



Micro-Learning Meets Augmented Reality at Providence St. Joseph Health

Providence St. Joseph Health
Best Approach to HCM Innovation
December 2018



Company Background



Headquarters	Renton, Washington
Year Founded	1856
Revenue	\$22 billion
Employees	111,000
Global Scale	Alaska, California, Montana, New Mexico, Oregon, Texas and Washington.
Customers/Output, etc. (Key customers and services offered)	Hospitals, physician clinics, senior services, supportive housing and many other health and education services.
Industry	Healthcare
Website	www.psjhealth.org

Budget and Timeframe

Budget and Timeframe	\$1,500 over four months.
Overall budget	\$10,000
Number of (HR, Learning, Talent) employees involved with the implementation?	5
Number of Operations or Subject Matter Expert employees involved with the implementation?	2
Timeframe to implement	4 months
Start date of the program	Jan. 1, 2018

Value Proposition

Providence St. Joseph Health (PSJH) has articulated a vision and a path toward a future state of its healthcare services that is called “Health 2.0” in which health partners are digitally enabled to enhance the core and broaden system reach. PSJH has developed an integrated strategic plan to accomplish this by 2022 by focusing on three pillars: “strengthen the core,” “be our communities’ health partner” and “transform our future.” To successfully accomplish this vision, thousands of core leaders (managers) across the system will need to be trained and supported to work effectively to do this new work effort. Meeting this substantial training need will require developing new learning experiences that are targeted to the unique needs of this vision and of the organization. These learning experiences must be data-rich to validate their effectiveness and scalable to reach the targeted goals.

The department that is responsible for the design and development of clean sheet learning (learning develop from scratch) is operations and delivery, which is a part of the integrated talent management/Human Resources division. A small but mighty team of PSJH learning design and delivery professionals has been challenged to create innovative learning solutions that support the Health 2.0 initiative. The core team (and first clients) consist of the following members:

Figure 1: Core Team

Role	Function	Name
Executive sponsor/internal client	Integrated talent management, director of operations and delivery	Darci Hall
Design and delivery team	Multimedia developer/eLearning designer principal, consultant facilitation, consultants (2)	Johnny Hamilton, Benicia Stein, Janet Backes and Chandra Hodges.
Internal client	Director of caregiver experience	Cindy Vaughn

Source: Providence St. Joseph Health

Professional learning aligns with the following Health 2.0 strategic goals:

Figure 2: Health 2.0 Strategic Goals

Health 2.0 Pillar	Goal
Strengthen the Core	<ul style="list-style-type: none"> • Create a work experience where caregivers (employees) are developed, fulfilled and inspired to carry on the mission. • Steward PSJH’s resources to improve operational earnings.
Transform Our Future	<ul style="list-style-type: none"> • Digitally enable, simplify and personalize the health experience. • Utilize insights and value from data to drive strategic transformation. • Activate the voice and presence of PSJH nationally to improve health.

Source: Providence St. Joseph Health 2018

The core team set its focus to design training for thousands of core leaders that increases:

- Learning engagement;
- Retention; and
- Application to work efforts.

To do so, the team explored leveraging and blending proven learning methodologies with powerful new technologies in innovative and untested ways. The approach the team designed blends micro-learning experiences with augmented reality (AR). This modality is innovative not only in its design but in the unique set of value propositions it offers various stakeholders to support the Health 2.0 strategic initiative.

Figure 3: Stakeholders and Value Propositions

Stakeholder	Value Propositions
Sponsor/learning program owner	<ul style="list-style-type: none"> • Increase the value of printed material from being static, outdated and limited into being multimodal, current and data rich. • Support making data-informed strategic business decisions with data-rich learning tools that provide detailed analytics. • Increase targeted behavior change by providing learning at the point of need and matching the learners’ modality, interest and time availability.

