Hats Off to Adaptive Learning:

Tailoring Corporate Training for Each Learner

BROUGHT TO YOU *by* SWEETRUSH

SWEETRUSH

Try Some Adaptive Learning!

If you are new to adaptive learning and want to know the basics of how it will work, read:

· What Is Adaptive Learning and How Does It Benefit Your Online Training Program?

· Busting 6 Myths About Adaptive Learning

· What's the Difference Between Adaptive Learning and Personalized Learning?

If you know something about adaptive learning and want help implementing it in your organization, read:

· 6 Ways to Add Adaptive Learning to Your Online Training

· Evaluating the ROI of Adaptive Learning
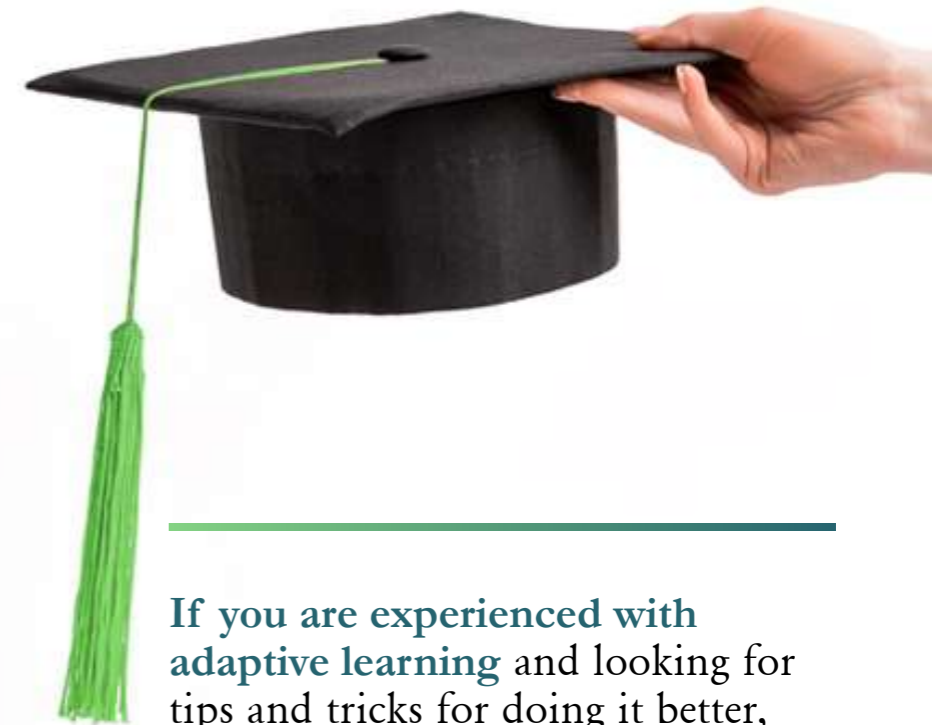
If you are experienced with adaptive learning and looking for tips and tricks for doing it better, read:

· Instructional Design Techniques for Adaptive Learning

· Fostering Employee Engagement In (and with) Adaptive Learning

SWEETRUSH

Let's Collaborate and Innovate Together

AND USE OUR CRAFT TO POSITIVELY AFFECT PEOPLE'S LIVES!

SWEETRUSH

CUSTOM LEARNING

Let's embrace your business challenge and together develop a **unique solution that connects with your target audience.**

SPARK

VR, AR, AI, apps, and deep-dive technical solutions.
Curious? Let us show you how these technologies can work for you.

TALENT SOLUTIONS

Do you need a temporary pro to augment your team?
Our talent pool is ready to help.

CULTURAL TRANSFORMATION

Investing in culture has been the secret to our success.
If you need to transform yours, it would be our honor to help you.

GOOD THINGS

Nonprofits, we stand in awe and applaud what you do!
Let's discover how learning and communications can amplify your impact!
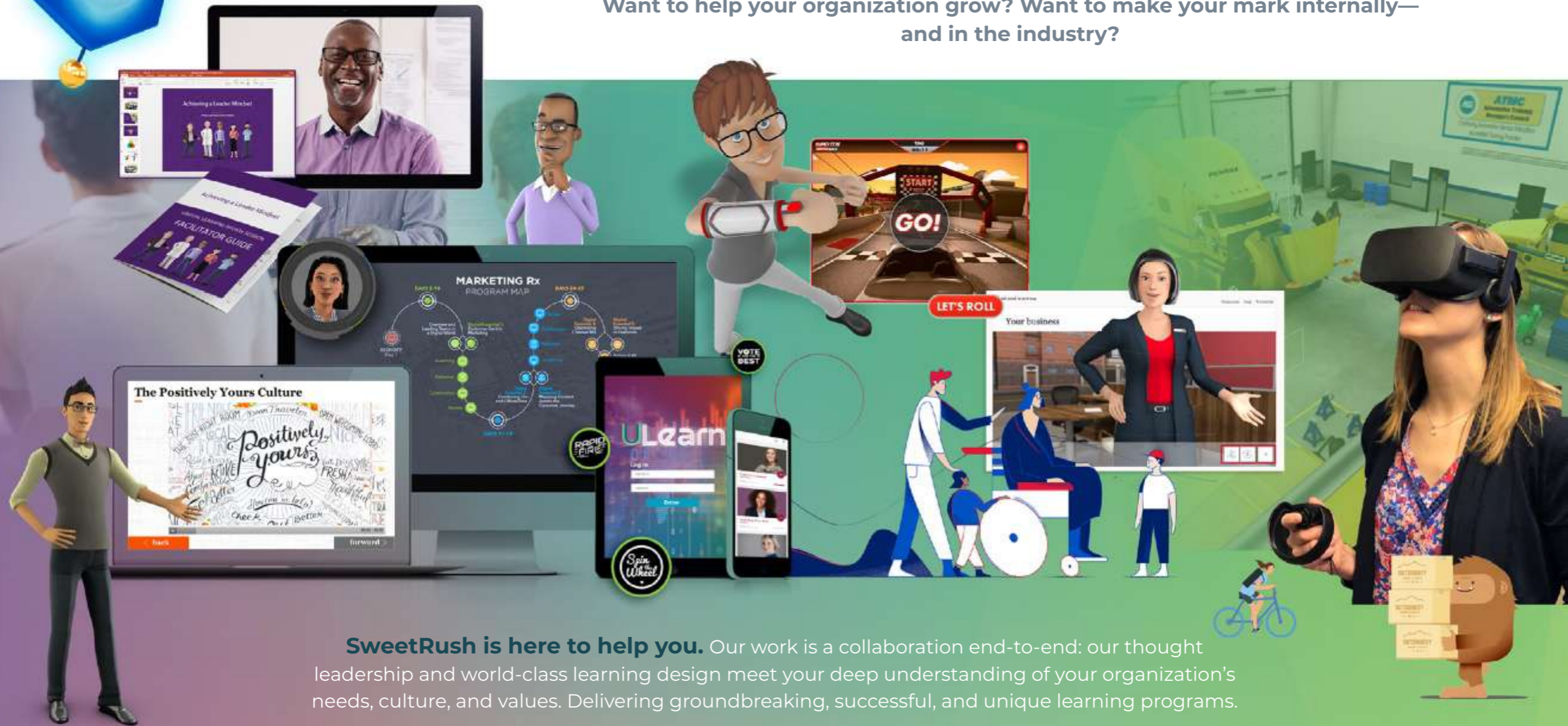
Get in Touch!

Amplify Your Impact
with Custom Learning Solutions

Want to help your organization grow? Want to make your mark internally—and in the industry?

SweetRush is here to help you. Our work is a collaboration end-to-end: our thought leadership and world-class learning design meet your deep understanding of your organization's needs, culture, and values. Delivering groundbreaking, successful, and unique learning programs.

BLENDED LEARNING | eLEARNING | MOBILE | ILT/vILT | ADAPTIVE LEARNING | GAMES & SIMULATIONS | VIDEO, AUDIO, & ANIMATION | VR/AR | INTELLIGENT ASSISTANTS

We're proud to be recognized by our peers in the industry.

66 Brandon Hall 2017–2019

3 CLO Learning in Practice

Solution Provider of the Year

eLearning Industry Content Provider

WorldBlu Freedom Centered Culture

Contact
Erin Krebs, Director of Client Solutions
415.647.1956 | info@sweetrush.com
www.sweetrush.com

CUSTOM LEARNING

made with love by SWEETRUSH

John Cleave

John Cleave began dabbling with adaptive learning in third grade, when he chose to educate himself by conversing with other students in the back row rather than by listening to what the teacher was telling everyone. Graduating with a BA in English from Northwestern University, he did marketing, training, and coding at several start-ups, which sparked an interest in how to get people smarter through technology. This drove him back to Northwestern (perhaps through force of habit) to earn an MA in education and a PhD in computer science. He studied at Northwestern's Institute for the Learning Sciences, a skunkworks project funded by Accenture and run by his advisor, Roger Schank, that explored how to help people learn by doing in all sorts of interesting, technology-enabled ways: AI, simulations, performance support, case study analysis, intelligent tutoring, gaming, ask-the-expert systems, and more.

John has been building adaptive learning for corporate clients for over 25 years, helping to create over 200 learning systems. At SweetRush, he found a community of very smart and creative people sharing the same beliefs about learner-centric design, and is at home.

Hello readers,

Adaptive learning is essentially a belief that, in a perfect world, every minute any of us spend in training makes us better. This should be the dream of all Learning and Development professionals, because every minute it doesn't is a waste of time and money.

Historically, achieving this dream has been hard. It's hard to determine what learning each person needs, hard to provide what's needed, hard to deliver only what's needed, and hard to deliver it when and where it's needed. In a classroom, with one "sage on the stage" and a room full of people differing in understanding, it's really hard.

Yet, with more and more people using computers to operate in the world (and smart devices with them everywhere they go), **it's never been easier to deliver learning optimized for each person, where and how each most benefits from it.**

This eBook is all about adaptive learning. We define it broadly, as any design that tailors training to the differing understandings, skills, and interests of learners. While it takes skill to do, that skill can be readily gained, and we're hoping this eBook will help.

While technology such as AI affords amazing opportunities to deliver it, adaptive learning is not dependent on technology. We believe it isn't achieved through a clever algorithm so much as through clever L&D professionals, who work to know their audience using an intuition that probabilistic reasoning always seems to lack. Without that insight, adaptive learning likely fails, even if delivered by a state-of-the-art platform.

We hope this eBook helps you envision ways to tailor training to the needs of the people you're trying to help, with the tools and expertise you have at hand. Because every minute of wasted training you can eliminate is a win for all involved.

Hope you enjoy it,

John Cleave
eLearning Technologist

What Is Adaptive Learning and How Does It Benefit Your Online Training Program?

Each of us has a different understanding of the world, different potentials to achieve our goals, and so different learning needs. Yet organizations often deliver the same training to everyone, as if we're exactly the same. This means none of us ever gets the exact training we need. We may learn from it, but it's inefficient.

This is the root problem that adaptive learning is meant to solve: **deliver training that provides exactly what each learner needs, and only what is needed.**

So what is adaptive learning? Our definition is extremely broad:

> Adaptive learning is any design that tailors a learning experience to the understanding, skills, and interests of each individual.

Keeping the definition loose is intentional, because we contend it can be achieved along a full spectrum of technical complexity. A design may be adaptive by using artificial intelligence or machine learning (collectively, "AI") to adjust learning content and offering recommendations, or by collecting data and using it to drive branching, or by offering practice sandboxes with tutoring as wanted/needed, or simply by giving learners optional links, callouts, tips, PDFs, and other content when their use might be helpful to the task at hand. **The goal is essentially the same, whether we use algorithms, nonlinear narrative (branching), personal info, clever interfaces, human intervention, or more likely a combination, to achieve it.**

Adaptive Learning Examples from Everyday Life

Here's an example of "adaptive learning" that doesn't involve computers at all. Imagine that **you want to learn how to bake bread, so you ask your mom to teach you.** She knows bread-baking: how to mix ingredients, how to knead, how long to let the dough rise, how to bake it. She also knows you're messy, like to get your hands dirty in order to learn, and can easily mess it up, like not adding flour as you knead so the dough sticks to the countertop. But she's your mom, so she's patient. She lets you make mistakes and figure things out, and intervenes when needed to save the day, so you don't throw the glob of dough across the room in frustration. And she's able to answer your many questions, like how much salt to add and what "proofing the yeast" means.

