will have a different look and feel depending on the school, and once students start an application, the portal will show them what they've completed and what they're missing. They can take the initiative to drive their application process in one location."

"This has been a big undertaking, because we split the data up into different areas and opened up the funnel, allowing us to create the type of reporting the schools need," Tovar continued. "We now have the application open for the Straus Institute for Dispute Resolution and the School of Public Policy. PGBS will be onboarding as soon as they create a transition plan to get off of their current application portal, and GSEP will be following suit. Seaver will be finishing

this academic year, and then they will be onboarding as well."

"Salesforce communities allow us to open up a student community portal that could replace, for example, Facebook groups," Tovar explained. "These communities could focus on student activities or anything we want it to be. I think it will be a great feature for the students. Our ability to use native, self-service functionality will soon allow us to onboard other areas such as corporate relations, career services, or advancement."

Room for Everyone

"This will also provide a good way for the University to track the relationships with companies like Boeing, Disney, or Raytheon, or with law firms for the law school," Tovar said. "Whether it's internships, job placement, or alumni relations, these relationships—and all the data that built them—can live under specific umbrellas as a powerful resource."

"Recruitment and admissions is just one piece of it," Tovar said. "The next piece would be students, and then alumni, and eventually donors. This is just the first step in trying to build a foundation to have a holistic understanding of Pepperdine, as defined by its people."

"Maybe we can take it to the next level," Tovar continued. "Instead of asking who you are, we could scan your ID card and fulfill your basic needs. We can understand who patronizes athletics, who attends the theater, and who our alumni are beyond a spreadsheet. We have students across five great schools, and I think we could do a better job of networking."

"Salesforce can be that system of engagement," said Tovar. "There's more for us to learn so we can grow, because there's so much more for us to accomplish."

Connecting the Dots

Pepperdine University's Technology and Learning team held the 2019 TechLearn Conference at the Malibu campus on October 16, highlighting innovation and collaboration, while also learning from speakers the "Tech Rabbi" Michael Cohen and the 2019 Cybersecurity Woman of the Year, Dr. Adriana Sanford

"The TechLearn Conference is an opportunity to bring together faculty from all five schools to learn from other faculty," said Senior Manager of Technology and Learning Kristin Bailey. "And what's different from the past few years, is that we invited a select number of outside schools to participate, including Chapman University, the University of California, Irvine, and California Lutheran University."

Keynote speaker Michael Cohen, also known as the "Tech Rabbi," talked about reaching 21st century learners and higher education's need to adjust to the educational pipeline that students now experience from elementary school through graduate school.

"So, instead of students adjusting to the way we teach," continued Bailey, "we need to adjust to the way the students learn. How do we really create learners that are thinking creatively? We need to teach them critical thinking skills in this ever-changing world instead of just pouring knowledge into them."

"What you know is going to be less important, because you can always Google the answer," Bailey noted. "It's going to be about, 'How



"Tech Rabbi" Michael Cohen was the opening keynote speaker.

do you approach problem solving?"

The program kicked off by having attendees jump into an experiential learning challenge from the Genesis Lab, which was aimed at creating a learning environment where the students are more in control of their learning with faculty guidance.

"It's all about cultivating community, accessibility, and engaging students," Bailey said. "And we complemented that with six-minute lightning rounds on topics from using social media and technology trends, to using LinkedIn Learning to learn.

"We want to be collaborative in our learning," Bailey added. "so we hope to continue to open it up to other schools. We want to try to get more faculty members engaged so that they can see what other faculty members are doing. It's less about competition and more about collaboration and connection.

"We're better together," Bailey concluded, "and I really think that fits with our mission. You can be successful, and you're going to need other people to do it. We want to be partners with other universities, and that's less about competition and more about connecting the dots by sharing and learning together."



Above, Dr. Paul Sparks dons his "future goggles" during his talk on "The Future of Learning: Technology, Trends and Thought Leaders." **Right,** Genesis Lab Co-Director Anna Speth discusses "Pepperdine's Makerspace: Bringing Ideas to Life."