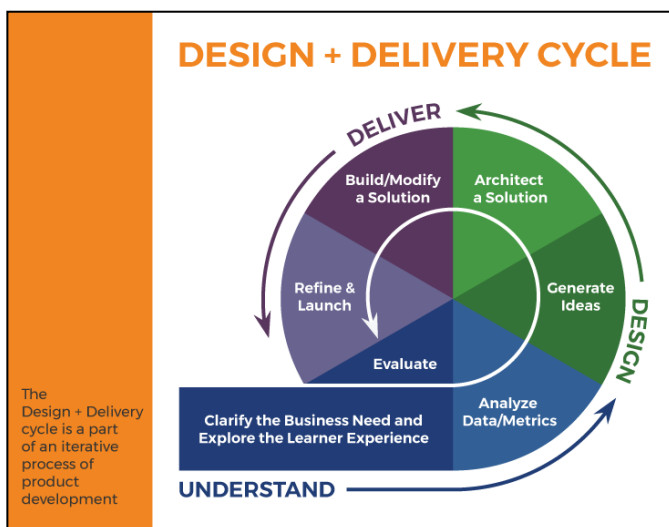
	<ul style="list-style-type: none"> • Facilitate ongoing learner engagement and data tracking/analysis by extending implementation of micro-learning experiences over a period of time. • Attract and retain key Millennial talent through recognition as an innovation and thought leader in the learning and healthcare spaces. • Research, design and implement process improvements in learning delivery. • Foster buy-in from multiple stakeholders with a solution that is low risk and high reward.
<p>Learners (core leaders)</p>	<ul style="list-style-type: none"> • Easily access a variety of rich augmented reality content (i.e., videos, 3-D experiences, online surveys, podcasts, etc.) to meet their individual needs. • Access learning when, where and how they want with a mobile-first, just-in-time solution using AR micro-learning design. • Increase their connection to the content through relevant and authentic expert analysis and stories/scenarios (micro-learning story design). • Readily and easily access updated/current/live content from printed learning collateral (i.e., full-page job aids, info cards, etc.) located in places where they work (i.e., bulletin boards, conference rooms, etc.) using augmented reality.
<p>Facilitators</p>	<ul style="list-style-type: none"> • Increase learner comprehension by maximizing focus and engagement with the content via interactive AR experiences. • Adjust and individualize course content to the learners' needs based on learner-generated data from the AR experiences. • Utilize an additional instructional modality (beyond role-play, video and reading/listening) to address specific learning needs and to add variety to the training.

Source: Providence St. Joseph Health

Innovation

The design and delivery team of the operations and delivery department uses the following process to guide the design and product development.

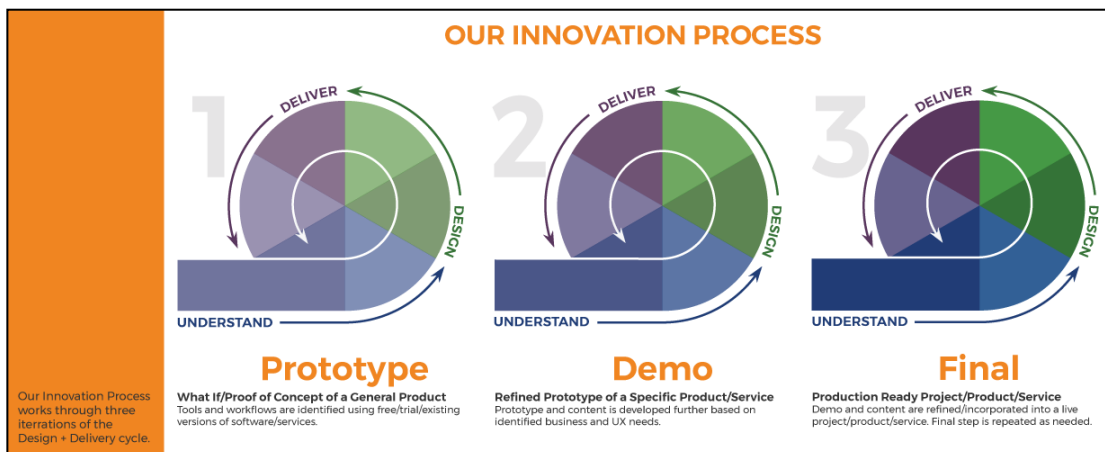
Figure 4: Design and Delivery Cycle



Source: Providence St. Joseph Health

When the team creates new and innovative learning experiences, it uses this design and delivery cycle as a foundation for its innovation process.

