Now is the future of workplace learning

How Artificial Intelligence and analytics disrupt how we learn and impact business



Overview





The world has changed- have we?



Solving the real problem



Disruption from 3 perspectives



Learning disruption case studies

What if...





Learning was nano-sized?

Learning was sharable and personalized?



Learning design was based on data?



eLearning: We can do better than that



Explore more and get involved

WHAT'S THE BIG IDEA?

How can learning be redesigned to impact business results?

> What disruptions happen when Artificial Intelligence is used in workplace learning?

To navigate, click the icons or scroll up/down

The world has changed- have we?







TWO STORIES...

A few decades ago, when the Internet was young, Netscape was the most popular browser. Netscape solved the problem of how to easily browse the world wide web. Within a few years, another company understood the real problem people faced was not how to browse the web, but how to search it. To solve that problem, they knew they needed to solve **big data** and **analytics**. They solved it- and they won. That company is Google.

A decade ago, bookstores were a wonderful place to hang out and buy books- epitomized by Barnes & Noble. They were solving the in-person book buying experience. Another company understood that the real problem to solve was the buying experience- how to buy almost anything from anywhere quickly and easily. To do that, they needed to leverage powerful computing technology- but it didn't exist. So they built it. They won. Amazon's:

- Cloud computing and Artificial Intelligence solutions now support over 40% of Internet traffic
- Net income in 2018 was \$10 billion with \$230 billion in sales

Today, Barnes & Noble has 600 stores and is a Fortune 1000 company. Compare that with Amazon, which is more valuable than ALL major brick and mortar retailers... combined.

ONE LESSON

Artificial Intelligence and analytics have proven to be disruptive technologies that have created business winners and losers.

Big data

A term for huge amounts of data that change often. It is often difficult to structure, use, and analyze using traditional tools.



Analytics

The process of analyzing, discovering, and communicating the patterns found in 'big data'.



Cloud computing

How the Internet's infrastructure is spread to many places, allowing people to use powerful computing processes on their mobile devices and computers.



Artificial Intelligence

The ability of a computer or machine to think and learn. Artificial Intelligence, or Al, can mimic human cognition as well as solve problems in ways and at speeds at which humans cannot.



The world has changed- have we?







OUR STORY

Healthcare has been going through fundamental changes in the last decade- government regulations, changing populations, and technology advancements to name just a few.

Of all of resources and assets we have to address these changes, our workforce is the most important. To stay competitive in this changing world, we need to attract, hire, and retain our caregivers (employees). Yet keeping our great workforce is an ongoing challenge.

What do you think are the top reasons caregivers would want to leave Providence St. Joseph Health?

Lack of career development was listed:

- #1 for Millennials
- #2 for Gen X

When a caregiver leaves, it costs an average of \$83,000 to recruit, hire, and onboard a replacement. In 2018, we hired over 15,000 people across the system.

Lack of learning and career development opportunities-That's a problem worth solving.



The world has changed- have we?







OUR CHALLENGE

Solving the lack of learning and career development opportunities can potentially save our organization tens of millions of dollars annually.

Traditionally, our approaches have included providing instructor led trainings and delivering online courses. Our Learning and Development team has designed and delivered some outstanding content- and we've even won some learning industry awards (see page 26).

Yet for the past three years, our engagement data has remained consistently low. In fact, 2018 engagement data shows that about one third of our workforce (31%) stated there were insufficient opportunities to learn new skills.

If we keep doing more of the same, we'll most likely get the same results.

We need to pause and ask ourselves...

Are we even solving the right problem?



Solving the real problem







WHAT'S THE REAL PROBLEM?

Instead of solving the problem of lack of learning and career development opportunities, we need to solve the real problem:

Many caregivers aren't engaged in workplace learning opportunities

When comparing the two problems, note that there is a subtle, yet significant shift in this focus.

- The former solution targets the content that's developed
- The latter solution is centered on caregivers' **engagement**

WHAT COULD WE DO DIFFERENTLY?

If we are solving for low caregiver engagement in learning, then we can shift our thinking to a better way of learning. We can make the experiences relevant and learner-centric.

What if...

- We could engage in learning that matters on a personal level?
- We could deliver learning that meets our busy schedulesaccessible anywhere, any time, and on any smart device?
- We could track, analyze, and even predict behavior and performance?

We thought
CONTENT
was the problem,
but it's not...



ENGAGEMENT is the problem

Solving the real problem







WHAT IS THE LIKELY OUTCOME?