In short, your mom will adapt the learning environment just for you, so you learn to bake a loaf of bread pretty quickly—certainly more quickly than if she had made you sit through a YouTube tutorial.

She does this by using the knowledge she has of you and the subject matter. Her approach might be different for your older brother (the more patient sibling) who has more experience baking; your training is tailored just to you and your unique situation as a learner at that moment in your life.

Phishing for Learners in Need

A large bank wanted to ensure contractors using its systems were on guard against email phishing attacks. So it sent an email to each contractor that had several tell-tale warning signs (e.g., spoofed "From" address). If users clicked the link in the email, it took them to a web page that explained the dangers of clicking on malicious links, and provided information on what to look for and how to avoid this. Since only learners who opted to click the link received the micro-training, this is an excellent example of adaptive learning, as we've defined it: training tailored to individual learning needs, and, in this case, free of any algorithms.

Contrast the above with a principal's orientation to parents at the start of a school year.

Parents come into the auditorium with varying interests. Some have sent many children through the school and just want to hear what's changed. Others are doing it for the first time and looking to absorb whatever they can. Some have specific questions they want to ask about their child's care, others seek a general orientation, and still others are there simply because their spouse insisted. They all take their seats, and the principal begins showing slides and talking about classes, teachers, and policies, delivering the same information to everyone.

What is the result of this learning design?

Some will quickly become bored, because they already know (or think they know) what's being conveyed. Others will become confused, because the information doesn't connect to their understanding. Some latch onto a few pieces of information and miss the rest, others nod off. None learn as much as they might have if an individualized approach had been taken.

Online training resembles the school meeting more often than the child learning to bake bread, offering the same content to every learner. **That's not only inefficient, but may breed such a strong dislike for training in the learners that they are reluctant to engage in future training without being forced to do so.**
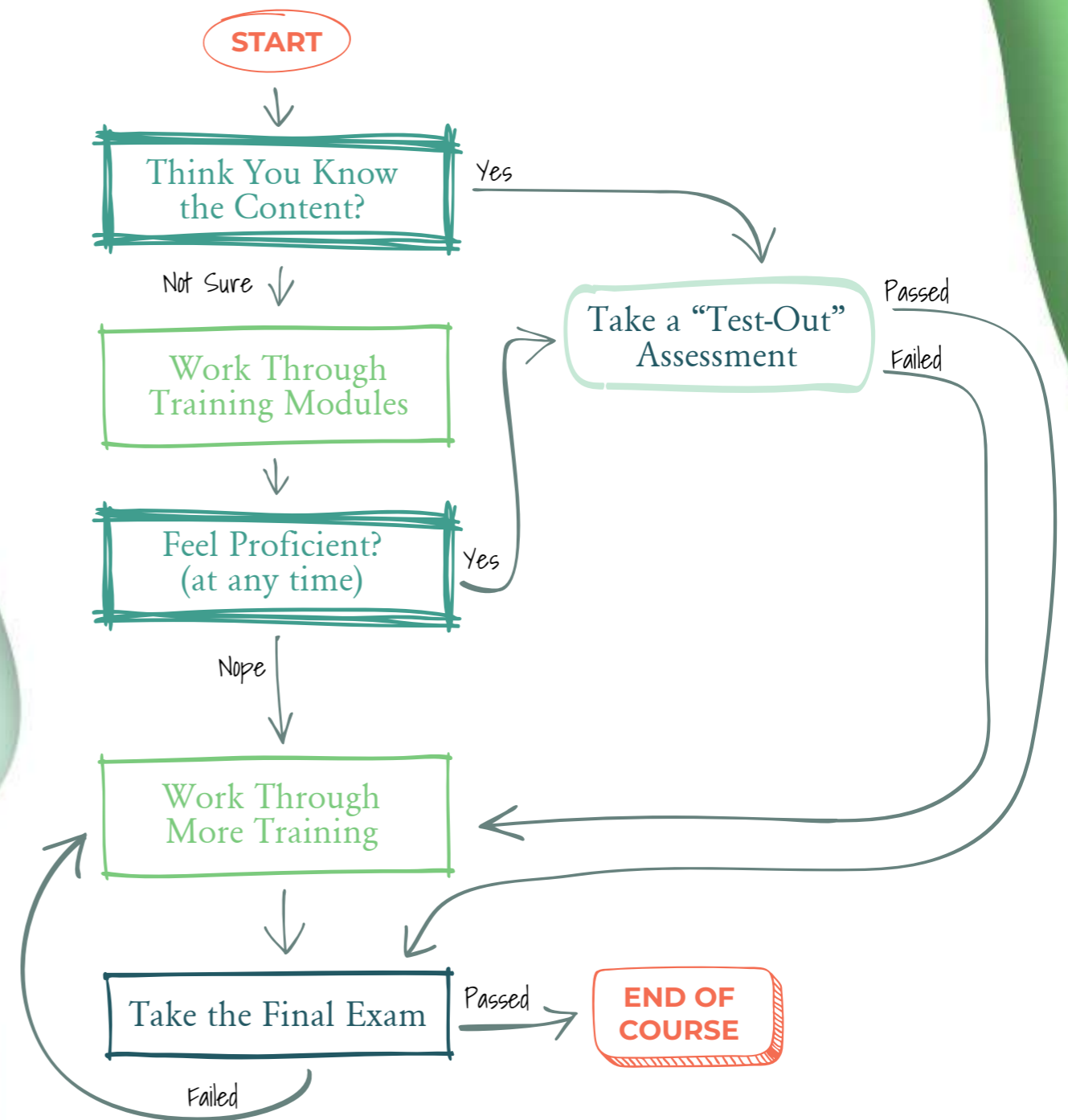
In contrast to this one-size-fits-all approach, imagine an eLearning course that dynamically adjusts to an individual learner's understanding, skills, and interests. In such a course, each person receives only the instruction that benefits him or her. Someone requiring more explanation, context, or practice gets it, while someone who doesn't can skip past. Training is just as long as necessary for each to master the content.

Does that sound like training utopia, an unachievable ideal? In fact, there are a variety of ways to accomplish this, some technological, others involving instructional design, or a mix of both.

A Digital Adaptive Learning Technique

Here's a diagram of the logic in a course that provides adaptive learning. **The course consists of a series of lessons, and has a final exam to ensure that learners who took the course gained the required proficiency.**

Learners who enter the course thinking they know the topic can take a "test-out" exam to demonstrate this: if they pass, they can skip directly to the final exam. Learners who are not confident can work through the lessons before taking the final exam, and if at any point think they got it, can take the exam to opt out of the rest. And others can work through the lessons in order until complete. Ultimately, different people will have different pathways through the course, yet all achieve the desired objectives in the end (passing the final exam). And note that, other than the test-out exam, no additional content had to be created than if the course had been presented in a simple linear sequence.

START

Think You Know the Content? — Yes

Not Sure

Work Through Training Modules

Take a "Test-Out" Assessment — Passed / Failed

Feel Proficient? (at any time) — Yes

Nope

Work Through More Training

Take the Final Exam — Passed → END OF COURSE

Failed

5

Benefits of Adaptive Learning to an Organization

Adaptive learning can bring a number of important benefits to an organization:

Less boredom and confusion

Learners don't have to sit through training that is not beneficial, which is a waste of time and money. If they know what's being conveyed, they can skip it; if it's too hard, they can receive more instruction. The quicker we get each learner to mastery, the more time he or she spends actually getting work done.

Greater retention

By not having to slog through training that isn't relevant, a learner is more likely to pay attention to learning that is relevant, and be more engaged by it. This leads to greater retention of the training content.

Easier instructional design

If a course is presented in a one-size-fits-all form, an instructional designer (ID) has to work hard to ensure that every bit of it is relevant to all of the targeted audience, in all situations. There may be some disagreement between SMEs and stakeholders on what learners need. This leads to an ID writing very cautiously, making hard decisions as to what to include and what to omit, and rewriting and reworking after each review. Stress is lessened with adaptive learning, which lets you include content that addresses every stakeholder's concern, directed only at the people who need it so as not to waste everyone else's time.

More joy

Adult learners like to be in control of what they see and do. One-size-fits-all training takes away control, which can lead to frustration, even if it's ultimately good for them. Giving learners control over their learning empowers them, and likely makes them happier. This translates into a better experience. If training brings us joy, we're more likely to seek it in situations in which it's not mandated.

Insider's Take
Becky Schmidt, Instructional Designer

" *I always try to put myself in the shoes of the learner. I ask questions like, 'Would this activity feel painful to me? Would I find this fun and engaging?' Perhaps my favorite motivator is shorter training, so I love to let learners skip content if they can demonstrate that they already know it.* "

Fast Fact

The University of Memphis School of Health Studies' use of adaptive learning in its online RN-to-BSN (registered nurse to bachelor of science in nursing) program has proven it saves nursing students more than $100,000 in collective tuition per year.[1]

1. https://www.ecampusnews.com/2018/10/26/adaptive-learning-helps-students-finish-faster/?all

6 Ways to Add Adaptive Learning to Your Online Training

Adaptive learning promises greater learning retention, reduced time spent in training, and most importantly, happier employees. But it may look like it's hard to do.

In fact, there are a variety of ways you can apply adaptive learning to your online training with little more technical expertise than you might now have available on your team, coupled with a few useful examples, searches related to the tools you know, trial and error, and hopefully, this eBook.

Here are six relatively simple ones you might try.

1. Add optional content to training.

Guide learners down a main path that provides the "skinny" and allow each to pursue topics of interest to them, through devices such as these:

- **Sidebars** – additional information contained in a floating panel next to the main presentation (you see them in this eBook)

- **Tool tips** – popups with information that appears when things are rolled over

- **"More" buttons** – allow people to get more information about something being described, typically with content that is appended to and augments the main narrative

Learners who need additional explanation can get it, without forcing everyone to view everything. At SweetRush, we call this technique **"pull detours,"** meaning they allow learners to take optional detours off the main path to pursue interests on their own, or not.

Like day junkets off a cruise ship to snorkel or hike up a mountain, then back on board by sunset, before the ship moves to the next port. Every junket isn't for everyone, but for those who sign up, often a lot of fun.

Adapting Adaptive

One way that adaptive learning has been, well, adapted for the classroom is "just-in-time reading:" allow students to submit questions (anonymously or otherwise), then take time at the end to address those questions (or allow students to answer the questions). This provides a degree of tailoring for individual learners, who have their questions answered.

Or, imagine a field trip to a zoo. Instead of shepherding 30 kids through the same exhibits, let some check out the primates, or the big cat habitat, or the reptile and small mammal house, all to meet by the ice cream vendor at 4 to have ice cream and debrief.

Now, change "zoo" to "our upcoming merger" and "30 kids" to "300 managers." Let different ones go off to visit different exhibits, and all meet up afterward to debrief. And yes, ice cream.

Consider this example in an eLearning course on the topic of human rights. The audience might include a 70-year-old retired Argentinean judge and a 21-year-old anthropology major in Hong Kong. Given the variance of legal knowledge and experience among this volunteer audience, our team decided to add "More" buttons in select places to allow those needing more information to get it, while those who know it can move on.

Clicking the "Tell Me More" button adds content to the vertically scrolling narrative (in this case, a "slideshow interaction" consisting of a sequence of image/text objects):

This allows people who need more explanation to receive it, in-line, while those who already know the concept can skip it.

2. Use assessments that allow learners to test out of content they know, or to fill in content when a learner demonstrates the need.

The idea is to add periodic assessments to an eLearning course that measure learners' mastery of the subject matter, and then use that information to decide, algorithmically, what to do next.

There are two options:

1. If they're able to **pass our assessment** (and we're confident in it), we allow them to skip a lesson. If they can't pass the assessment, they have to work through it. Simple.

2. If they **can't pass our assessment**, alternatively we might algorithmically add supplementary material to address the knowledge or skill gap we've uncovered, and perhaps test them again, and repeat as necessary. We address lagging learners so they can all move on. This might be done, for example, as prerequisite eLearning before a vILT class, bringing all participants to a common baseline of understanding so classroom time is optimized.

SweetRush calls both of these options **"push detours"**: learners are going there whether they like it or not—like two dancing teenagers being asked to separate at homecoming, or a traffic cop signaling to take the next exit. It's a detour—but in these cases, an insistence, not an invitation.