Figure 5: Innovation Process



Source: Providence St. Joseph Health

The team used this innovation process to blend micro-learning with augmented reality to create new experiences designed to increase learning engagement, retention and application to work efforts.

Prototype Phase

- **Understand** — The team first sought to better understand how micro-learning and augmented reality might be combined to create powerful and innovative learning experiences.
- **Design** — The team next generated many ideas and explored a variety of authoring tools and workflows. From there, it designed many proof-of-concept prototypes.
- **Deliver** — Multiple prototypes were developed, shared and discussed.

Demo and Final Phases

- **Understand** — The team first sought to fully understand the Health 2.0 initiative and explore what the learning implications and business needs would be. It reviewed and analyzed data from multiple sources including industry reports, meetings with key stakeholders from multiple departments, analytic tools and more.
- **Design** — Next, the team reviewed all of its prototypes and identified two promising solutions that met the design criteria. Both learning experiences:
 - Are high impact/low risk;
 - Can be implemented quickly, easily and inexpensively;
 - Incorporate sound instructional design; and
 - Target the identified business needs.
- **Deliver** — The augmented reality micro-learning design was used to deliver two different learning experiences to different audiences in different formats and accessed in different venues.

Let's explore both AR micro-learning experiences.

A New Training Modality: AR-Enhanced Scenarios

During instructor led/in-person training in leadership and soft skills, facilitators often use stories/scenarios to help learners understand and apply the concepts being taught. Facilitators traditionally have three basic modalities to do so: role-play, videos and

reading/listening to stories. Augmented Reality micro-learning creates a fourth training modality to engage learners.

Figure 6: AR Enhanced Scenarios



Source: Providence St. Joseph Health

PSJH facilitators currently teach several leadership courses on a regular basis to core leaders to support the Health 2.0 initiative. The team created an experience called “What Were You Thinking?” that would be incorporated into the following courses:

- Engaging and retaining talent.
- Coaching for peak performance.

During this experience, the facilitator distributes a palm-sized card (shown above) to each learner during the training and guides them through the experience. Learners use their smartphones to open the Zappar app and scan the card (learners can download it for free during the training or partner up with another learner if they can’t/don’t want to install the app). The printed card primes learners to think about what might go wrong during a developmental conversation. When the experience launches in their app, learners watch a brief animated video between a caregiver (employee) and his manager. The video pauses and learners are prompted to explore what both characters are thinking by exploring their thoughts and brains in a 3-D virtual environment. The conversation then continues with another brief video followed by another opportunity to explore each



character's thoughts. Then learners are prompted to respond and reflect by answering a few questions in an online survey. Once learners have completed the experience, the facilitator asks follow-up questions to clarify the content and deepen their understanding.

This design incorporates several sound instructional strategies. First, a micro-learning design was used to keep the experience less than four minutes, focus just on one specific topic and incorporate all of the elements into a seamless user experience. The gamification design principle of surprise and delight was used in the overall experience itself and with the inclusion of hidden objects/Easter eggs (such as the taco and the Grumpy Cat meme). This experience was aligned to the social and explorer player types (another gamification principle) where learners were encouraged to explore the thoughts in each character's brain and then discuss their insights with other learners during the class. Another gamified component included allowed learners to have choice in which areas to explore in each character's brain, if they want to review a section or the whole experience and to proceed a pace of their own.

To create this learning experience, the team met together at multiple stages in the development process. First, the multimedia developer/eLearning designer conceptualized the design and created a draft of the experience. Next, the facilitators and principal consultant reviewed the draft, provided feedback and ensured that the content aligned to and enhanced the content of the current training courses. Finally, the eLearning designer began using a suite of authoring tools (Zappar Studio, GoAnimate, Audacity, Camtasia, PowerPoint, ZapWorks and SurveyMonkey) to create it. This was the first time he used Zappar Studio, which is the primary authoring tool to create the augmented reality experience. Doing so was outside of his comfort zone and just beyond his core expertise — but he had support from the Zappar developer with specific technical challenges and eventually created a successful product. In fact, the experience earned an honorable mention in an AR design competition.