Highly sustainably engaged caregivers that are developed and enabled are **82% more productive** (2018 World Economic Forum). When we solve the engagement problem, we inspire the way caregivers feel about their development opportunities. This will:

- Increase engagement, which increases productivity
- · Reduce attrition, which will save money
- Attract top talent because they know they'll grow here

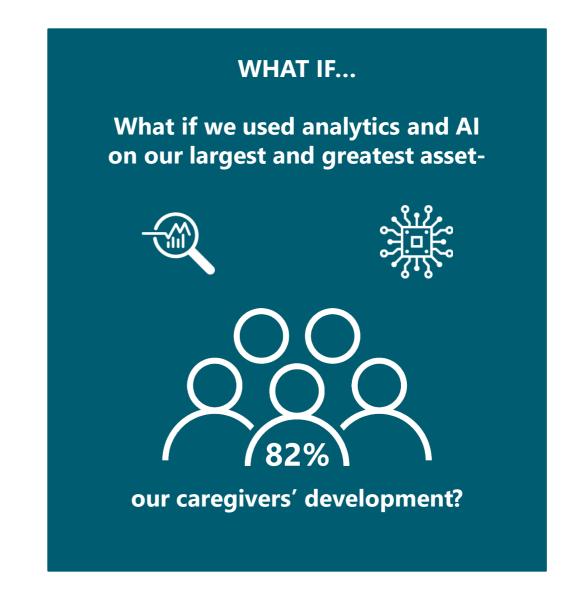
OUR SOLUTION IS ANALYTICS AND AI

As already shown, analytics and Artificial Intelligence are powerful business disruptors. We already use these tools successfully in other areas of our business- whether it's tools we use such as Visier and Tableau or business units such as the Digital Innovation Group (DIG). These tools and processes have already been proven to streamline business operations and significantly reduce costs.

What if we used data analytics and AI to transform our caregivers' learning and development?

- How might they impact our business?
- What disruptions might occur?

In 2018-19, we launched three pilots to explore these questions. Let's explore what happened and what we learned.



Disruption from 3 perspectives







To explore these disruptions, let's view them from three key perspectives.

BUSINESS



Specific programs and our organization as a whole have strategic business goals to achieve. When it comes to learning- it is not an end unto itself. **Rather, learning is a means to an end.** That end is the business goals and Key Performance Indicators (KPIs) which leverage data, analytics, and AI to measure success.

LEARNER



Every learner is unique. Learners have distinct skills, experiences, and knowledge. Consequently, a variety of learning needs and scenarios must be considered.

She may need to learn, review, or reference. She may have a few hours or a few minutes; she may want to watch, read, listen, or practice; she may be using a desktop, laptop, or mobile.

DESIGN



Today's technologies allow learning designers to create experiences far beyond traditional learning experiences. **These tools allow designers to use analytics to drive targeted, real-time design decisions.** Moving beyond a "one and done" compliance reporting model, learning experiences can use learner performance to indicate areas of learner needs and program improvement.

Learning disruption case studies









Rather than traditional (20 minute) or micro (5-10 minute) learning, what happens when learning takes place incrementally over time?



Others to



LEARNING WAS SHARABLE AND PERSONALIZED?

Instead of just consuming learning material or being "taught at," what happens when learners engage with others to connect, share, and collaborate?



LEARNING DESIGN AND DELIVERY WAS DATA BASED?

Rather than solely relying on files and subject matter experts, what happens when real-time learner data influences design and personalizing their content?









OUR BUSINESS NEED

Historically, all caregivers (employees) have been assigned our Online Annual Regulatory Requirements (OARR) refresher course. However, there have been many challenges to this method of learning including:

- · Lack of learner engagement
- Scheduling time to take the one hour course
- Inability to assess the effectiveness of the content

OUR DESIGN SOLUTION

In 2019, we piloted Qstream to replace key sections of the OARR course. We wanted to explore how our learners would respond, both in their engagement and feedback, to a completely new learning model that included spaced learning and game mechanics. We also wanted to explore what kind of real-time data and feedback our stakeholders found insightful and actionable.

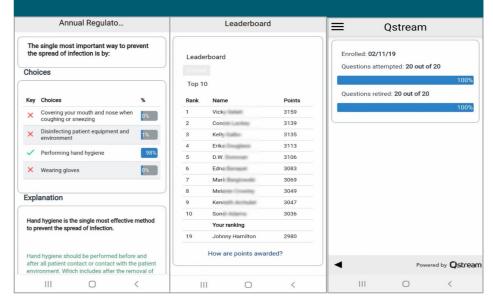
The learning experience included:

- 20 OARR guestions loaded into Qstream
- 87 participants
- 12 week delivery span

ABOUT QSTREAM

Developed at Harvard Medical School, Qstream's mobile education platform uses a spaced delivery methodology to increase long-term knowledge retention and behavior change in minutes a day. Qstream meets the needs of the:

- LEARNER by using game mechanics, such as scoring and leaderboards, to drive engagement
- BUSINESS by identifying learners' knowledge and skill gaps for real-time remedial action
- DESIGNER by understanding the efficacy of training programs and adapting the training content