Here's an example of a course that uses push detours to great effect. It is an eLearning program designed to help employees understand how to navigate trade laws when doing projects in multiple countries.
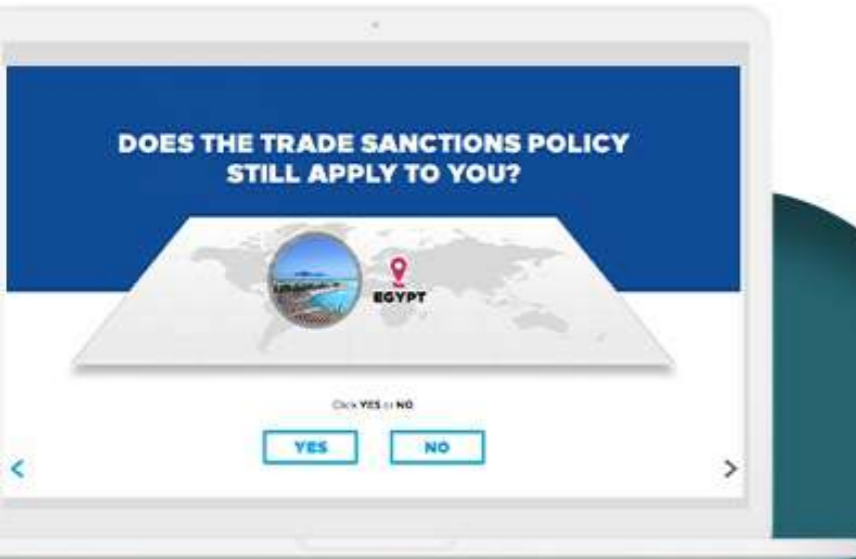
In the modules, learners are presented with seven real-world scenarios, representing situations in which their knowledge of trade sanctions would come into play:
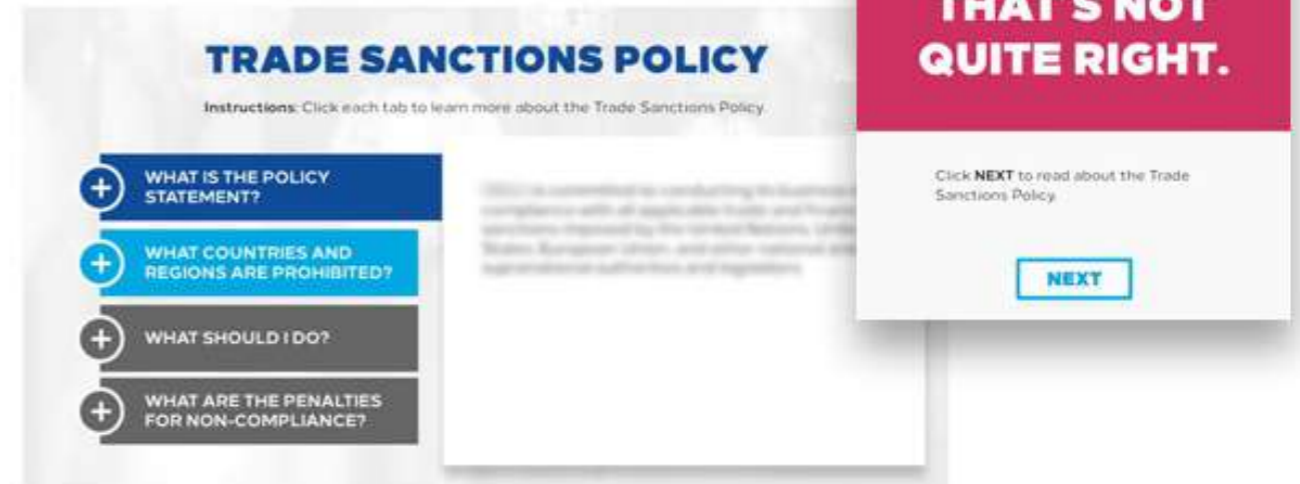

Once in a given scenario, they can read up on the situation, and are then asked to make a decision:

If they answer correctly, they can skip the content targeted in the scenario and move to the main menu to try the next one:

If they answer incorrectly, they are given feedback and assigned content to read:

This way, learners are provided only with the information they need, and don't have to work through stuff they don't.

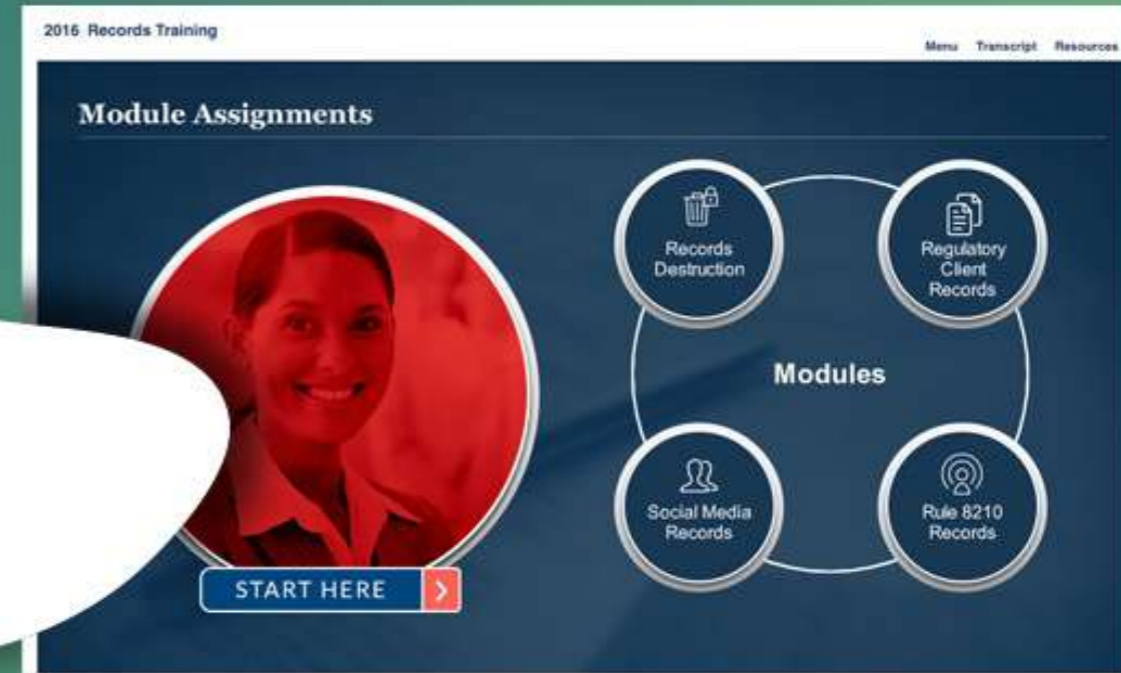## 3. Assign training based on a learner's role and responsibilities.

Often, people's need to master a subject area varies by job function.

A call center employee might need a deeper plunge into cybersecurity, for example, than a contractor with limited access to a company's technical infrastructure.

To address this, an eLearning course can first determine a learner's job role (either by querying the LMS for this information, or by asking the learner questions about his or her role/responsibilities) and then create a custom learning path accordingly.

An example of this is a training course we built about record-keeping and data security. After a short introduction, learners are asked to describe their responsibilities:

Based on their answers, specific modules are assigned to them—in this case, four modules:

Different answers to the questions lead to different module assignments. So, every learner gets only the information he or she needs to perform his or her role, without having to work through training that isn't relevant.

4. Offer small, open-ended learning objects that learners can pick and choose from in order to get the information they seek, without mandating stuff they don't want.

Another approach that tailors learning to learners' needs is to provide content as a buffet of small independent modules (for example, ones organized around various topics) and allow learners to put the modules (topics) they want on their plate. For learners with a strong model of the subject and specific gaps in their knowledge, this gives them freedom to fill those gaps efficiently.

An example of this is an onboarding eLearning course we built. New hires have different opinions about what they need and want to know about the company. In a brief introduction, the CEO welcomes them:

Learners are then taken to a menu of options representing different topics that interest them: they're free to explore topics they wish to learn more about, almost like being able to ask the CEO questions:

This is one way the course provides customization: it provides learners with control over what they view, in what order.

Further, when learners have completed the introduction, they are taken to a map of a city in which there are hotspots representing explanations about the various divisions and functional units within the company, such as a retail store, corporate headquarters, a distribution center, and so on:

After viewing a particular topic, learners can return to the map and select other areas. They remain in control of what they experience, when. Learners get what they require to succeed at their new company.

5. Engage learners in a simulation that provides tutoring based on their decision-making.

While a simulation doesn't always come to mind when thinking about adaptive learning, in many respects, it is ideal for delivering it. Place learners in a real-world situation and allow them to explore. Ask them to make a series of decisions. If the decisions are good, let them go. If mistakes are made, provide feedback based on what they choose to address misconceptions and skill gaps.

For example, we had a banking client that wanted to grow employee empathy toward small business owners, who face challenges far different from those faced by financial managers in large corporations.

To achieve this, we developed a simulation that allows employees to play the role of someone seeking to open a restaurant. There are many possible ways to operate in the simulation and many possible outcomes. As learners make decisions, the simulation provides feedback, so they learn as they go.

When the simulation begins, employees are told they have a passion for cooking and entertaining, and a desire to open a restaurant. They're then faced with their first decision: quit and run the business full time, or start it while keeping their current job.
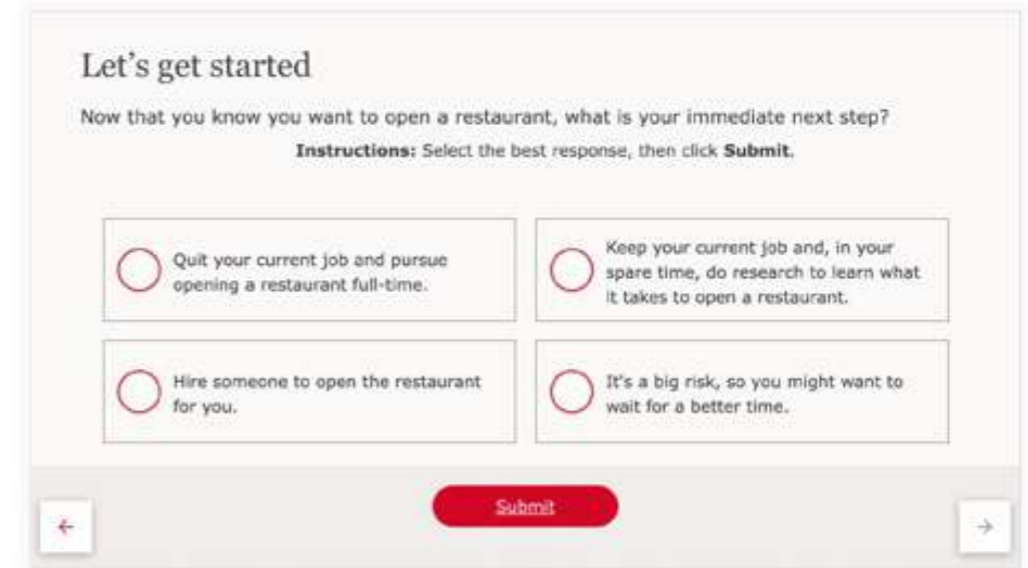
As learners progress through decisions about the restaurant (where to locate it, what cuisine to serve, how to staff, what to charge), the eLearning course brings up helpful information and advice. For example, when determining your business plan, a PDF is made available so you can find out what you need to think about when building your plan:

In this way, learners receive information relevant to the subject matter at a time and in a mental state for them to best absorb the information. Plus, it's more engaging and impactful than simply presenting that information out of context.

6. Provide chatbots or "expert exchanges" so learners can ask questions and receive advice targeted at their gaps.

If the goal of adaptive learning is to tailor instruction to people's needs, what better way than to have them simply tell us what they need to know, and we immediately provide it? Then, they're not wasting time wading through stuff they don't care about, and we all win.

This can be achieved in two ways:
- **Automated** (fixed cost, but crude)
- **Manual** (more helpful, but higher cost)

Automated

As an example, think about building a chatbot using commercially available tools (e.g., instabot.ai) and adding it to an eLearning course, which allows learners to ask questions (by selecting from a menu in a decision tree, or by typing in questions that are processed via natural language processing (NLP).