Above, Christine Clemmons reacts to her result during an exercise designed to promote experiential learning.



Above, Dr. Lauren Kilroy-Ewbank, Jacob Michael, and Dr. Chris Heard discuss flipped classrooms. **Below,** Seaver College Divisional Dean Dr. Stella Erbes reacts to her raffle prize win.



Power Supply

By investing in stronger computing power, the IT department is creating opportunities for researchers at Pepperdine that could help shape the university's path for many years to come

When some faculty members recently expressed concern about conducting research from their Pepperdine workstations after experiencing interruptions for various maintenance functions, Pepperdine University Chief Information Officer Jonathan See saw an opportunity.

Working with Vice Provost Lee Kats, See met with several researchers at Pepperdine and recognized that IT had an opportunity to make a significant impact in how Pepperdine faculty conducted their research, allowing them to get their work done faster and with less administrative effort.

"We are primarily a teaching institution," See said. "We do some research, but there is an interest in doing more. That's why the vice provost and I put up some seed money from our respective budgets to promote research computing here at Pepperdine.

"If we create a high performance computing environment that promotes academic research for our current faculty," See continued, "we could potentially use that as a recruiting tool for future faculty members to come and teach here, knowing that the environment supports research. Our goal is to promote the number of research activities on campus."

In 2018, 140 proposals were submitted requesting internal support, representing all five Pepperdine Schools. Pepperdine Research and Sponsored Programs received \$1.147 million

in internal rewards in 2018, including \$419,662 from the National Institutes of Health and \$358,852 from the Department of Defense. Pepperdine University's Graduate School of Education and Psychology received more than \$1 million of the awards received.

"This is in line with advancing scholarship in the University's strategic goals and promoting more internal research dollars," said See. "We may never be like UCLA or USC, because they have billions in research funding. But, we think that there is a huge potential for increasing that activity at Pepperdine."

"Pepperdine is a world-class educational institution where scholarship and faculty and student research have become increasingly important to achieving academic excellence," said Vice Provost Lee Kats. "A new research computing infrastructure will be fundamental to supporting this growing academic emphasis."

Jump Start

So, what does creating an environment that promotes academic research look like? Calvin College-Kats' alma mater-has a research computing environment called the Borg which the Pepperdine IT department used as its model.

"It took them years to build their environment to what it is today," said See, "and we scaled back a little bit from there to establish our starting point."

"We're starting with an on-premise system consisting of two Cisco blades with a terabyte of memory in each one with multiple processors and up to 44 cores per blade," said IT Server Engineering Manager Brian Aasen. "There are also 30 terabytes of storage, and we feel that would be a tremendous boon to our researchers."

"Right now, a lot of researchers at Pepperdine are running their programs on their desktops or a spare laptop," Aasen

"We could be increasing research activities, advancing scholarship, or creating opportunities for the University to get more federal funding."

continued. "They're working on their office computers and could encounter all kinds of problems. Someone trips over a cord, and you've lost your research. How are they getting backed up, if they are getting backed up? If a computer unexpectedly reboots for patches because it hasn't been restarted in a week, you could lose your work that way.

"We want to assume the burden of managing our researchers' data while providing them with very powerful computing resources," said Aasen. "Our target audience requires a lot of computing power and a lot of memory, and they don't need to worry about things like software patches or backups. They can focus on their work while their programs work along in the background down in our data center.

"In terms of processing power, most workstations have a single processor with maybe six or eight cores," Aasen explained. "These blades have two processors each with 22 cores, so a single processor will have four times the power of a standard workstation. These are double processors, so you're getting maybe eight times the processing power that you would through a standard workstation and a terabyte of RAM on each one."

And the sum of all those parts? Savings and security.

"We had a great example of how this translates for researchers from our initial trial last year," Aasen noted. "Using our trial, high-capacity system, a complex simulation job that had previously taken a math professor about six days to complete, finished in two and a half days."