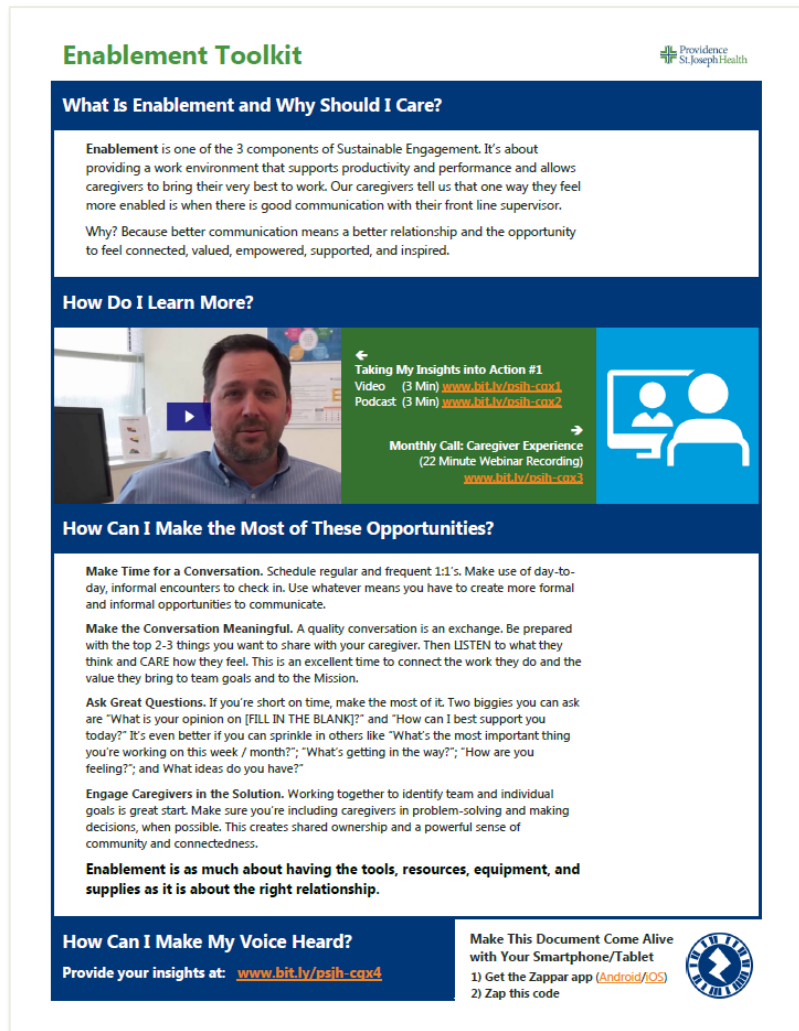


Once the first iteration was completed, the team reconvened to discuss the best ways of incorporating it into the courses. The team also formulated the learner feedback questions to be used for user experience testing. After the first few courses were conducted, the team reconvened again to review the progress and the data that had been collected. The team chose to refine how the experience was introduced during the course by the facilitators and to add closed captioning to the videos in the augmented reality to minimize noise and distraction during the class. This iterative approach and regular team design meetings to constantly improve is key to Providence St. Joseph Health's success in innovation.

A New Communication Method: AR-Enhanced Job Aids

New business initiatives require constant communication, which is often complex and needs to reach audiences in the thousands. In this case, the director of caregiver experience met with the multimedia developer/eLearning designer to discuss how monthly communication to core leaders focusing on increasing caregiver satisfaction could be enhanced to increase engagement, retention and application in their work. Traditionally, an email would be sent to all core leaders which included web links to access more information and the recorded hour-long webinar. How could AR micro-learning experiences be designed to increase learning engagement, retention and business application?