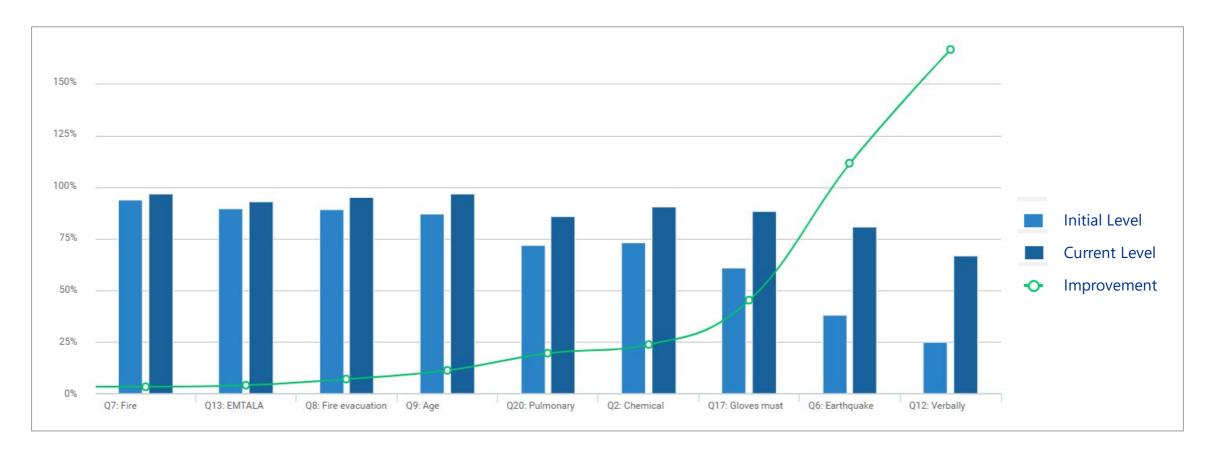








BUSINESS PERSPECTIVE



OVERALL PROGRAM RESULTS

Overall proficiency improved by 11%. Proficiency increased from a baseline of 86% to a final proficiency of 95%. This is a significant result, especially considering that this is information that everyone has been previously exposed to and is expected to know.

SPECIFIC PROGRAM RESULTS

Specific proficiency improved up to 164%. Although all questions showed an improvement in proficiency, certain questions showed dramatic improvements. Questions 6 and 12 (on earthquake-safe actions and verbally aggressive protection), both were the lowest scoring initially (38% and 25%), but then showed the most improvement (113% and 164%).







LEARNER PERSPECTIVE

Leaderboard scores						
Rank	Name	⇒ Points				
1	Vicky	3159				
2	Conr	3139				
3	Kelly	3135				
4	Erika	3113				
5	D.W.	3106				
6	Edna	3083				
7	Mark	3069				
8	Mela	3049				

LEARNER ENGAGEMENT

The leaderboard was a key driver for engagement. Peer competition makes completing daily challenges more compelling, with the goal of reaching the top of the leaderboard before peers. This is evidenced by learner feedback and the fact that 15 learners earned over 3,000 points. **Learners scored points** based on the following:

• First response correct 50 Points

• First response incorrect 30 or Partial Points

• Bonus: Retiring a question from the set 100 Points

I have really enjoyed answering questions to meet our annual regulatory requirement, it surely made a difference to get questioned randomly than all at once.

PARTICIPANT FEEDBACK

Average Session Time 38 SEC

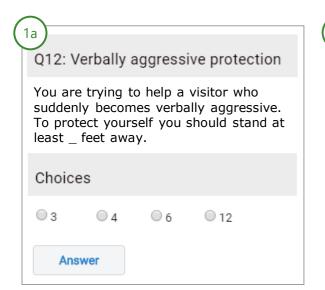
This is an excellent way to complete the reviews in a fun and timely manner. I'm a little competitive, and I like comparing my score with those of my peers. This actually prompted me to a more detailed review in order to prep to gain a higher score.

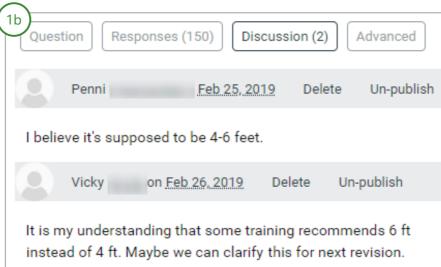






DESIGN PERSPECTIVE





REFINING THE DESIGN

Learning designers view the Discussions for each question in real-time from the Qstream dashboard and are able to **respond to problems immediately** (1a and 1b). In this case, some previous training indicated different recommended distances to stand away from a verbally aggressive visitor. This comment created an opportunity to respond to the learner as well as address the underlying problem.