"And members of the Pepperdine community who choose to use this system can also rest assured that their work will be backed up on a nightly basis as a matter of IT's standard operating procedure," Aasen added. "I want to see people taking advantage of this. It's a better, faster apparatus that's going to save days and weeks of their time to get the job done."

"My long-term vision is that we transfer research computing to the cloud like Amazon," See added. "Then, if a faculty

member needs more computing power, we could quickly and easily scale up 10 times at a moment's notice for a semester and then dial it back down. We just pay per use."

"Pepperdine's new research computing will be a good recruiting tool," said See. "If we successfully recruit a very prominent faculty researcher to teach at Pepperdine, we could leverage that faculty member and her research work here as an incentive to recruit prospective students to come to Pepperdine and learn from this faculty member.

"Taken further, is there an opportunity for us to use our environment and the faculty researchers here to conduct inter-institutional collaboration with faculty at other institutions to expand our work and increase Pepperdine's reputation as a research arm? That's the extended vision for us."

And what about access to all this power?

Plug and Play

"Just put in a request," said Aasen. "A researcher would need to include their program requirements and ask us to create a server hosted through our academic computing stack. We'll ask basic questions, like, 'Will it contain any restricted data?' to ensure it adheres to our security standards, and then we'll provide them allocation for their needs along with their login information."

"This is a means of offering more opportunities for both faculty and students," See noted. "We could be increasing research activities, advancing scholarship, or creating opportunities for the University to get more federal funding. That's a key piece because increasing research really goes back to our Office of Research and Sponsored Programs. More research opens the door to asking for funding from federal and state agencies, as well as independent foundations."

"By doing this, we can potentially position Pepperdine more prominently in the research field," said See. "First, we have to promote this service to our current faculty, and the deans can use it as a selling point for future faculty members. We're creating more opportunities for faculty, but the students are the ultimate beneficiaries."

Cloud Covered

The sky's the limit as IT tests moving from on-premise computing and data storage to AWS in the cloud

California may be known the world over for its sunny weather, but Amazon Web Services (AWS) introduced a light reign to Pepperdine University this winter. The school joined the growing number of organizations that has partnered with the online retailer's cloud-computing platform offering long-term advantages for the institution and its students.

"Starting in January, we now offer the introductory class, Amazon Web Services Academy Cloud Foundations," said Client Services Institutional Support Manager Reyn Oyadomori. "This class is designed to be the introduction to Amazon Web Services technologies and the fundamentals of cloud technology in general. It prepares participants for the AWS Cloud Practitioner certification exam.

Amazon is working with higher education institutions to provide the necessary materials and classes to earn AWS certifications, so that graduates are prepared to enter the workforce with certifications on their resumes. Pepperdine IT launched AWS Academy in Malibu in 2020, and the opportunity isn't limited to students.

"It really could be anybody at Pepperdine University: faculty, staff, or anyone interested in obtaining any of the certifications," said Oyadomori. "Whether you're interested in tinkering with cloud technology or simply setting up your own personal server, the skills acquired through AWS training and certification could potentially translate professionally."

"We began looking into AWS as an alternative resource for disaster recovery (DR)," said Pepperdine's Chief Information Officer Jonathan See on the platform's introduction to the school. "We were looking at our options, and we were considering AWS for research computing. That experience gave us a familiarity with the platform. And then throughout those processes, we learned about the educational components for AWS."

Under One Umbrella

AWS learning paths and certifications:

Foundational

AWS Certified Cloud Practitioner

Associate

AWS Certified Developer

AWS Certified SysOps Administrator

AWS Certified Solutions Architect

Specialty

AWS Certified Big Data

AWS Certified Advanced Networking

AWS Certified Security

AWS Certified Alexa Skill Builder

AWS Certified Machine Learning

Professional

AWS Certified DevOps Engineer

AWS Certified Solutions Architect

"Within AWS Academy you can earn specific certifications to complete the Developer track, the Operations track, or the Architect track," Oyadomori said. "Over time, you can also progress from Foundational to Associate to Professional certifications, based on your experience and having achieved the required certifications.