Figure 7: Enablement Toolkit



The screenshot shows a PDF document titled "Enablement Toolkit" from Providence St. Joseph Health. The document is structured into several sections:

- What Is Enablement and Why Should I Care?**
 - Enablement is one of the 3 components of Sustainable Engagement. It's about providing a work environment that supports productivity and performance and allows caregivers to bring their very best to work. Our caregivers tell us that one way they feel more enabled is when there is good communication with their front line supervisor.
 - Why? Because better communication means a better relationship and the opportunity to feel connected, valued, empowered, supported, and inspired.
- How Do I Learn More?**
 - Video (3 Min) www.bit.ly/psjh-cqx1
 - Podcast (3 Min) www.bit.ly/psjh-cqx2
 - Monthly Call: Caregiver Experience (22 Minute Webinar Recording) www.bit.ly/psjh-cqx3
- How Can I Make the Most of These Opportunities?**
 - Make Time for a Conversation.** Schedule regular and frequent 1:1's. Make use of day-to-day, informal encounters to check in. Use whatever means you have to create more formal and informal opportunities to communicate.
 - Make the Conversation Meaningful.** A quality conversation is an exchange. Be prepared with the top 2-3 things you want to share with your caregiver. Then LISTEN to what they think and CARE how they feel. This is an excellent time to connect the work they do and the value they bring to team goals and to the Mission.
 - Ask Great Questions.** If you're short on time, make the most of it. Two biggies you can ask are "What is your opinion on [FILL IN THE BLANK]?" and "How can I best support you today?" It's even better if you can sprinkle in others like "What's the most important thing you're working on this week / month?"; "What's getting in the way?"; "How are you feeling?"; and "What ideas do you have?"
 - Engage Caregivers in the Solution.** Working together to identify team and individual goals is great start. Make sure you're including caregivers in problem-solving and making decisions, when possible. This creates shared ownership and a powerful sense of community and connectedness.
 - Enablement is as much about having the tools, resources, equipment, and supplies as it is about the right relationship.**
- How Can I Make My Voice Heard?**
 - Provide your insights at: www.bit.ly/psjh-cqx4

At the bottom right, there is a QR code and instructions: "Make This Document Come Alive with Your Smartphone/Tablet" followed by "1) Get the Zappar app (Android/iOS)" and "2) Zap this code".

Source: Providence St. Joseph Health

In this enhanced experience, core leaders receive an email with an attached PDF (shown above) which allows them to engage in the content using multiple modalities in a variety of ways, including:

- Reading the text on the page.
- Watching a 2½-minute summary video.
- Listening to a 2½-minute summary podcast.
- Watching a 22-minute webinar.
- Providing feedback in an online survey.



They are able to access this content from their computer simply by opening the PDF and clicking any of the links. They can also print the PDF and post it in their office or on a bulletin board. If they do that, they are still able to access all of the digital content (videos, podcast and online survey) on their smartphone or tablet via augmented reality.

There are several design strategies incorporated in this experience. The content is chunked into small sections and can be accessed in a variety of modalities including text, video, and podcast (micro-learning). AR liberates core leaders from being anchored to their computers if they want to access the videos, podcast and online survey. They can now access it any place where the printed PDF is posted. These experiences also provide rich data. For example, all of the resource links can be tracked to provide actionable data about when and what resources were accessed. In addition, each of the hosting services for the augmented reality, podcast and videos provides various types of additional data including completion rates, time spent engaged and even work location.

The multimedia developer/eLearning designer was able to design and deliver a full working prototype of the experience in a matter of a few days to not only meet, but exceed, the design needs of the client. This could only be accomplished so quickly because working prototypes and workflows had already been created in the prototype phase of the department's innovation process. Specifically, the following production workflows and hosting solutions already were established and were blended together with the content to create this learning experience:

- Graphic design/layout.
- Augmented reality experience.
- Video.
- Podcast.
- Online survey.
- URL shortcuts.