We're using the decision tree approach to help an NGO deliver medical training to physical therapists (PTs) in war-torn areas, where there is a shortage of trained medical staff: PTs know physical therapy but are often asked to provide medical consultation that lies outside of their expertise, because they're the expert on the ground at the moment.

PTs access the course to get just-in-time answers to their medical questions. They don't want to know everything about fractures: they want to know what to tell a patient who complains that his fracture still hurts like crazy and doesn't seem to be healing.
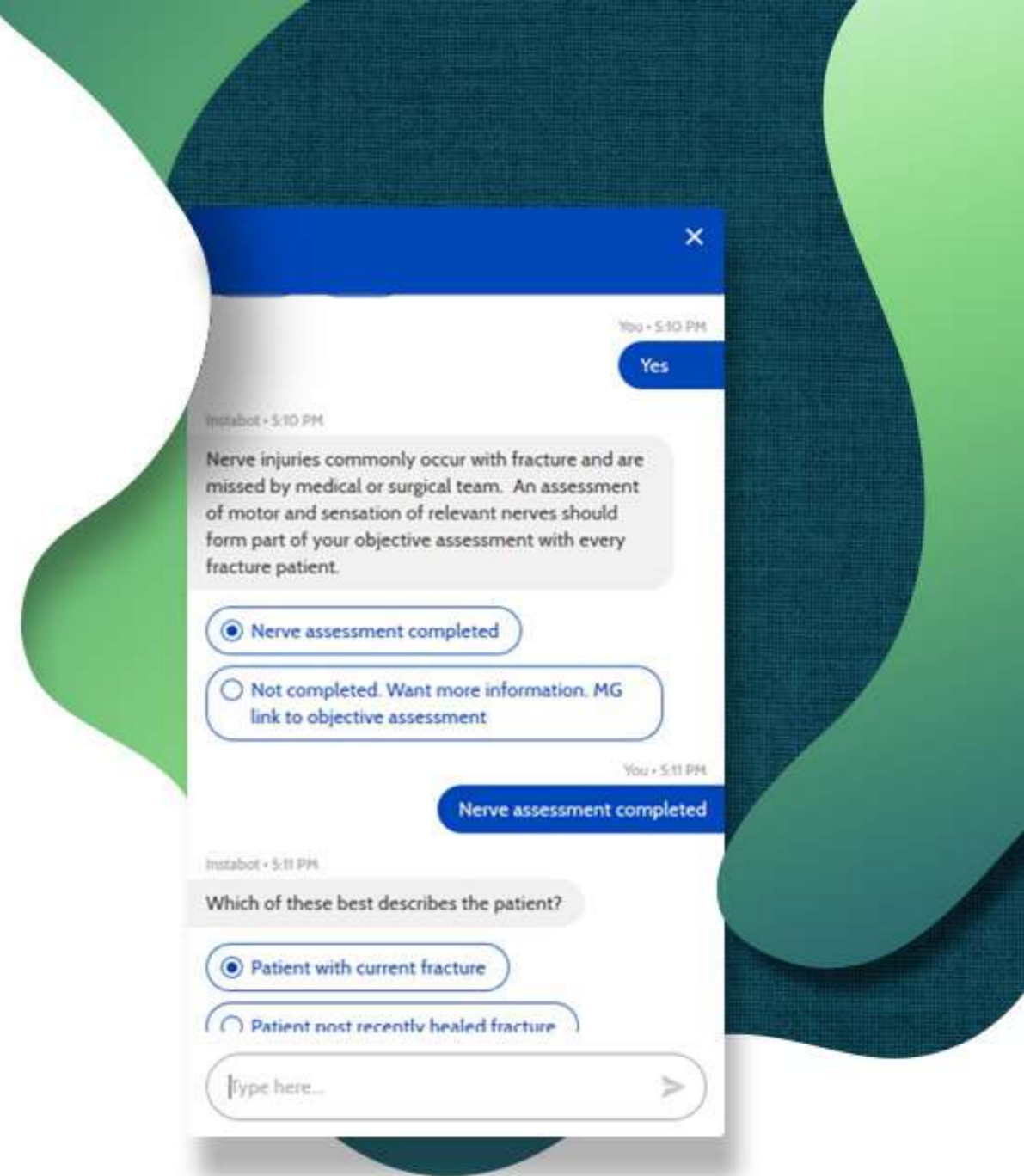
The "course" is a chatbot: it asks about the patient's situation and symptoms, then provides tailored advice on what to look for, what medical care may be warranted, and so on. Above is a sample exchange from that course.

PTs get just the information they need, without having to wade through material irrelevant to it. As busy professionals, with limited time for training, getting useful advice quickly is critical, and may save lives. Plus, scaling the app is easier than with conventional training: adding more content is as simple as adding more questions and answers as text to the data.

Manual

An alternative solution is to let people ask questions of their peers and managers rather than bots, for example by providing a community forum for a team, or a division, or study group, or a collection of new hires, where members can post questions and respond to them.

We use this approach on SweetRush's intranet. In addition to providing volumes of material on how to do things, company policies and procedures, and so on, we also provide a virtual "help desk" that people can go to in order to type in a question, for which other SweetRushians can provide answers.

Once posted, this information is then available for people with similar questions to find via search.

Again, learners get what they need, and only what they need—adaptive learning in action, even though it's not obvious.

Here is an example of an exchange on our community forum:

So What Are You Waiting For?

These are just six examples of how you can add adaptive learning to your training design, and there are many more, and many variations. All are implementable using off-the-shelf tools and technologies. By finding the right mix for your organization, you provide each learner what they require.

Insider's Take
Andrew LaPage, Instructional Designer

" *To create effective adaptive learning, you need to understand the learners and their unique needs, beyond just high-level demographics. Talk to your learners to understand what they need from the training program, their successes and failures with past training, their expectations for the program you're designing, and the tools they need to succeed.* "

What's the Difference Between Adaptive Learning and Personalized Learning?

Just about every community of practice faces a similar dilemma: two terms that some members believe represent different constructs, while others believe they are the same. In computer science, there's "artificial intelligence" and "machine learning"; in environmental policy, "global warming" and "climate change"; in cooking, "yams" and "sweet potatoes." Sometimes the distinction is useful, sometimes it's not.

In learning and development, one such difference of opinion exists around the terms "adaptive learning" and "personalized learning" (or "personalization"). Some argue they're separate concepts, while others believe they're the same.

We're in the latter camp. It's our opinion that personalized learning is operationally equivalent to adaptive learning, and haven't yet seen value in differentiating the two. To us, both describe design that attempts to tailor instruction to the understanding, skills, and interests of an individual learner, through technology, human intervention, curriculum design, individualized learning paths, or a blend of these.

But "personalized learning" has growing interest in K-12 education, and eLearning vendors have begun appropriating the term. It's worth a brief look at what's being done with personalized learning in the K-12 space to find lessons we can apply to adaptive learning for adults.

What Is Personalized Learning?

The idea of tailoring learning to the needs of individual students goes back thousands of years, via apprenticeship. Young men and women joined a team of craftsmen as novices, and through coaching, practice, and assignments, advanced to mastery. Along the way, each received a unique learning experience.

Today, computers in schools are commonplace (e.g., virtually all U.S. high school students have access to a laptop to do their schoolwork), and philanthropic organizations and textbook publishers are exploring how to use them to provide personalized learning.

The Department of Education, in its publication *Future Ready Learning: Reimagining the Role of Technology in Education* (2016 NETP and 2017 NETP update), defines what is being done as follows:

> *Personalized learning refers to instruction in which the pace of learning and the instructional approach are optimized for the needs of each learner. Learning objectives, instructional approaches, and instructional content (and its sequencing) may all vary based on learner needs. In addition, learning activities are made available that are meaningful and relevant to learners, driven by their interests and often self-initiated.*

Sounds to us exactly like what we're trying to do with adaptive learning.

Gamifying Adaptive Learning

Most console and PC games need to train players in using the provided controls. In the old days, this was done by providing a one-size-fits-all manual. However, modern games accomplish this by algorithms that vary the complexity as players gain mastery. At the beginning, players are given limited controls, so they learn how to move around. Once proficient, they might be provided with objects to engage with, then simple puzzles (e.g., enemies), then more challenges. **This is adaptive learning design.**

The Gates Foundation and EDUCAUSE define the objective of personalized learning this way[2]:

> *Personalized learning seeks to accelerate student learning by tailoring the instructional environment—what, when, how, and where students learn—to address the individual needs, skills, and interests of each student. Students can take ownership of their own learning, while also developing deep, personal connections with each other, their teachers, and other adults.*

This definition is virtually identical to the one we're using for adaptive learning.

2. https://www.documentcloud.org/documents/1311874-personalized-learning-working-definition-fall2014.html

The Challenges of Personalized Learning

Even with the prevalence of computers in K-12 schools, it remains tricky to include fully personalized learning. Much of the difficulty stems from two formidable barriers (shared by L&D professionals):

- **How schooling is structured** (classrooms containing many students and one teacher)

- **What's at stake** (schooling shapes children's college and career choices, so there's no shortage of opinion—from parents, teachers, administrators, and the public—on how best to teach)

For those bringing adaptive learning to corporate education, it's helpful to examine the challenges educators face bringing personalized learning to schools:

Challenge 1:
Delivering individualized instruction in a room full of students.

Most schools are organized into fixed class periods, where a group of students (sometimes 30 or more) are in a room with one teacher. How are the needs of each learner addressed, when all are different? Some of the solutions involve mixing teacher-led whole-class with small-group activities and self-study. But the logistics prove to be very challenging for teachers, who must ensure that each student is getting the instruction he or she needs at all times.

Challenge 2:
Providing equitable instruction.

If students are assigned different learning experiences, how do you prevent one population (say, low achievers) from gobbling a disproportionate share of instructional resources, to the detriment of other populations (say, those excelling)? Many of the approaches to personalized learning in K-12 education must include rigorous collection of data, and careful diagnosis, in order to prove it provides a level playing field to all students. That takes a lot of work. And even then, debate around fairness is inevitable.

Challenge 3:
Deciding what instruction to provide.

In the K-12 space, typically students' skills and knowledge are assessed, then instruction assigned as a result. This student is placed in A-level calculus, that one in B-level. But this remains an art, and it is often hard to determine what someone needs to reach some arbitrary level of proficiency. Can we really say that this test is an adequate measure of every person's understanding? Some degree of subjectivity is unavoidable.

Challenge 4:
Measuring success.

A child moves through K-12 education exactly once, so free experimentation is risky. How can we try out and perfect our approaches? We can't take over a third grade classroom for a semester; the risk is too great. So, we work with five kids for an hour after school for three weeks, or six kids one Saturday: can the results we achieve (if any) be extrapolated across all students in all curricula?

Tomato and Tomato

From our vantage point, there's more value in thinking of personalized learning and adaptive learning as fruit on the same vine, than treating them as separate plants. By focusing on their similarities, we can apply the lessons we gain from one to the other, and vice versa. And then we all become smarter at doing both, which ultimately benefits students and employees alike.

Insider's Take
Becky Schmidt, Instructional Designer

" *Sometimes these projects are simple; but sometimes they are extremely complex. I try to educate clients and stakeholders, and give them all the tools necessary to understand the various documentation we create. And I try to encourage my team to enjoy the process because the reward at the end is huge.* "

Fast Fact

In the 2019 Learning and Development Global Sentiment Survey, which "takes the pulse of the L&D community worldwide," **nearly 2,000 respondents in 92 countries voted "Personalization/ adaptive delivery" as the leading trend in workplace learning** –as they did in 2018 and 2017.[3]

3. https://donaldhtaylor.co.uk/insight/gss19-key-results-infographic/

Busting 6 Myths
About Adaptive Learning

Given the advantages of adaptive learning, you might expect it to be widely adopted by organizations. But most training is still of the one-size-fits-all variety, which forces all learners through all content whether they need it or not. **Why is that? Reasons are numerous, but many stem from six myths or misconceptions about adaptive learning and what it takes to deliver it.**

The Myths and the Reality

1 Myth: Freedom means confusion.

If learners are allowed to skip around and take in only what they wish, there is sometimes a fear that they'll become lost, the narrative will become muddy, and confusion will arise. This might be called the Wikipedia effect: read an article, click a link to another article, then another article, and in time you forget what you were originally in there for.

Reality:

Certainly, this is a possibility. But with careful learning design and organization of the content, as well as intelligent UI/UX ("Back" button, bread crumbs, and so on), learners can still be granted freedom to move about without worrying that they might lose the narrative.