In addition, learning professionals can measure training impact with visual proficiency heat maps, pinpointing knowledge gaps in specific topics with real-time data (2). These visualizations clearly indicate when the learning has been completed and **target where learners are struggling with.** Then additional learning experiences can be developed to meet those needs. For example:

- No additional learning should be developed for the codes (it went from 99-100%)
- Content on Chemicals and Responses should be periodically reinforced (as proficiency jumped 18%)









OUR BUSINESS NEED

Almost a third of our caregivers (31%) do not find our learning engaging. Our traditional eLearning and in-person courses are not fully meeting their needs and expectations.

We wanted to know how caregivers would respond if their learning:

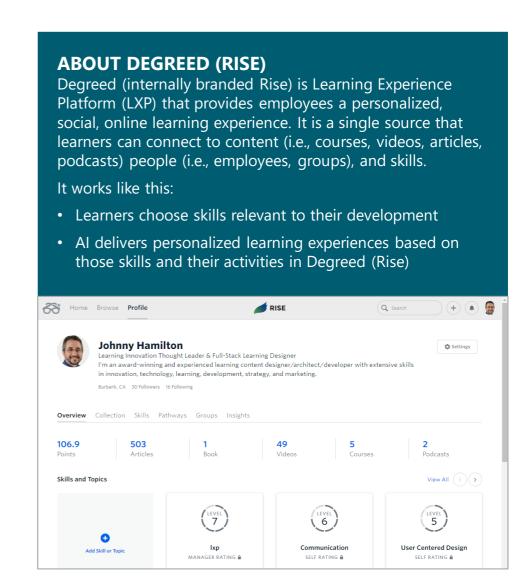
- Included opportunities to collaborate
- Allowed them to create their own learning journeys
- Provided an individualized learning experience

OUR DESIGN SOLUTION

We piloted Degreed (internally branding it Rise) with a few test groups including some of our core leader and caregiver development programs. We developed professional learning content and created pathways and groups for over 800 pilot members.

We wanted to learn and determine:

- How much Degreed (Rise) eases caregivers' way to learn
- How caregivers use it
- If it increases learning engagement and by how much

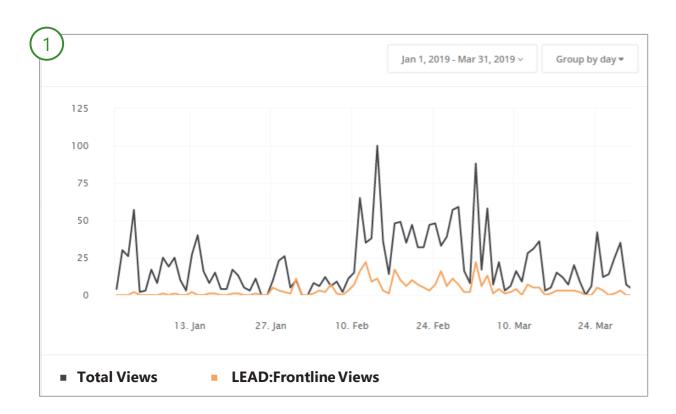








BUSINESS PERSPECTIVE

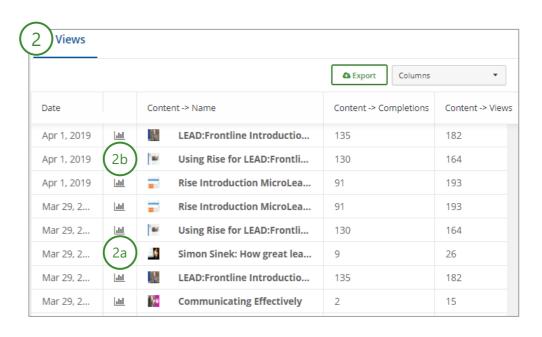


PROGRAM IMPACTS

Data analytics help tell a story that provides valuable insights into a program such as LEAD:Frontline.

For example, in the first month of 2019, there was moderate activity on Degreed (Rise) (black line), but very little activity in the LEAD:Frontline program (orange line).

Then in February, three LEAD cohorts launched, **spiking activity for a month** until it resumed its previous levels, but with over a 20% residual increase in LEAD activity.



QUESTIONS AND ACTIONABLE INSIGHTS

Program stakeholders can view and analyze the real-time data in Degreed (Rise). This leads to questions which can lead to actionable insights. For example, in this snapshot of LEAD shown above...

We can ask **questions** such as:

• Why did 26 learners start watching an 18 minute *Simon Sinek* TED Talk, but only a third of them (9) complete it? (2a)

This can lead to actionable insights such as:

• Keep videos under 2 minutes, like *Using Rise for LEAD*, since these activities have almost an 80% completion rate (2b)







LEARNER PERSPECTIVE

A PERSONALIZED LEARNING JOURNEY

After caregivers select the Skills and professional learning plan they want to follow (1), they can explore learning Pathways (2), Groups (3), and People (4). They experience multiple modalities including:

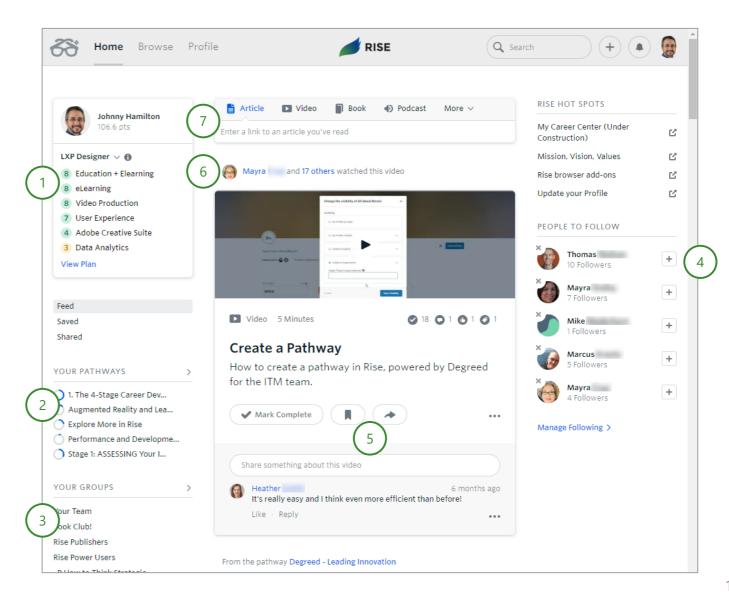
- Articles
- Courses
- Videos
- Podcasts

Caregivers have many ways of engaging with their learning. They can (5):

- Track their learning by marking it complete
- Share any Item with anyone
- Respond to or start a conversation
- Follow people and Groups to keep up with what they're learning

As caregivers use Rise, Degreed's Artificial Intelligence will provide personalized recommendations of content and people based on their activity (6).

Caregivers can also add their own content into Degreed (Rise) and easily share it with others (7).

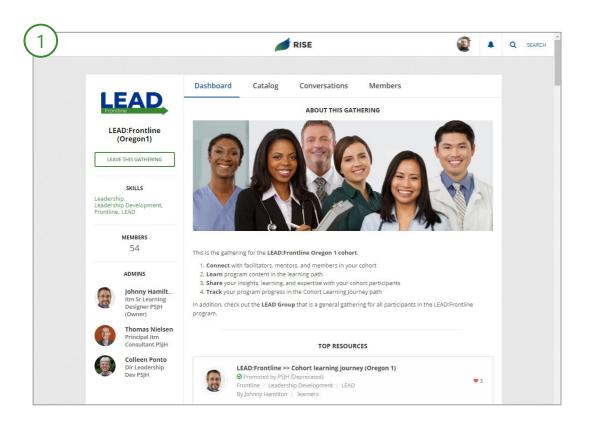








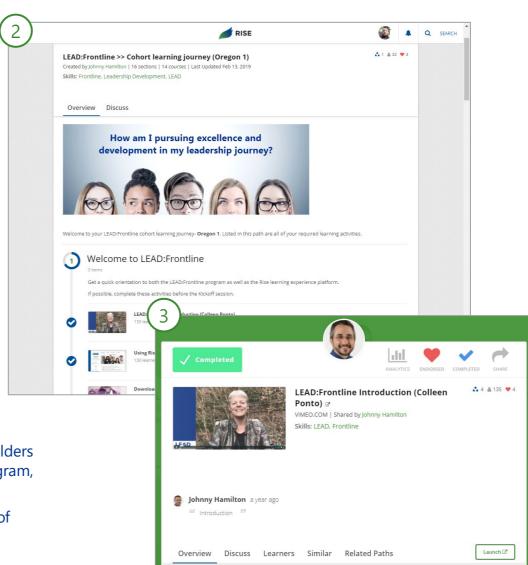
DESIGN PERSPECTIVE



DESIGNING A COLLABORATIVE LEARNING SPACE

In this example, our learning designers worked with the LEAD:Frontline program stakeholders to develop an environment where caregivers can go to (1) a single location for their program, (2) access their learning path, and (3) watch or download videos, PDFs, and more.

Learners shared resources, discussed their insights, and connected with other members of their cohort. They also created and shared their own Items, Pathways, and Groups.









OUR BUSINESS NEED

Routinely, subject matter experts and eLearning designers collaborate on course content and design. We assume that the final course is relevant, engaging, and top-quality. Can analytics validate these assumptions and provide additional information?

Specifically, can analytics and Artificial Intelligence tell us:

- If learners struggled with the content and if so, what in particular?
- If we made changes, what would be the impact?
- What new actionable insights might we gain?

OUR DESIGN SOLUTION

In 2018, we piloted Rise, our new Learning Experience Platform (LXP). We needed a brief platform experience to demonstrate its features and benefits, so we authored and assigned a course using Fulcrum Lab's adaptive learning platform.