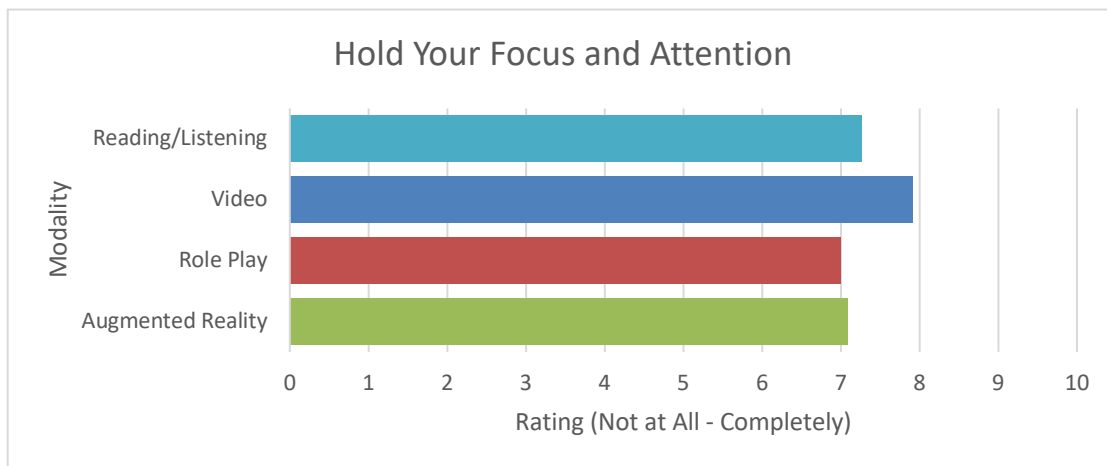
Measurable Benefits

There are two augmented reality micro-learning experiences that are showcased in this case study.

A New Training Modality: AR-Enhanced Scenarios

When learning leadership skills, learners compared and rated four modalities used in their course: Augmented reality, role-play, video and reading/listening. Learners rated that all modalities are similarly effective in holding their focus and attention, with video slightly edging out the others.

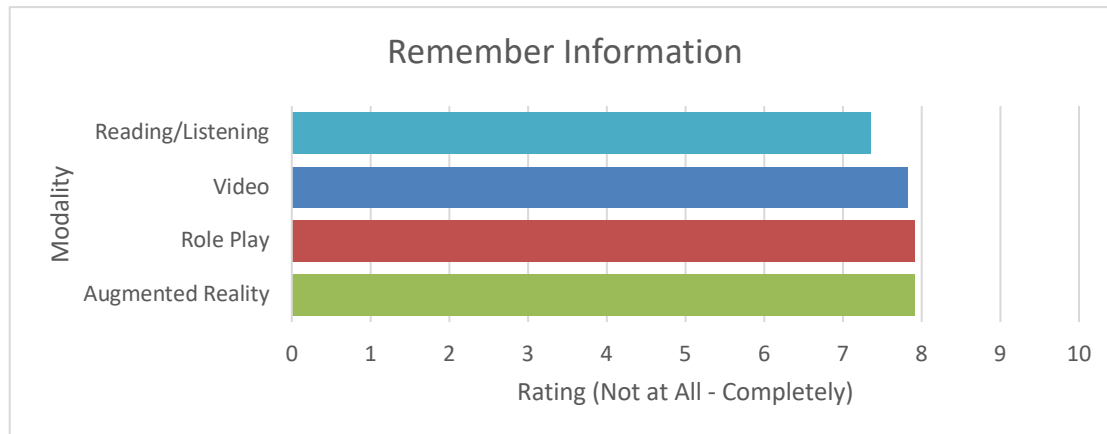
Figure 8: Holding Focus and Attention Survey



Source: Providence St. Joseph Health

They also rated all four modalities similarly effective when remembering information presented using each format.

Figure 9: Remembering Information Survey



Source: Providence St. Joseph Health

More than 81% of learners found that the augmented reality format made the content easier to both understand and apply the course content.

The net promoter score (NPS) was 18 (this measurement gauges overall user satisfaction with a product). To put the score into relative context, it can be compared to scores in the software/apps industry, which in 2017 ranged from 12 to 54, with an average of 34.