2 Myth: It requires much more effort than conventional training.

Since grade school, we have been taught how to write a narrative with beginning, middle, and end. We're good at that. However, adaptive learning is inherently nonlinear and that takes a different skill set to master—you have to envision multiple paths through the content you're assembling. It's easier to just write a narrative.

Reality:

Is it too hard to do for the average training developer? Not at all. With some practice most should be able to master it, and eventually without significantly increasing the amount of work they have to do. And, in fact, it may save some time ultimately, since they wrestle less with what to leave out and what to put in.

3 Myth: Everyone needs to see everything.

Stakeholders often get into the mindset that some content is so important, everyone needs to see it: they don't want to risk someone missing important stuff, which may happen when people can skip around.

Reality:

People are in control of their own minds, and just because their eyeballs were forced onto a piece of content doesn't mean they got anything out of it. A training developer has to trust that, if the content is made relevant to learners' work, lives, goals, and interests, they'll likely be motivated to learn. And if they don't see the relevance, no amount of forcing them to go through it will work.

4 Myth: You have to design for the lowest common denominator.

When designing a course, building a presentation, or writing a book, you have to decide what explanations and examples you need to include, and what you can leave out. This leads to a tendency to leave stuff in, because it's better for someone to receive it even though they already know it, than to have someone who needs it not receive it. That is, you aim for the lowest common denominator of understanding.

Reality:

This mindset leads to bloated content that is onerous to read and can bore people in the know. It may also lead to the "expertise reversal effect," which can actually reduce student knowledge by raising cognitive load. Better to teach to the highest common denominator and fill in when people need it, via diagnostics or something as simple as a "More" button.

5 Myth: It's too hard to review and approve.

Typically, IDs need to run content past senior stakeholders, SMEs, lawyers, and others for approval. Reviewing adaptive learning content can be more time-consuming than reviewing a regular course, because you have to examine all of the possible paths through the content: it's much easier to review a video or slideshow.
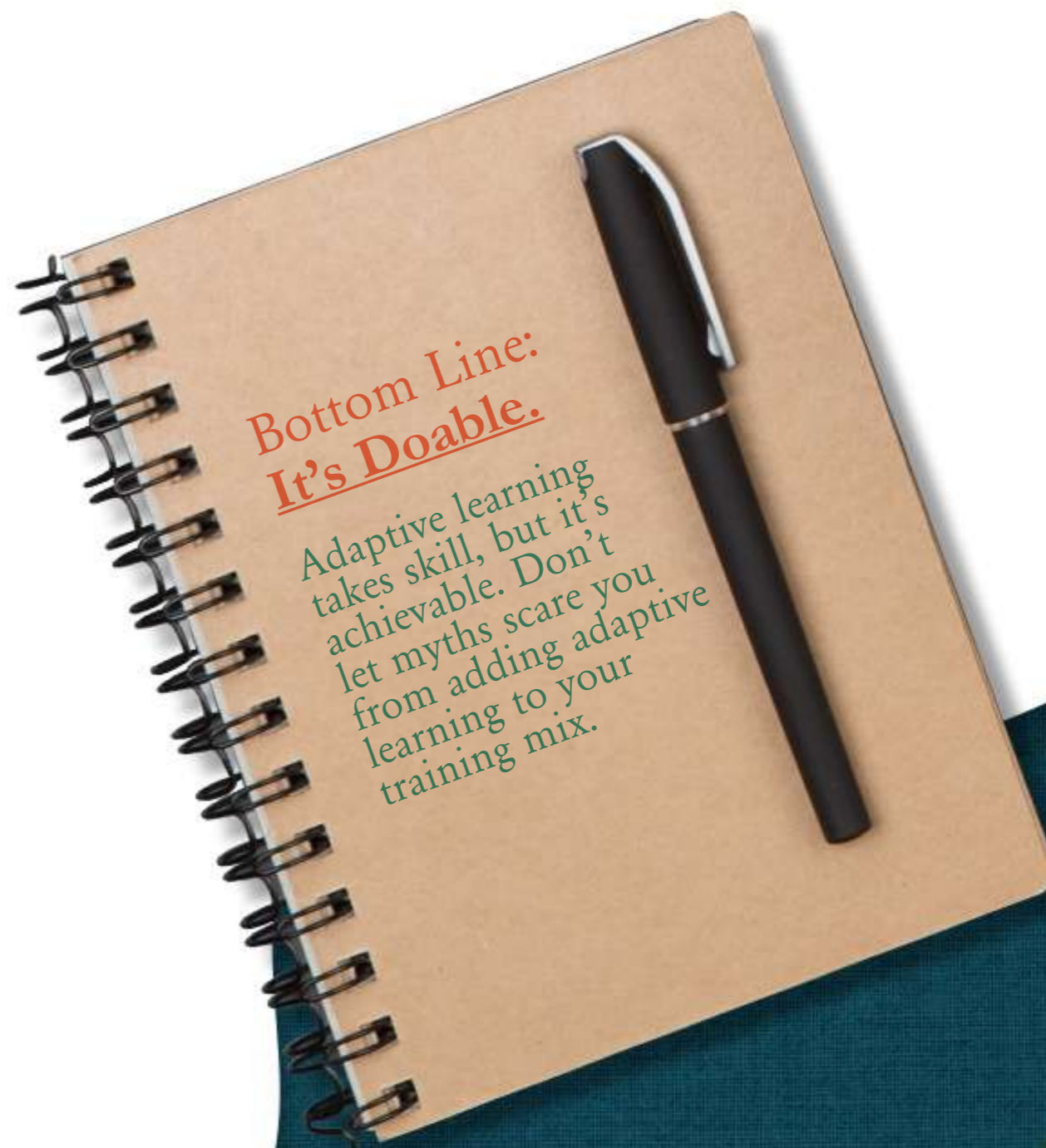
Reality:

It doesn't have to be overly laborious to review when one gets the hang of it, and/or if tools are used to simplify the task. For example, with proper annotation (e.g., templates that show reviewer comments in-line), the ability to review and comment in a prototype rather than in some approximation such as a Word document is fairly straightforward. And with some preparation (explaining the purpose and intent of adaptive learning), most stakeholders should be able to review all the content.

6 Myth: You need specialized technology.

Many vendors pitch their proprietary (and often expensive) technology to provide it, leading some to believe that it's required.

Reality:

While specialized technology can make adaptive learning easier and more powerful, you can do adaptive learning without it. Most eLearning authoring tools support it (e.g., links to optional materials, sidebars, tool tips, and so on), many LMSs offer the means to assign learning via pretests or group membership, and PDFs and web pages can provide optional links. And, it can even be done in a classroom: put people through an adaptive eLearning course to bring them to a common baseline and then have them attend a class to ask/answer questions.

Bottom Line: It's Doable.

Adaptive learning takes skill, but it's achievable. Don't let myths scare you from adding adaptive learning to your training mix.

Insider's Take
Betsy Lee, Learning Architect

❝ *When I approach designing adaptive learning, I always start with the learner journey. I create a little flow chart, exploring each path. This can be very helpful when sending for internal or client reviews. They can see the big picture before they dive into the details!* ❞

Instructional Design Techniques for Adaptive Learning

You may be interested in adaptive learning, but aren't sure when or where it's appropriate, or what kind to apply. This article explores common training needs, and for each, the adaptive learning approach best suited to it, and one or two examples.

Not a Panacea

First, though, a warning. **Adaptive learning is not always the right choice.** There are times when it is useful, and times when it gets in the way. And, there are different ways to achieve it, depending on the situation.

If you're carrying something in the office and slide on a slippery spot on the floor, you're not going to differentiate instruction; you're going to use a one-size-fits-all approach: "Hey everyone, there's a slippery spot on the floor right here. Watch out!" This isn't adaptive learning, it's better—quick and direct, no need to figure out what people know or to tailor the message for individuals.

But warning people away from a spill is different from helping them become a better manager. A seasoned manager likely has different learning needs than someone fresh out of school. Adaptive learning promises deeper and more efficient training than a one-size-fits-all approach.

Adaptive Learning by Need

Here are some common training situations, in which adaptive learning may (or may not) be a viable approach:

Teaching people who know what they don't know ▷

Teaching something people need to know to complete a task ▷

Teaching people with wildly differing skills and interests ▷

Teaching something that has to be addressed quickly ▷

Teaching people whose needs differ by group (department, job function, etc.) ▷

Teaching something wherein human contact and engagement is required ▷

Teaching people with varying levels of skill that we can measure ▷

Teaching about a company's products or services ▷

Teaching people who have skills gaps, but don't know what they don't know ▷

Teaching legally mandated subjects ▷

Teaching something with elements that some need and some do not ▷

Learning Need

The professionals we're training know what they don't know.

Adaptive Learning Approach

Pull-style learning is ideally suited for this type of situation: provide a buffet of training, and allow learners to pick and choose what they want and need.

If necessary, you can entice them to go deeper, for example, by asking a question and providing a surprising answer or by offering a compelling story that grabs their attention.

One example of addressing this need is to provide a wiki targeted at a particular community or subject area, which members can search and browse to find the information they need. Many corporate intranets offer this capability. This is superior to making everyone work through content many already know and others don't care about.

Another example is to offer a menu of modules and allow learners to choose the modules that cover what they want to know more about. We've done this for several of the Big 7 accounting and consulting firms. Here's one example, the dashboard from a course on a company's finance transformation products. Learners can pick whatever subject interests them.

Learning Need

We're teaching a wide audience with differing skills and interests, and we aren't sure what people need or want.

Adaptive Learning Approach

One way to address this need is to add a pretraining self-assessment at the start of the course that helps people identify gaps in their knowledge, then offer training that addresses those gaps. This assessment can be for the learner's own benefit, or can be used algorithmically to assign modules automatically.

Example

A course to teach business skills to a large audience of health care professionals includes a self-assessment in the first module designed to help them identify areas of learning need, which is then targeted in subsequent instruction. The idea is to draw their attention to shortcomings in their skill set, which motivates them to pursue topics at greater depth.
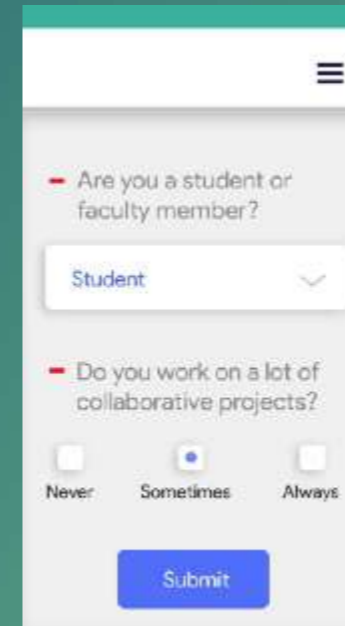
Examples

Learning Need

We're teaching groups of people (multiple departments, job functions, experience, responsibilities), and each has distinct learning needs.

Adaptive Learning Approach

Screen learners to identify their role, department, job function, and so on (either by asking them directly at the beginning, or by pulling up profile information automatically), then adjust training accordingly.
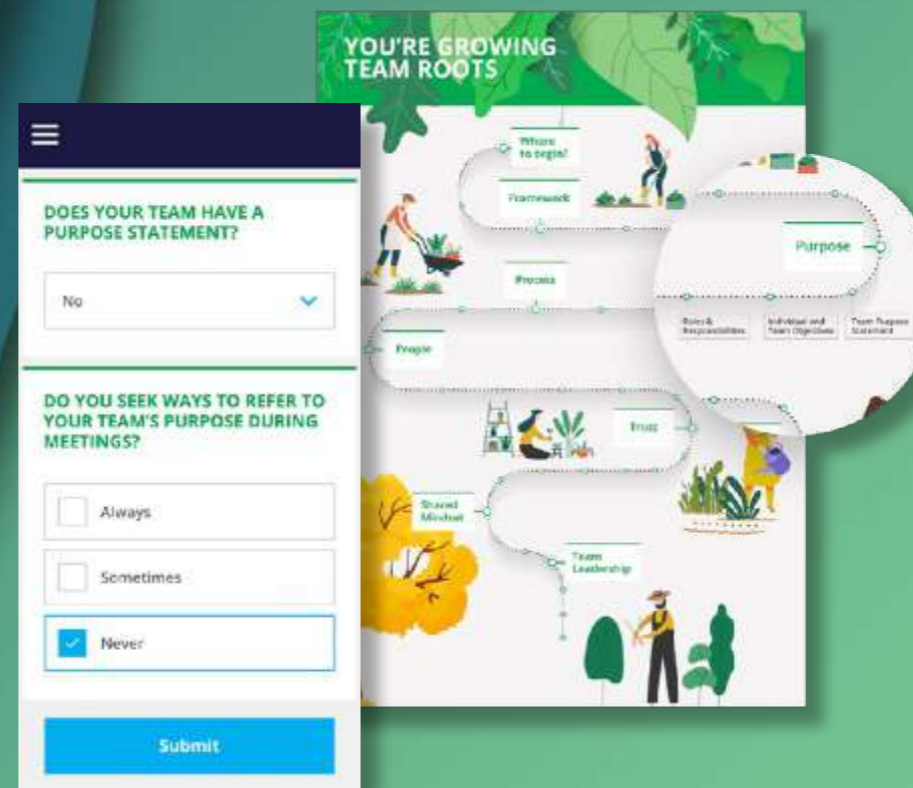
A company that sells cloud storage products to universities wanted a course that targeted both professors and their students. We learned that professors have varying interests in the product: some want an easy way to collect assignments, while others want to engage in conversations with students. Students have varying interests as well, such as annotation or project collaboration. We designed an eLearning course that asks a series of questions, then directs each individual to training that targets what he or she seeks.