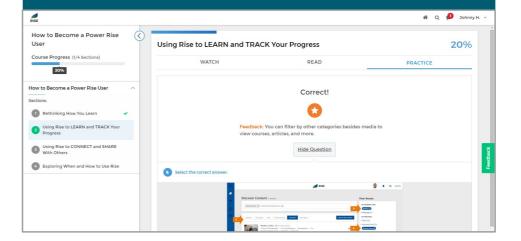
The course consisted of four MicroLearning sections, each with three learning modalities from which learners could choose to:

- WATCH
 - o A 3-5 minute video
- o READ
 - A brief article with tables, images, and screenshots
- o PRACTICE
 - o 12 questions, spanning four <u>Bloom's</u> difficulty levels

ABOUT FULCRUM

Fulcrum is an adaptive, learner-directed that personalizes the learning experience and allows learners choose how to engage with the content via watching, reading, and practicing. The platform uses real-time algorithms and AI to meet the needs of the:

- LEARNER by tracking, optimizing, and individualizing each learner's experience in their path
- BUSINESS by gleaning data insights from individuals and groups to track mastery and predict behavior
- DESIGNER by analyzing the performance and effectiveness of the content to support insights

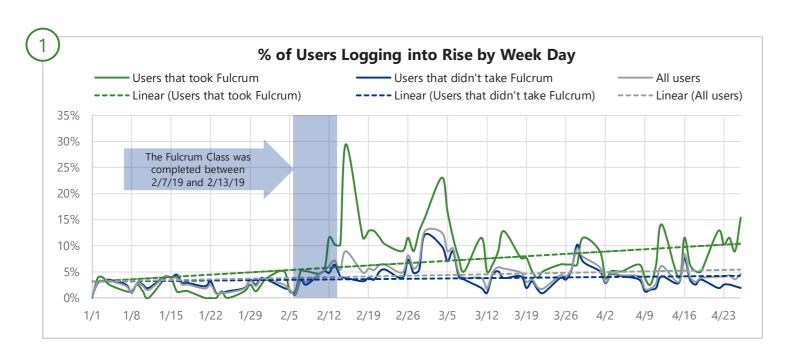


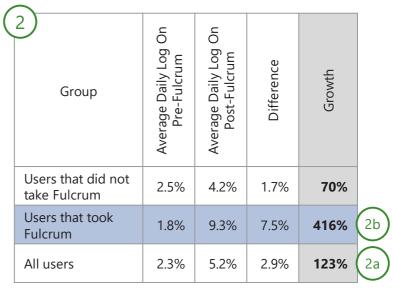






BUSINESS PERSPECTIVE





PROGRAM IMPACTS

Did taking the Fulcrum course increase how often learners used Rise? The short answer is YES, as shown in Diagram 1. However, there's a more interesting story as you dig deeper into the data.

As shown in Diagram 2, the total number of learners logging in increased from 2.3% to 5.2%-a change of 123% (2a). This is most likely a result of learners' increasing familiarity with Rise and perhaps a recognition of its value.

More dramatically, when you separate out those that did not complete the Fulcrum course (blue line) from those that did complete it (green line) as shown in (1 and 2b), you see that those that took the Fulcrum course more than quadrupled their use of the Rise platform.

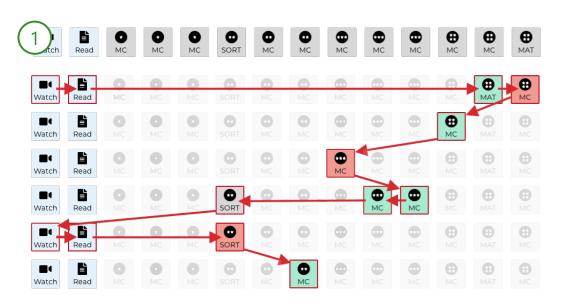








LEARNER PERSPECTIVE



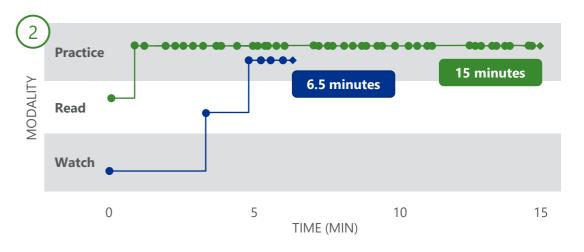
LEGEND

Question Type MC Multiple Choice SORT Sorting MAT Multiple Answer Question Difficulty * Remember ** Understand *** Apply **** Analyze

REAL-TIME LEARNER INDIVIDUALIZATION

Each learner's journey in the course is determined in real-time, based on their performance. For example, since the learner shown in (1) performed well in the previous module, she began the Practice section with a more difficult question (Bloom's level 4- Analyze).

As she answered questions incorrectly, she received easier questions (Bloom's level 2- Understand) and then returned to Watch and Read content to shore up her mastery. She completed the module when she received enough points to pass.