Learners also expressed a variety of comments, represented below:

- “It was hard to hear, but the interactiveness made me focus a little more. I was able to remember more of what I read when it came time for questions because I had to ‘work for it.’ I liked it. I think it helped a little bit overall. As long as the augmented reality isn't clunky, I think it would be great.”
- “While I love the idea, I think the app was a little awkward and would be more so to those who are not technically savvy or have specific disabilities/limitations.”
- “Thank you! Zappar was fun. Another way to stay engaged.”

Overall, the team found it encouraging that these results support the use of this new training modality as being as effective as traditional modalities (role-play, video, listening/reading). The AR micro-learning design also generates more rich data than the other modalities. This provides the team with more options to design and deliver learning experiences that best meet the learners’ and the organizations’ needs.

A New Communication Method: AR Enhanced Job Aids

The email communication for the first AR-enhanced job aid was sent to more than 7,000 core leaders across the enterprise as one part of a regular monthly communication that included a lot of other content. Due to the AR micro-learning design, the team now has more actionable data regarding how core leaders actually engaged with the communication. Through analysis of multiple data points across multiple platforms, data stories can be created that provide insights to drive further business decisions.

For example, the link to the 2½-minute video was accessed 146 times with almost twice as many from a link embedded directly in the email (95) as there were from the PDF (51). The video was played 112 times with 46 plays lasting the full duration of the 2½-minute video with a marked decrease in viewership after the 2:20 mark. More than 52% viewed the video within two days of the email communication and the highest overall day was Wednesday; there were no views on Fridays. The AR experience was accessed 11 times with an average engagement of almost five minutes. There were no responses to the online survey, although the link was accessed 19 times.

What kind of stories can be inferred from this data? To begin with, communication should not be confused with engagement. Just because information was emailed to all the core leaders, the data suggests it's a mistake to assume that core leaders view the full message (in fact, only 0.7% watched the full 2½-minute overview video). Further, the date of the communication is very important and that Wednesday is the best day to send it. Additionally, core leaders access information in traditional ways such as email links four times as much as new ways such as augmented reality. Finally, for some reason, no one responded to the survey which provided an opportunity for feedback, although it was accessed almost 20 times. The last two items could be due to a number of factors (i.e., ease-of-use, technology limitations, etc.) and present opportunities to explore further.

The key point is that data helps stakeholders to ask the right kind of questions and to validate their assumptions. By incorporating AR design, stakeholders have access to rich data across a variety of platforms to help drive their business decisions.

Overall

Key Findings

The key findings of augmented reality micro-learning design can be viewed from three perspectives.

1. **Learners** — Core leaders who used these experiences found it to be an engaging and delightful experience. They were very open to these experiences and to using their own smartphones to access them. Learning can be accessed anywhere, both within and beyond the Providence St. Joseph Health network.
2. **Program/Organization** — These experiences generate a vast amount of rich data. It is somewhat difficult to compare results of these experiences to previous ways of doing similar things. For example, the only reportable data for traditional job aids was how many have been distributed. With these new experiences, stakeholders can access a trove of data on what was accessed, when, in what area, for how long and more. The data can also include aggregated user responses to embedded questions within the experiences. This is a profound shift from distribution of content toward a strategic analysis of real-time data in targeted areas.
3. **Design** — The team is just getting started to explore what works in this new design. The team has found that users want to keep these experiences simple to use, under two minutes and reasonably similar to familiar experiences (such as viewing a video on a smartphone).

Augmented reality micro-learning design generates a lot of excitement among stakeholders (program owners, learners and facilitators). This design is a low-risk enhancement to existing programs that offers high rewards in the form of increased learning engagement, retention and application to work efforts. In addition, this design can be implemented quickly, easily and inexpensively.

What's Next

AR-Enhanced Scenarios

The team will continue to refine the AR-enhanced scenarios experience and track the learners' feedback via observation, interviews and net promoter scores. The team also will research and develop additional experiences that can be used in the other in-person



courses such as “Setting Goals and Reviewing Results,” “Core Leader Essentials” and “Communicating for Leadership Success.”