We designed a course for a Fortune 500 company to teach First Line Managers around the world how to develop and maintain a high-performing team, increase retention, and improve business results. The course first asks questions about how they are currently managing their teams, what their issues are, and so on, then creates a custom learning journey based on their answers that focuses on the knowledge and skills each needs in order to be successful.
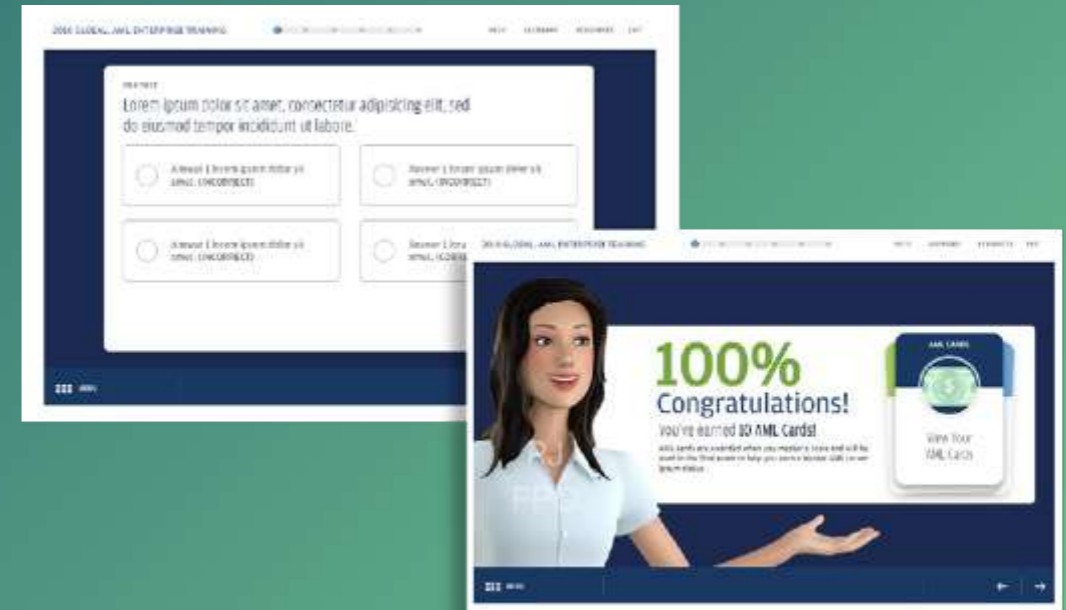
28

Learning Need

People have differing skill levels, and we're confident we can create an assessment that measures those skills, and we know what to do with what we find.

Adaptive Learning Approach

Engage learners in a pretraining assessment that measures competencies, then dynamically assemble a curriculum that addresses uncovered deficiencies.

Examples

A course focused on financial security begins by asking a series of questions that measure learners' financial acumen. Depending on how they do in the assessment, they earn credits that allow them to skip modules.
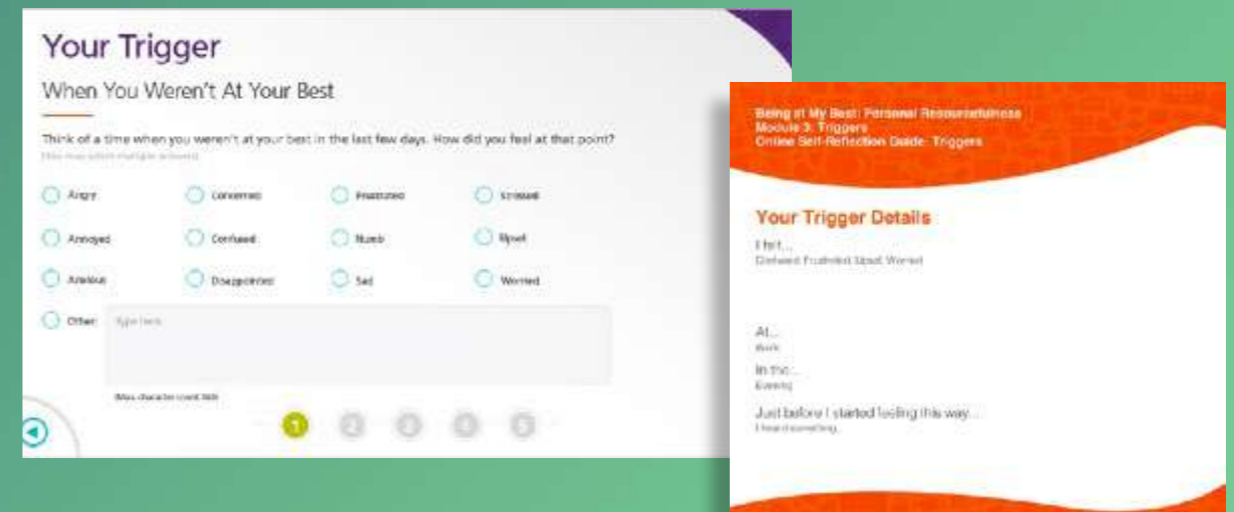
Here is a second example, a course that targets emotional triggers and EQ. It asks a series of questions about a recent experience (e.g., they have a stressful project of some kind, had a fight with a colleague or client, are angry). It then generates a custom PDF containing guidance based on their responses, which a learner can print and self-reflect on, or share with a boss or mentor.
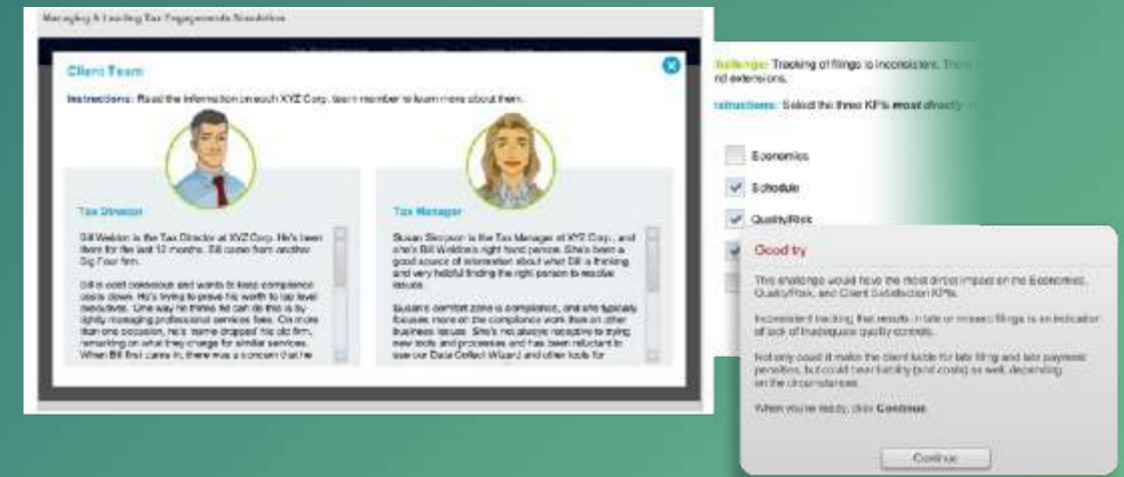
Learning Need

Our audience has differing gaps in knowledge about a particular subject, but most don't know what they don't know.

Adaptive Learning Approach

Engage the audience members in a simulation that requires them to apply their knowledge of the subject in real-world situations, and offer tutoring when they make a mistake.

Examples

A large consulting company sought to train its consultants, many of whom have an MBA and years of business experience, in managing financial service engagements. We designed a course that puts learners in a real-world situation where they must lead a team in a client engagement, and as they complete the task, tutoring is provided when they make a mistake or ask for help.

We were tasked with designing two 100-minute courses covering freshman core-subject class periods, as well as dedicating 30% to "computational thinking." We advocated two intuitive landscapes and a timeline to piece together facts around U.S. history, and a Mario Brothers style horizontal scroller to learn Newton's laws in physics. We then built Common Core structure around it and left plenty of room for students to improvise and experiment.
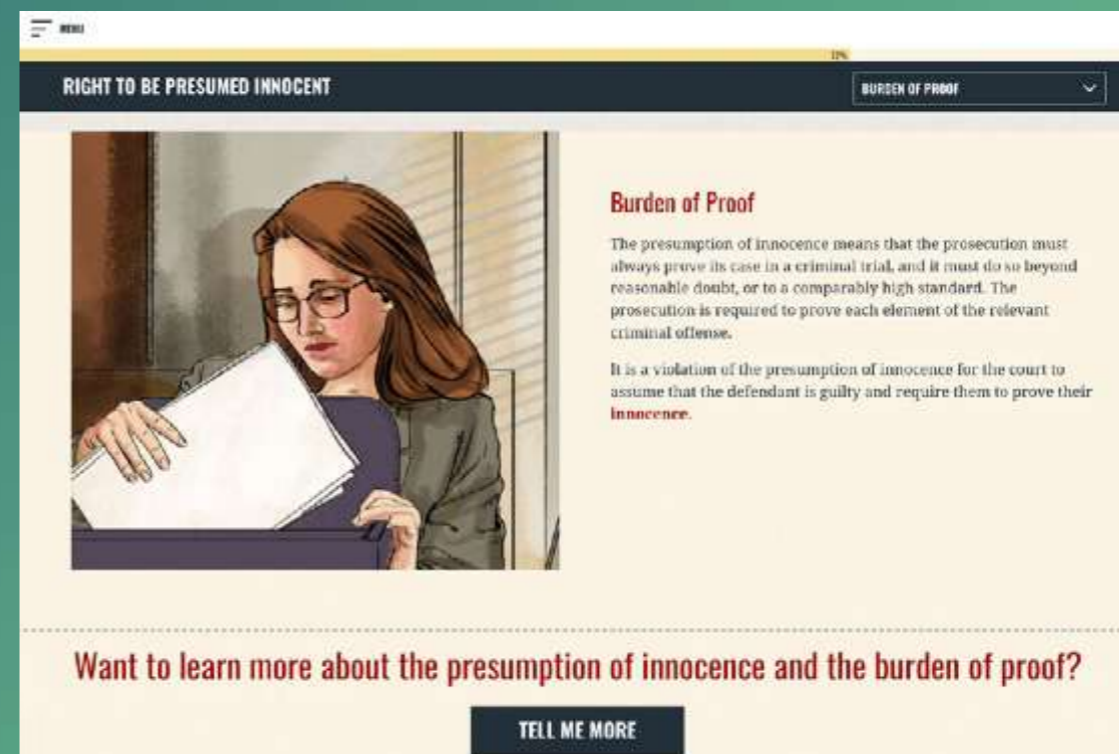
Learning Need

We're confident people need to learn most of what we want to teach, but some of it isn't for everyone.

Adaptive Learning Approach

A simple way to do this is to provide a burst of content that addresses what everyone has to know, then show optional links (pull detours) for those wanting more. Entice them to want more in the mandatory parts.