"We're teaching two five-week classes this spring to launch the program, and we have 26 students—mostly staff—for 20 hours total," Oyadomori continued. "The next step is to add the Solutions Architect class, and that could happen as quickly as fall 2020.

"Amazon is trying to become like a utility company," Oyadomori explained. "It doesn't make sense for you to generate your own electricity, and they want you to see that it doesn't make sense for you to build your own data centers. AWS will allow us to pay only for the storage we use, and we won't have the costs associated with running a data center. Some of Amazon's comparisons between on-premise and cloud data centers show savings of up to 96 percent."

"It's really an innovative platform," added See. "Our interest in AWS expanded when we created our Innovative Development group. We wanted to cross-train our developers in AWS, because it's a tool we can use to innovate just like Salesforce. So, we want them to be more skilled and to earn the AWS certifications, because adding AWS is a better way of doing business.

"When we looked at expanding our developers' skill sets, we thought, 'Why stop there?'" See noted. "We also extended this service to our student interns. But, if you think about it, any Pepperdine student could benefit from this.

"If we can extend the same certification training to our students, they can be certified before they graduate," said See. "So, imagine our students hitting the job market after graduation and being able to say, 'I am an AWS or a Salesforce certified developer.' It's a leg up."

So, what differentiates AWS from Salesforce?

"AWS is not a CRM product," See noted. "AWS is a data center in the cloud: that's what it's known for. Salesforce is CRM in the cloud: that's what it's known for. How you integrate in either or both platforms—that is the key ingredient.

"Again, if there are better ways we can do business, it's our job to find them," See added. "For example, research computing is locally hosted in an actual server, but it could potentially be in a cloud."

AWS will affect different people and organizations on different timelines, but innovation is not the most important reason that Pepperdine students should consider the AWS training for themselves. Demand is.

"Companies across multiple industries around the world are already using AWS and Salesforce," See observed. "From a student perspective, there's a good chance that they may land at a job that is already using one or both of the applications. When you consider AWS' power and efficiency along with Amazon's global reach, the certifications are a fantastic tool to have on your resume.

"For the university, if we can help improve how we do business by innovating through these platforms," See added, "those efficiency gains can help us cut costs. If we are more efficient in how we do business, we can focus more on recruitment and grow the university's footprint. That's the genesis of Recruitment 2.0."

"It's all about efficiency and cost cutting using economies of scale," See agreed. "AWS handles all the maintenance and can also offer 99.99 percent uptime. We are essentially setting the foundation for business innovation. We see the benefits for our institution, and we believe that starting our students down the AWS path is a great opportunity for their future."

The IT Vision for Artificial Intelligence Reaches 2020

AI.

In music, an aria is known as a self-contained piece that is also part of a larger work. It's much the same in the Pepperdine IT department, where Aria is the name of its new virtual assistant and stands for, "Automated Responses, Intelligent Answers." The new chat bot is fast becoming its own work of art in complementing the team's help desk responsibilities, as the IT department began implementing the automated assistant in the fall of 2019.

"We recognized that Artificial Intelligence (AI), as a platform, had matured over the past several years," said Associate Director of Innovative Development Abrash Khanmalek. "And so when we saw a confluence of the products maturing, more offerings on the market, institutions like Amazon leveraging AI, and people's awareness for chatbots becoming more mainstream, we recognized that this was the time."

Massive data sets are necessary for Aria to support the vast range of potential questions and answers across:

- Five Pepperdine schools
- Five Southern California locations
- Seven international program locations, and
- The University's academic majors, minors, clubs, etc.

That's why the IT staff decided to start small with the chat bot and build on their successes.

Task Master

"On a simple level, Aria is comprised of a bunch of tasks," Khanmalek explained. "It interprets the question you pose to it, and tries to match it to an existing task. That's how we grow its intelligence: matching queries to pre-coded information we compile in a database. Artificial Intelligence is basically a natural language interpreter with algorithms behind it."