AR-Enhanced Job Aids

The team will continue to work with the internal client (caregiver experience) to produce monthly communications that include AR-enhanced job aids. The team will continue to refine and test its communication methods (i.e., shortened video length) to increase engagement and ultimately improve work efforts. The team will leverage data on the multiple platforms to help drive its strategic decision-making.

Target Other Business Needs

The team is reaching out to other stakeholders in which there is an opportunity to add value by implementing augmented reality micro-learning.

The team is working with the director of diversity, inclusion and equity to target unconscious bias and cultural competence in workforce planning and strategy.

The team is looking to move beyond the Human Resources department and work in the clinical care and personalized health area, specifically with the high-reliability work effort. The team already has conceptualized an AR-enhanced job aid experience of paying attention to detail, which is a component of the existing high reliability toolbox that includes videos and PDF documents hosted on the company intranet.

The team has had exploratory discussions with ministries (hospitals) that are undergoing major multiyear renovations and are in need of solutions that will reduce the frustration of patients and the community regarding knowing how to get to facilities and offices which have moved or have an alternate entrance during construction. An AR micro-learning experience can provide current information at the point of need without having to change any printed signage, thereby reducing frustration and costs.

The team also has transformed brochures of the PSJH Foundation into interactive experiences — allowing potential donors to easily and quickly donate, register to volunteer and access additional photos and resources simply by scanning the brochure with their smartphones.

Moving More Prototypes into Demos and Final Products

The team has been working with other colleagues to expand augmented reality micro-learning design beyond AR-enhanced scenarios and AR-enhanced job aids. Some of the prototypes that have already moved into demos and final products include:

- **Name Badge Card** — This is a card that is added to the back of a name badge to provide core leaders who are part of the Clinical Values Improvement (CVI) program access to resources at any time, wherever they are.

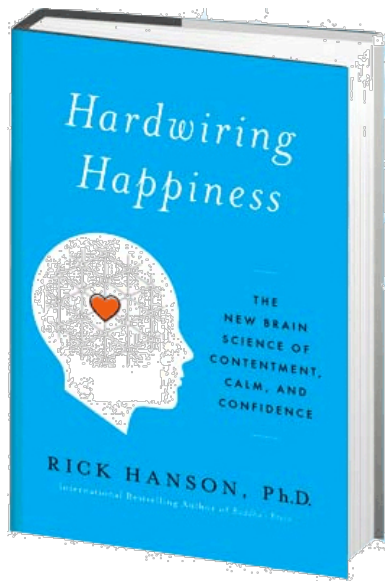
Figure 10: Name Badge Card



Source: Providence St. Joseph Health

- **Book Club** — An AR image trigger sticker is placed on a book cover so that readers can interact in varied ways such as watching videos of the author, reading a book summary, sharing insights with each other on the company's forum platform and more.

Figure 11: Book Club



Source: Providence St. Joseph Health

- **Video Postcards** — A card quickly tells the story of why people support Providence global partnerships in a delightful and Harry Potter-inspired way (the printed picture comes to life as a video).

Figure 12: Video Postcards



Source: Providence St. Joseph Health

Lessons Learned

Although the team has only just started this journey a few months ago, there are three lessons that have been learned.

1. **It's Not About the Technology — It's About Value** — The team knows it must first understand its clients' needs and then effectively communicate a better solution. The team is refining how to state the innovation value proposition to its clients in a way that first communicates value. The strategy the team is using begins with the client's "Why" and then focus on the "How" of the design and then build the "What" of the experience.
2. **Need for a Creative Director** — Opportunities for business applications and interest in augmented reality micro-learning design are exploding within the organization. A creative director can provide great value in championing this innovation in learning throughout the organization. A person in that role would need to have a strong vision, design skills, business acumen, technical skills and pedagogical background.
3. **Choose a Mindset for Success** — Innovation is often a challenging journey, fraught with many setbacks and frustrations. It is critical to choose a mindset for success — one who values:
 - Being courageous.
 - Doing and making.
 - Focusing on providing value.
 - Seeking clients who are responsive.
 - Constantly improving through iterative cycles.
 - Centering design on a person's experience (human-centered design).
 - Staying curious, observing and asking questions.



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