Example

A course to teach trial monitoring guides along a compelling third-person linear narrative through various stages of a trial, with optional links ("Tell me more") along the way. These allow learners to dive deeper into parts of the story they want to know more about. A law student may want to know more about a particular legal concept, while a retired judge may already know and skip it.

Learning Need

People need specific instructions to complete a task.

Adaptive Learning Approach

This can be addressed by providing a way for people to quickly find the information they seek at the moment of need, through search, a chatbot, a decision tree, or an index organized around the task at hand. Which of these? All could work: whichever is quickest and easiest in a given situation is the better.

Example
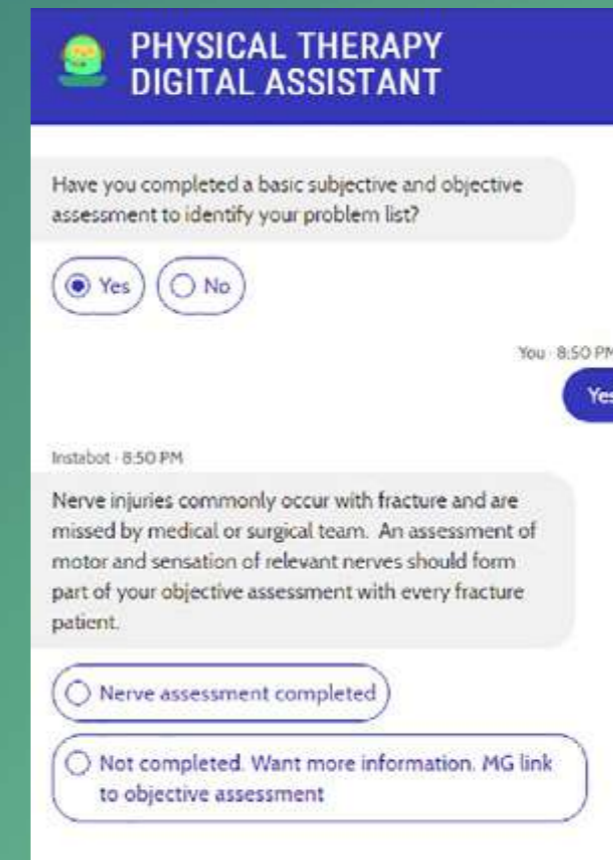
An organization wished to provide medical information to physical therapists (PTs) working in areas where access to medical care was scarce, and patients often had medical conditions about which PTs needed to offer medical guidance. We developed a chatbot that asks questions about the medical situation the PT is dealing with, and then provides advice and information the PT needs, without forcing the PT to wade through stuff not directly relevant to the situation.

Learning Need

We have to get something out immediately, and don't know our audience well.

Adaptive Learning Approach

This is likely not a candidate for adaptive learning, since it takes time to learn enough about your audience in order to effectively differentiate instruction. An ILT or traditional eLearning course may be a better choice. Optional links can be provided for learners wishing to know more.

Example
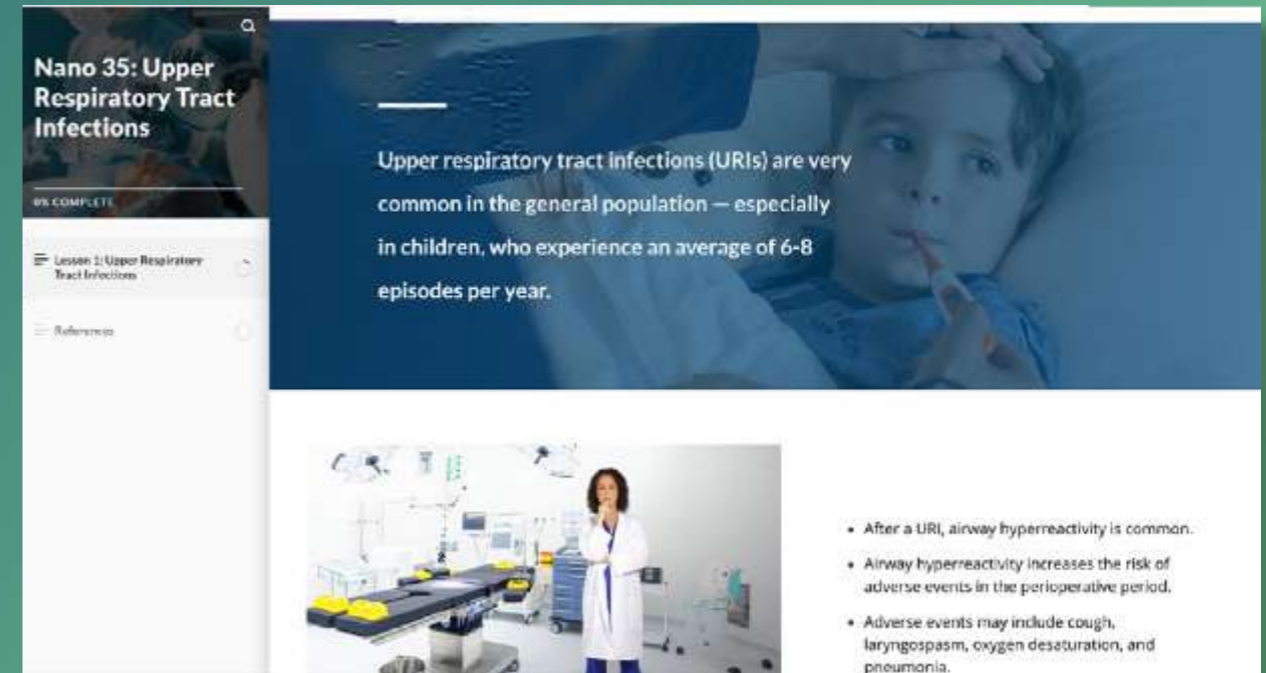
We worked with a large medical care organization that wished to get information about particular ailments out quickly to its members. We worked with them to create short (10-minute) microlearning modules, each targeting a specific subject, followed by a set of references to more information for those interested in a deeper dive. Everyone gets the same modules, but anyone can dig further if they want.

Learning Need

We are teaching a subject wherein human touch is required, such as coaching or collaboration.

Adaptive Learning Approach

Use eLearning to establish a common baseline of experience, followed by ILT or vILT to add the human dimension.

Combine training with a community forum, such as a social media site or a commenting or collaboration application, like Slack.

Examples

A hospitality company wanted a means for employees working at its properties to receive hospitality training on their phone, as well as have a place to engage with each other, such as to post stories, get advice, and share news and information. We designed a responsive web-based app that combines a learning management system with a community forum. This enables employees to learn from and teach each other, as well as receive training from its L&D department, thereby adding human contact.

You can offer an intro and a priming session, perhaps with simulations, followed by a synchronous debrief.

You can add a community forum that enables people to provide thinking about the modules, and to respond to other people's insights. Canvas, Blackboard, Linkedin Learning, and other platform vendors offer student commenting in courses. The example on the right is from a Khan Academy course on YouTube.

For considerations on adding commenting to a course, see Christopher Pappas' write-up on eLearningIndustry.com.
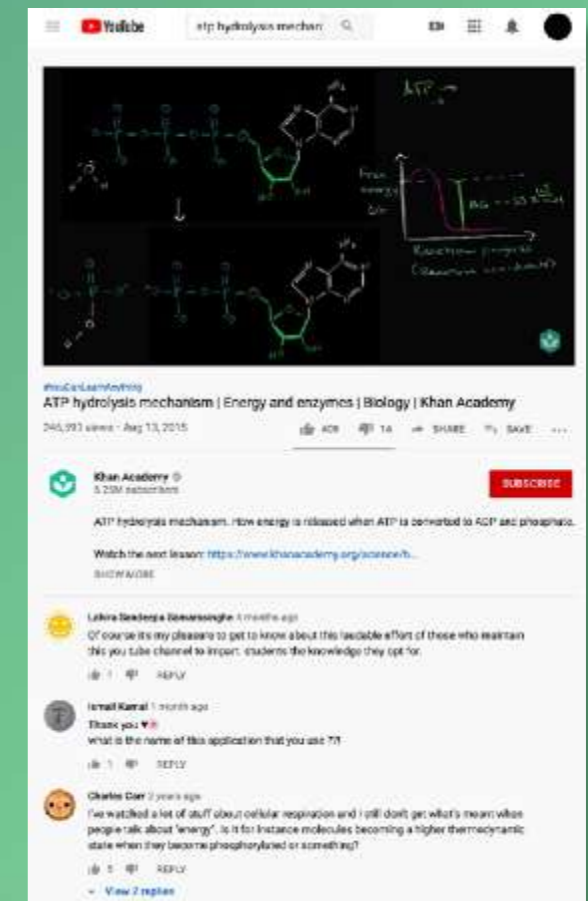
Learning Need

We need the audience to master a large amount of information about our products and services, but they can't memorize it all.

Adaptive Learning Approach

Training that provides learners with the means to find the information they need at the moment they need it, quickly, is ideal for this. It might include an effective organization of the content (e.g., a hierarchical menu or decision tree), perhaps combined with a search function.
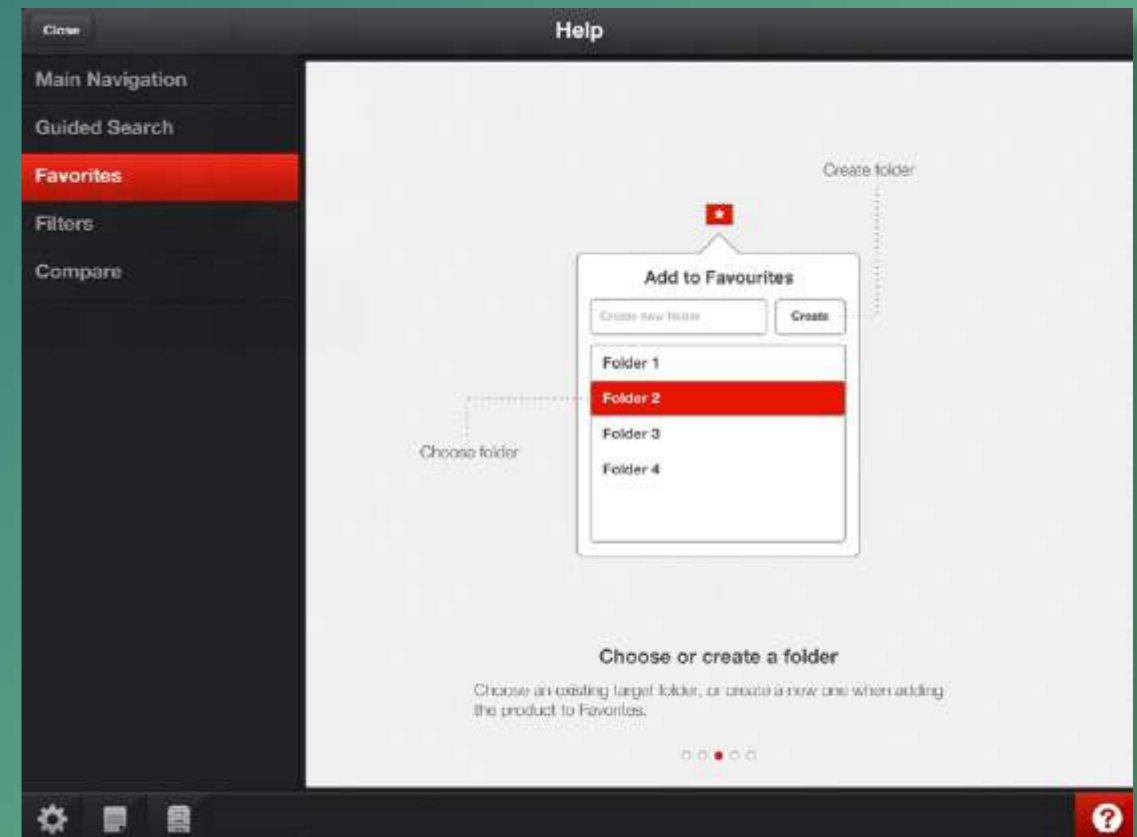
A major manufacturer has a product line that spans many dozens of products, each with various options, making it difficult for salespeople to remember which product has what feature. We designed a mobile app to provide just-in-time instruction: a user selects the product or need, and the app brings up the information that's relevant to the situation.

Learning Need

We need to deliver training mandated by federal, local, or industry regulation, or by our Legal or Human Resources department (compliance training).