"From the get-go, we launched the bot with approximately 80 tasks," said Khanmalek. "And even before announcing it to the community, we quickly realized that people were stumbling upon the bot and using it for a plethora of things not IT related."

Upon discovering the chat bot on IT webpages, people began asking random questions related to Pepperdine, and not the IT department: What time does the pool close? How do I find parking in Encino? What kind of online programs do you offer in grad school?

"We quickly realized that we needed to make this bot smarter," said Director of Innovative Development Tim Bodden. "And not just for technology services, but for the community as a whole. Since its unofficial launch, we now have well over 300 tasks. And the majority of those are not necessarily tasks designed to help someone troubleshoot an IT problem."

“For anything that’s repetitive and simple, a bot can do that.”

"That's right," Khanmalek added. "Right now Aria can answer questions about parking at Encino or Irvine, Library hours across the campuses, who the Pepperdine president is, how to get a visitor's pass, campus tours..."

Although the Innovative Development team is working with the full IT department in continually making the virtual assistant as intelligent as possible, there's still a catch.

"Even with the hundreds of tasks added to the databases, it's not nearly enough information to account for the myriad of different questions that our community can ask Aria," said Bodden.

Only one strategy would solve the problem.

"We saw that we couldn't differentiate between IT and other departments or schools in answering questions," Khanmalek said. "We know that people are going to ask their questions anyway, so we have to respond in a way that makes the bot useful. If it can't support the query, the bot would just respond that it doesn't understand. Where's the value in that?"

All About That Database

Aria interprets questions and makes decisions on whether it can correctly route to a relevant answer, or whether to hand off the question to a live agent. That interpretation requires a robust database of information behind it.

"Our long-term goal is to support student and prospective student engagement," Bodden added. "In January, we began phase two of the project by adding AI to the Tech Central phone lines via IVR (interactive voice response). Ultimately, we will be able to provide automated responses where appropriate, and only routing to a live agent as necessary."

As the project grows, so does the amount of manual coding necessary, because each voice response must be unique. But it will all pay off at the end of the project.

"When we get this project working with voice and text, it's going to reduce our costs," said Bodden.

"It's going to reduce the number of contacts we need from our help desk partners, which will allow us to negotiate a better contract and save us money," said Khanmalek. "Cost also goes down when Aria can handle common questions and answers. Now, there's no live human being constantly answering the same question about pool hours 10 times a day, 18 times a month," Khanmalek noted.

"We're trying to give back, especially where it provides Client Services the opportunity to work on more complex tasks," Bodden added. "Aria can really help with student/prospect engagement, because they tend to have a lot of questions that are hard to answer."

"And from inception, our thought was that if Aria works well, it can handle a lot of the repetitive tasks you get in the admissions and financial aid departments," Khanmalek noted. "Now we have a person answering that phone and repeating the same info every time, when they could be addressing more urgent matters."

"When is the deadline?" A bot can do that. "I submitted

my financial aid paperwork yesterday; when am I going to hear a notice?" A bot can do that. For anything that's repetitive and simple, a bot can do that," Khanmalek emphasized.

Compound Interest

"We had a few of the schools here at Pepperdine express interest in Aria, along with some other groups," said Bodden. "There is some interest to use it among the campuses for repetitive tasks, and we have been hard-coding lots of specific information particular to those campuses."

"I had one person who couldn't log in to WaveNet," Khanmalek continued. "The bot replied back, 'Have you tried clearing your browser cache? Here's how you do it.' The person wrote back in five minutes that it worked. Thank you. Done."

"That was potentially a half-hour conversation with a Client Services support person," Khanmalek said, "that was handled by a bot in 10 minutes."

"New questions arise every day, and the bot is constantly growing," said Bodden. "We're monitoring the queries and creating new tasks to accommodate questions. Aria's getting smarter every day."



Identity Crisis

The 2019 National Cyber Security Awareness

Month campaign took flight using superhero

themes while revealing Pepperdine students'

desire for stronger online security



Left, the LastPass student email included a video message and a link to a short survey.