DIFFERENT LEARNER JOURNEYS

Every learner's journey is different, even though the content in the course is the same. This diagram (2) shows how long two learners (blue and green) spent watching, reading, and practicing.

The blue learner began by watching the entire four minute video, then spent one minute reading the text. She understood the content and was able to answer the questions correctly, which earned her enough points to complete the module in 6.5 minutes.

The green learner did not watch the video and spent less than a minute reading the text. Despite the system suggesting he return to Watch or Read, he continued Practicing, answering many more questions.

He took over 130% longer to complete the section (15 minutes).

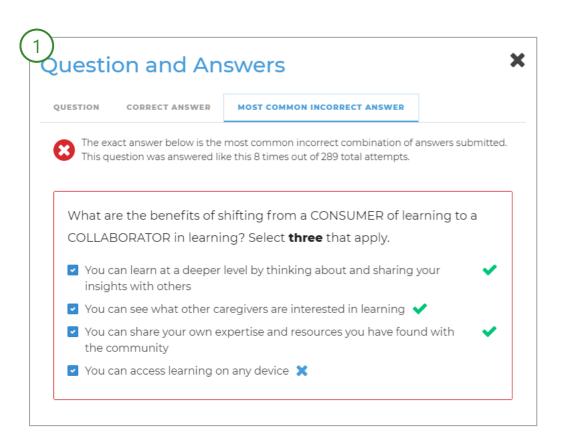
Based on his performance, Fulcrum ranked him as Unengaged for this section (at risk of not applying the material) and suggested he reattempt it to improve his mastery and boost his confidence.







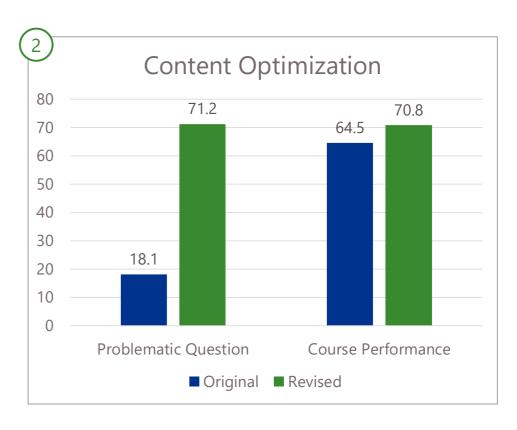
DESIGN PERSPECTIVE



DESIGNING AND REVISING CONTENT

Analytics helps designers refine course content to ensure the course measures what it's intended to measure. Using the Admin Dashboard (1), learning designers view which questions are problematic.

For example, this question originally stated "Select ALL that apply". As shown in (2), only 18% of learners answered the question correctly. When revised to "Select THREE that apply", over 71% answered it correctly.



ADDRESSING LEARNER CONFIDENCE

Problematic questions create a secondary issue. Research shows that when learners answer a question incorrectly, their confidence decreases and their performance suffers. If the problem is with the question and not the learner's understanding, then course reporting is artificially low. When problematic questions were revised, **overall course performance increased at a statistically significant rate from 64.5% to 70.8%.**

eLearning: We can do better than that







EXPANDING OUR VISION

We are proud of the fact that we've already been recognized as innovative and progressive in the learning space (see page 26). Yet we are moving toward something bigger that will drive much more value not only for Providence St. Joseph Health, but for the learning and development industry as a whole. We are building our leadership in this space with our best in class, innovative solutions.

Technology soon will allow us to truly personalize learning.

We will know you, what you want, and where you want to go – and that's what we will serve to you. We won't waste your time with anything else.

ELEARNING IS YESTERDAY'S NEWS

A decade ago, eLearning was a delighter because it could automatically track progress and be implemented quickly at scale. Since then, we've evolved and **eLearning is not a delighter anymore, but an expectation**. People now want more – learning through video, engagement, experience, and more.

We have to stop investing in canned eLearning and really looked at how people want to grow. The future of learning is going to be far more asynchronous, experiential, just in time... to the point where we don't even realize it's learning. Just like Netflix and Amazon know their consumers — we need to know our learners and how they like to consume learning. And we need to start designing for that.



eLearning: We can do better than that







A RETURN TO THE 3 PERSPECTIVES OF DISRUPTION

BUSINESS

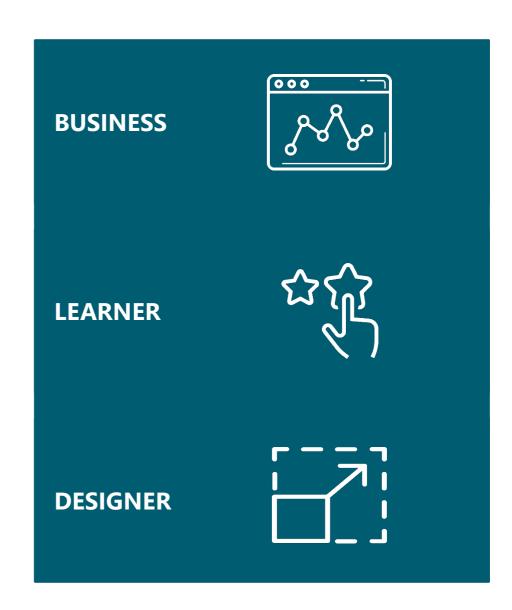
Al and analytics create a tie between learning/development and its strategic impact on organizational performance. We will soon have business data drivers that show current correlations as well as predict them in the future. When we have tools that can predict, we can train not only for today's staff, but for tomorrow's. We'll be able to make decisions for the future so we can to move into more strategic workforce planning.