With Pepperdine's main campus in the virtual shadow of screen legend Iron Man's mythical home on Point Dume, the Information Security Office (ISO) tapped into the superhero genre to communicate its message on safety and security for National Cyber Security Awareness Month (NCSAM) in October. This year, the students responded to that message directly, expressing their strong opinions on the need for greater cybersecurity.

"We reached more new people, had our strongest collateral package, and handed out more literature than we ever had before for National Cyber Security Awareness Month," said Pepperdine's Chief Information Security Officer Kim Cary.

"Our campaign's success was really three-fold," said Cary. "We focused on the importance of using a password manager such as LastPass to maintain strong, unique passwords for all online accounts. A password manager can store dozens of passwords for all your accounts, and you just need to remember one strong pass phrase to access LastPass.

"Next, we promoted BrowserCheck as a means of asking the students to keep their computers up to date on security patches," Cary added. "When they install the plug-in in their browsers, it helps protect their machines against cyber attacks.

"Finally, we gave students a chance to tell us how they felt about cybersecurity at Pepperdine using a short email survey (right). We got a fantastic response on multi-factor authentication," Cary noted.

At Pepperdine, multi-factor authentication (MFA) is a digital security

system requiring two methods of authentication—your password and a personal device or on-campus connection—to confirm your identity before accessing the University's network. Because MFA is the most effective control to protect against cyber attacks, all faculty and staff have been enrolled in SecureConnect since spring 2019.

"The plurality of people had used MFA and liked it, and more than two thirds of those surveyed liked it"

That left one segment of the Pepperdine community exposed, and cybercriminals took advantage of that weakness. During the fall semester, a large number of Pepperdine students had their IDs and passwords exposed on the Internet through a security breach at the Chegg textbook rental and tutorial service. These students had re-used their Pepperdine passwords on the Chegg site, giving hackers the window they needed to access the students' University accounts.

"We notified more than 100 students that their Chegg password matched their Pepperdine password," Cary said. "So, there was a significant number of those people that would have been safeguarded by multi-factor authentication. We really want to see if the students are ready for MFA, because it prevents a cyber criminal from using a stolen password to access their Pepperdine data.

"This was the perfect time to ask students about multi-factor authentication," Cary noted.

The ISO team sent an NCSAM-themed email message: two short paragraphs and one link to a three-question survey. Survey participants were offered a chance to win one of five pairs of Apple AirPods and three Series 5 Apple Watches as incentives. The student response was quick and strong, providing a wealth of data to assess the students' perspective on MFA.

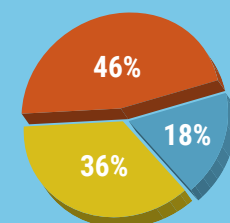
"We got 929 responses before the end of the day," said Cary. "That's phenomenal for the three-question survey. And we also received approximately 230 comments: that's 25 percent who also took the time to leave their personal thoughts. MFA is a real hot-button issue for the students.

"The plurality of people had used MFA and liked it, and more than two-thirds of those surveyed liked it," said Cary. "Almost eighty percent said they'd rather be able to use the same password for multiple years and would happily use MFA from off campus. Fantastic result!

"Finally, we asked, 'If multi-factor authentication was optional, would you enroll in it if you got to use your same password for multiple years?'" said Cary. "About 70 percent said they would enroll in it. This is fantastic because it's a substantive result that clearly demonstrates that students are ready for MFA.

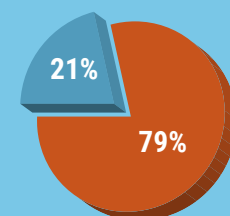
"Keeping it simple resonated with the community, because there are so many potential layers in cybersecurity. Our overall campaign this year was more focused," Cary concluded. "And it was wildly successful in terms of engaging the students. We asked them a critical question that interested them, and they responded that they want the security of multi-factor authentication."

MFA TO SAVE THE DAY?



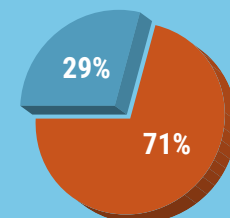
Question 1: Do you use multi-factor authentication for some non-Pepperdine logins (i.e. log in using your password plus something else like a TEXT message)?

- Yes, I like it.
- Yes, it doesn't seem worth it.
- No, not yet.



Question 2: Would you rather have an annual password change requirement than use MFA at Pepperdine?

- No, I'd rather use MFA.
- Yes, I'd rather change my password.



Question 3: If MFA enrollment was optional, would you enroll if you got to use your same password for multiple years?

- Yes, I'd enroll if it was optional.
- No, I would not enroll if it was optional.

Community Service

The new LinkedIn Learning service provides Pepperdine students, faculty and staff the opportunity to fortify their LinkedIn profiles while charting a path for learning, teaching, and professional development

When LinkedIn bought Lynda.com in 2015, it was a strategic decision to make the new website the go-to resource for one simple question in career placement and professional development: “What’s next?” They wanted to be a primary destination for people who are preparing for what’s next in learning and in their chosen careers.

“For students, it makes a lot of sense,” said IT Training Manager Jordan Lott, referring to the new LinkedIn Learning. “Students can go to one place and get the training they need for their chosen job, which they can also find in the LinkedIn environment. And the site is just as effective as a training tool for faculty and staff as well.

“One of LinkedIn’s biggest calling cards is how many jobs people acquire directly through the service,” Lott said. “So, the greatest benefit that we found for people is to start using LinkedIn regularly, a practice that all of Pepperdine’s business programs strongly encourage. If you go to the student career centers, they’re going to say the same thing: using LinkedIn—especially coming right out of your undergraduate or graduate degree—is a great starting point.”

A LinkedIn profile allows people to highlight practical attributes such as business, creative, or technical skills that may not receive the same attention as a resume or cover letter in a job search.

“Those skills are often packaged in a degree,” Lott said. “That’s where we found that it can be really impactful for students to use LinkedIn Learning, because of the way their LinkedIn profile can showcase their skills and experiences.”

For most students, LinkedIn is all about getting a job. But what about faculty and staff?

“The LinkedIn Learning site can potentially reduce the amount of time that a professor spends talking about the mechanics of something or the concept behind something,” Lott said.

“There may be situations where a professor can use LinkedIn Learning as a stand-in for the textbook,” Lott continued. “And it’s not just reading; the site provides high-end, well-researched content based on industry standards that the professor doesn’t have to find the time to create.”

That content may come in the form of text, videos, or other exercises that allow students to learn in a different way and at their own pace, within the course parameters.

“The LinkedIn Learning videos or courses can do the teaching or training for certain elements of a class,” Lott noted. “That content could also be assigned as homework or as a special project.

“Then when the students land in the classroom, professors have more hands-on time to spend with the students in more of an active learning environment, rather than standing, lecturing, and watching videos to convey core concepts,” Lott said.

By using LinkedIn Learning to help teach core concepts that would normally be taught via textbook in a traditional on-site lecture, professors can flip the classroom for different segments of a course and create different learning opportunities. LinkedIn Learning can also help level the playing field for students who may have challenges with some of the tools required to complete assigned tasks in a given course or project.

“If the prerequisite for a group project requires students to be able to use Sheets and Drive in Google G Suite or Microsoft Excel effectively,” Lott said, “professors can use LinkedIn Learning to assign materials to help students fill in any knowledge gaps they may have in establishing a baseline to work on the project.”

How does LinkedIn Learning align with Pepperdine staff goals?

Professional development.

“We know that, in the business environment, people need business skills such as time management and conflict resolution,” Lott noted. “Even though we’re an organization based on education, we are still an organization with basic business needs. LinkedIn Learning is a great way to convey those skills and foster an environment of continual education.”

LinkedIn Learning offers a considerable number of continuing education credits for different professional certifications, and they also have courses on preparing people for different exams for those certifications. From continuing education to development to certification, the service offers opportunities for learning within the LinkedIn environment as well as professional certifications beyond it.