LEARNER

We are driving toward an immersive, integrated, and personalized learning experience for our caregivers that blurs the line between work and learning. This is all about performance support, tools, and enabling technologies that help people do their jobs better today and prepare them for their jobs of the future.

DESIGNER

Moving forward, learning designers need to be more creative – they need to be thinking about adult learning theory, brain science, and how people learn. They also need to think from a media and innovative technologies standpoint. But designers have to become more than that – they need to become businesspeople so we can measure outcomes and tie that back to organizational performance.



eLearning: We can do better than that







ON OUR HORIZON...

The three pilots showcased are our stepping stones toward our future state. We're just getting started in the adaptive learning space and will be launching more pilots and enterprise roll-outs of solutions that leverage Artificial Intelligence, analytics, and more to truly personalize learning.

These learning experiences will increase caregivers' growth, engagement, and performance to realize a primary strategic business goal: **Health for a Better World**.

We do this through our Promise to know me, care for me, ease my way.

Tailored and trackable Know me Ease my way Care for me INTEGRATED SUPPORTIVE Seamless and centralized Anytime and anywhere

ADAPTIVE LEARNING

creates a personalized experience by
using Artificial Intelligence and analytics
to tailor learning to the learner

Explore more and get involved







EXPLORE MORE...

Check out these additional learning experiences and see what more you can discover when see and use each solution.

Qstream

WATCH IT

2 minute video www.bit.ly/psjh-qstream

TRY IT

Request to be enrolled in a demo Qstream

Email your full name and email to Johnny.Hamilton@ providence.org

Degreed (Rise)

WATCH IT

2 minute video www.bit.ly/psjh-degreed

TRY IT

Go to www.degreed.com

Providence caregivers use single sign-on

Beyond Providence, create your own free account to access the public version

Fulcrum Labs

WATCH IT

2 minute video www.bit.ly/psjh-fulcrum

TRY IT

Request to be enrolled in a demo course

Email your full name and email to Johnny.Hamilton@ providence.org







JOIN THE CONVERSATION WITHIN PROVIDENCE



Beginning in January, 2020, Providence caregivers can join the conversation on **Rise** when it officially launches.

Search for **Adaptive Learning** and find more information and other caregivers throughout Providence who are leading innovation in learning.

JOIN THE CONVERSATION BEYOND PROVIDENCE



For anyone inside or outside Providence who is interested in learning and connecting with others about this topic across industries, join the **LinkedIn Adaptive Learning @ Work** group.

READ MORE AND FOLLOW ALONG

M

Blog

www.medium.com/@johnny_hamilton

Whitepapers

This is What Happens When MicroLearning Meets Augmented Reality (PDF whitepaper)

<u>Simulated Conversation Learning Design</u> <u>Using Alexa Voice User Interface (PDF whitepaper)</u>

About this brief





PURPOSE

This brief tells a story about the opportunities and disruptions that occurred when AI and analytics were used in our learning design. Leaders, learners, and designers will have fresh perspective on how an adaptive learning methodology impacts business results.

AUDIENCE

- Frontline and mid-level managers/executives
- Program owners
- Learning professionals

CONTRIBUTORS

•	Darci Hall	Providence,	Chief	Learning	Officer
---	------------	-------------	-------	----------	---------

• Johnny Hamilton Providence, Senior Design and Innovation Consultant

Greg Eddleston Providence, Content Developer

David Morley Providence, Senior Technical Consultant

Spencer Wooster Providence, Data Analyst

• Chris Casement Sutter Health University, Managing Consultant Learning Innovations

Craig Joiner
 Fulcrum, SVP Brand Experience

Mary Hallice Qstream, Healthcare Specialist

LEARNING & DEVELOPMENT AWARDS

Ranked #7 in the US for learning innovation (2019 Learning! Magazine)

Brandon Hall Awards

- Best Results of a Learning Program (2018-Gold)
 Nurse Manager Leadership Program
- Best Approach to HCM Innovation (2018-Silver)
 This is What Happens When
 MicroLearning Meets Augmented Reality (PDF whitepaper)
- Best Advance in Leadership Simulation Tools (2017-Silver)
 Simulated Conversation Learning Design
 Using Alexa Voice User Interface (PDF whitepaper)