And just like the former Lynda.com website, there is no cost associated with using LinkedIn Learning for members of the Pepperdine community with an active login. Alumni would have access to LinkedIn Learning for about 90 days until they officially become alumni and are no longer active students.

“Right now, we’re working with Alex Herrera at the Career and Professional Development Office of the Pepperdine Graziadio Business School,” said Lott. “We’re using a brand new feature inside of LinkedIn Learning which uses a

custom learning path to find courses on the site to create an experience unique to the Pepperdine community. Because we’re able to upload our own custom content, the seminar-style class for their first-year students is now a self-guided online course they’re making available to the entire University.

“You can find content that’s created specifically by LinkedIn Learning along with content that’s created by Pepperdine specifically to build your skills, complete with all the training and learning materials,” Lott added.

“As a hiring manager, I can confirm that LinkedIn is one of the first places I go when I’m trying to learn more about a job candidate,” Lott continued. “One of the primary benefits is that there’s a direct connection between LinkedIn Learning and your career-focused LinkedIn profile. That means that anything you complete on LinkedIn Learning can then be showcased on your LinkedIn profile, which complements your degree, which is fantastic.

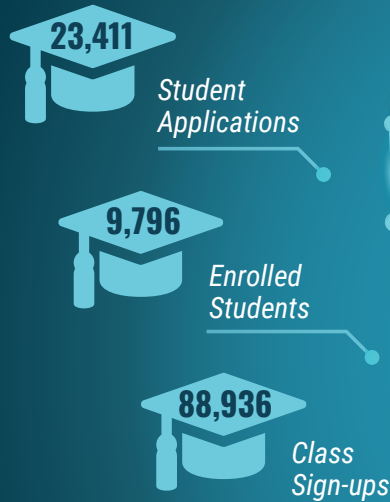
“We’re just scratching the surface,” Lott concluded. “We already see that the primary users of LinkedIn Learning are really the students, and that happened organically. It happened because students were looking for ways to improve a skill or learn a tool leading into their final projects and their final exams. Just imagine the potential for learning for the entire Pepperdine community as they explore this dynamic tool going forward.”

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PEPPERDINE 2019

Information Technology

PeopleSoft Processes



A Guiding Light

Email/Spam



Blocked Spam messages: **44.3 million**
Delivered Email messages: **35.6 million**

Staff Training



Training Classes: **190**
Total Signups: **1,097**
Unique Attendees: **548**

Data Cookbook



Data Definitions: **264**
Fully Approved: **210**
New Definitions: **97**

Sharp Copier Printing



Total Prints: **6,032,163**

Document Management

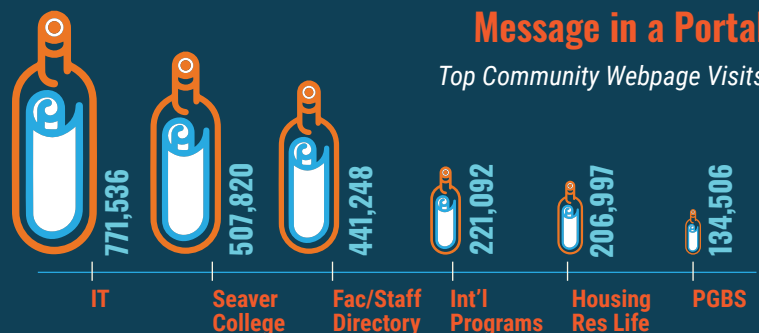
743,500

Approximately 743,500 were uploaded to Etrieve while also transitioning the Pepperdine University enterprise to the new ECM system.



Message in a Portal

Top Community Webpage Visits



IT Service Desk

13,265

The IT Service Desk closed 13,265 support tickets for Pepperdine's faculty, staff, and student body in the 2019 calendar year.



Courses Logins

In 2019, the Technology and Learning team reported that the Courses LMS hosted 1,847,289 separate logins.

1,847,289