Adaptive Learning Approach

Do you need to prove that everyone saw everything in the training? If so, this is probably not conducive to adaptive learning.

However, if requirements vary by job role or function, or there is flexibility in what training is provided, then many of the adaptive learning approaches spelled out above apply: allow learners to test out, give them the freedom to pick and choose (and perhaps draw them in with stories), and so on.

Example

A company was required to teach its employees about appropriate and inappropriate ways to engage in international business transactions: to avoid bribes, conflicts of interest, and other such entanglements. We designed a system that engages employees in real-world situations and asks them to make decisions about how to handle various real-world situations, then provides tutoring in response. The company can legally prove its employees received all of the appropriate messaging, but employees are given instruction only when they exhibited the need by making mistakes.

Final Word

Above are well over a dozen situations where we saw an opportunity to tailor eLearning courses to the understanding, skills, and interests of our target audience, and met success. When you begin to look at training through the lens of adaptive learning, you will undoubtedly see many more. The result is better learning, and happier learners.

You also see a bit of adaptive learning in this article: each of the examples can be visited from the front page while a "Back" button returns you to the index, freeing you from having to read through them one by one.

Insider's Take
Becky Schmidt, Instructional Designer

"Go slow so you can go fast. Slow down in the early stages, and plan each decision/pathway/option. This brings clarity to the project early and lets me go much quicker in the development phase."

Fast Fact

As part of a study in late 2016, Harvard University strategic initiative HarvardX applied adaptive learning and assessment algorithms to a "massive open online course." The result? Students who received personalized content outperformed those who received unpersonalized content by 19%, among other positive findings.[4]

4. https://news.harvard.edu/gazette/story/2017/02/adaptive-learning-featured-in-harvardx-course/

Fostering Employee Engagement in (and with) Adaptive Learning

An organization looking to seed its training with adaptive learning faces a real fear. As does a vendor claiming to offer it.

What if learners don't get the training they need?

If you guide learners incorrectly (say via a pre-test, learning journey with detours, or Netflix-style palette of training to choose from), they could miss opportunities to grow and improve. And this leads to legal, financial, and cultural risk.

Learners are busy, after all, and short-term priorities (as well as long-term habits) get in the way of learning. Learners who think they already know what is being taught typically won't give it their full attention. And if it's mandated, they'll do the minimum it takes to pass the hurdles put in place to ensure they stay awake. All of us have done this as learners, let's be honest.

This isn't laziness, it's logical. Each of us decides what goes into our brains, in order to achieve what's asked of us every minute of every day, from jobs, bosses, colleagues, projects, spouse/partners, children, friends, relatives, friends' relatives, our career and interests, and our personal affairs. Only so much can go into our heads, and we only have so much time. Choices must be made as to what we focus on, and no training is of interest to everyone.

With any training, failing to deliver what learners require is a risk, but with adaptive learning, it's a bigger risk. If you give them options to leave when they want, knowing they may prioritize their limited time and attention elsewhere, how do you ensure they get what they need? It's a genuine fear.

It's probably why so much training is mandated.

Not So Fast

But that fear may be somewhat groundless. A growing body of research indicates employees want more training:

A Natural Response

"As a learner, I'm rebellious by nature. Whenever I'm required to undergo training, my first reaction is to figure out how to do as little as possible, because I think I know it already or it's irrelevant to me. On the other hand, when it somehow jars me into a better way of thinking, I'm a model student: attentive, well-behaved, and hungry for more."

—John Cleave

67%[5]
of U.S. employees say they **need more training and skills to stay up to date**

78%[6]
of employees **desired more training**

88%[7]
of **Generation Z believe it is important** that an employer offers training

40%[5]
say their **employers haven't offered enough opportunities for upskilling**

37%[7]
of employees **would leave their employer if it didn't provide training opportunities** to improve their skills

86%[8]
of employees say that **job training is important to them**.

The percentage jumps to
91% **for middle-age professionals.**

If you build training that your employees need, they'll come, even if you don't mandate it. The key is to get them to want to take it, and not just force-feed it.

5. Randstad study
6. Three-year study by Middlesex University involving 4,300 employees
7. 2019 Report Future of Work and Employee Learning, a study of 1,200 employees
8. A SurveyMonkey survey of 666 employees

Adaptive Learning: Problem *and* Solution

With adaptive learning, the bar for engagement is higher. If you publish an optional eLearning course, and learners aren't engaged, they're going to walk away and gain nothing. Why should they stick it out, unless it brings value?

The good news is, **with adaptive learning, you can adjust your engagement strategy to each individual. Make each learner crave the training by tailoring it to his or her particular aspirations and needs.** These likely vary across people, but if a course developer can anticipate them, there's no reason an eLearning course can't determine (algorithmically or by asking) which to focus on, and give them that.

Wanting to Learn: Engagement

Most L&D professionals recognize the importance of engaging learners, regardless of what kind of training it is. But what is "engagement," exactly?

Reeve et al[9] wrote that engagement is the **"behavioral intensity and emotional quality of a person's active involvement during a task."** In the context of web applications, Attfield et al[10] defines user engagement as **"the emotional, cognitive, and behavioral connection that exists, at any point in time and possibly over time, between a user and a resource."**

So, in both cases, engagement is some blend of feeling, thinking, and doing.

We believe that, even if a class or eLearning course is mandated, these three pieces of engagement are essential. If learners are not engaged—that is, feeling, thinking, and doing—the training will have a negligible effect on their understanding and behavior. Forcing eyeballs on content, regardless of the quality of that content, does not ensure any change in mental model or behavior.

9. Reeve, Johnmarshall, Hyungshim Jang, Dan Carrell, Soohyun Jeon, and Jon Barch (2004). "Enhancing Students' Engagement by Increasing Teachers' Autonomy Support." In Motivation and Emotion, Vol. 28, No. 2, June 2004, page 147.

10. Attfield, Simon, Gabriella Kazai, Mounia Lalmas, and Benjamin Piwowarski (2011). "Towards a science of user engagement (Position Paper)." http://ir.dcs.gla.ac.uk/~mounia/Papers/engagement.pdf.

How to Engage in Training

An adaptive learning approach needs to incorporate strategies for increasing engagement, so learners want to take the training that's valuable to them and give it the necessary time and focus. Here are some of those strategies:

Make it relevant

People want to learn when they see how it helps them further their goals: accomplish tasks, overcome problems, take on new challenges, and so on. If an optional piece of training can help them do this, they'll be motivated to invest in it. To achieve this, make it clear how the training connects to their lives, cares, and concerns. Offer examples that show how the targeted knowledge and skills have contributed to someone's betterment (or conversely, examples of how the lack of knowledge or skill worked against them).

In an adaptive learning course, you can dynamically adjust to each individual's wants and needs. For example, start with a survey that asks learners to identify their goals, problems, or interests, then use that information to tailor the training accordingly. Someone interested in becoming a better manager might see content focused on managers; someone interested in improving professional expertise might see content focused on skill development.

Challenge them

One reason people may bypass a piece of training is that they believe they already know what it's teaching. To counter this, challenge that assumption. Place them in situations in which they must apply their knowledge, then expose gaps in their knowledge. If the world doesn't conform to their expectations, they'll become motivated to fill in their skill gaps by taking training. This is enhanced if the recommended training relates to the challenges they face daily.

For example, if you are teaching managers how to coach, many managers may believe they're already skilled coaches and not attend to the training. So, you might begin the course by placing them in real-world situations in which they have to coach and give them the freedom to make mistakes, such as not asking questions, missing important clues, jumping to assumptions, and so on. You can then point out their mistakes and play out the negative consequences to make it clear there's room for improvement. If you follow that by pointing them to resources that will help them improve, they'll be motivated to click or bookmark them.

Draw them in

People are by nature curious and often pursue a subject simply because it intrigues them. A compelling story, for example, grabs people's attention, making them interested in what's going on, emotionally invested, or both. In an adaptive learning course, you can use different stories to draw different people in. For example, you might present a story about a frontline employee to front-line employees, and a story about a manager to managers. Other techniques to draw learners in might be to engage them in interesting puzzles or games, or enticing interactivity, that capture their attention and motivate them to see it through.

Keep them guessing

"Aha" moments are illuminating. These are the times when something doesn't happen as you expected: you give someone a pep talk and they only get more depressed, you offer a client some support and it complicates the situation, or you expect a program to fail and it instead has resounding success.

Aha moments are when our mental models of how the world works have failed. They are at the heart of learning, because they indicate the need for us to adjust our models and improve. Good training, adaptive or otherwise, should contain many potential aha moments.

One strategy that taps into this places learners in simulated situations and has them apply their mental models to make a decision. They act expecting a certain outcome, and if we present a different outcome, we'll gain their attention, causing them to slow down, take note, and repair the flaw in their thinking. For example, we might present a case about an organization facing an industry change, and ask learners to decide which business strategy makes sense going forward, and why. We can then play out the consequences of their decision and discuss the flaws. Learners will likely want to dig deeper in order to improve their understanding.

Tie learning to their career

Most employees want to get ahead in life: earn more money, take on new challenges, and grow as a professional. If training is integral to professional development, people are naturally inclined to undertake it, if only as the dues they pay to get ahead. This is the basis for much certification training and professions such as medicine, engineering, and law.

Adaptive learning can tap into this by determining how a learner wishes to develop professionally, then keeping the training connected to it. For example, it might present a professional development journey, or map, and mark off a learner's progression as he or she completes the training. Or, it might use badging: create a set of badges that represent professional milestones, allow learners to select badges that are relevant to them, then provide training associated with each.

Bring the party

Online training is an isolated affair: we each sit in front of a device, alone, to become smarter on our own. Yet, in life, we often engage in activities—karaoke, bowling, dancing—simply because we're in a group that wants to do so, and we want to go along with the group. And in the end, we enjoy it. We can leverage this in training. If a group of instructional designers opts to take an online class on game design, perhaps this will nudge other instructional designers to invest themselves as well, in order to be able to talk about their experience with other IDs.

Adaptive learning can leverage our instinctual need for group membership in many ways. "Like" buttons can inform us which pieces of training have appealed to others: if the vast majority of our group has indicated it "likes" something, we'll be motivated to check it out, if only so we can talk about it and not feel left behind.

Another way to bring the social element to bear in adaptive learning is to allow learners to make and reply to comments, both on the core content and on the pull detours (optional additional content and links to external resources). This has the potential to transform an individual effort into more of a team one: we are all becoming smarter together.

And a third method, increasingly popular in L&D, is to bring in competition; for example, provide optional eLearning but couple it to a leaderboard so you can see how you perform relative to colleagues, or how you and a team perform against other teams (e.g., department, region, product line). This too may engage people in a way that the content, sitting as a standalone course, does not.

Or just ask them

Another way to heighten engagement in adaptive learning is the most direct: ask learners to tell you what interests them, what their goals are, what they hope to get out of the training. Then tailor the training experience to provide it. If they're struggling with time management and offered a way to improve it, they will give it some attention.

To accomplish this, you need to determine what people want to know, through surveys, focus groups, and interviews. You can then survey your existing training offerings to identify how they contribute to those needs and fill in the gaps with new training modules. Once you have the wants and the means, all that's left is to add a mechanism to connect the two —for example, by adding questions to the front of an eLearning course, or within an LMS, which are used to create customized learning paths.

Know What Learners Want and Need

So, the risk of not giving people what they want and need in an adaptive learning course can be minimized by understanding what they want and need, and then delivering it. Think engagement: for each individual, what motivates them to engage? Then deliver training that taps into it.

Insider's Take
Betsy Lee, Learning Architect

" When rolling out new training, invest a bit of effort in some internal marketing. I recommend sharing with your learners that the training is adaptive and will allow them to maximize every minute of their training time! "

Evaluating the ROI of Adaptive Learning

If you aren't an adaptive learning zealot, there's probably a burning question in your mind:

How do we know that adaptive learning actually works?

This is a valid question and worth exploring. It's all well and good to adopt adaptive learning, but if it doesn't improve performance any better than what is currently being done, is it worth the trouble?

Show Me the Money

Let's say we need managers to be better at coaching, so they can cultivate their teams in order to improve three KPIs: increase productivity, decrease turnover, and heighten employee engagement.

We decide to build training to make them better at coaching. We have two learning designs to consider, one adaptive and one nonadaptive.

Let's look at this quantitatively. What ROI do we get from each option?

Learning Design Option	Benefit	Cost	ROI
Adaptive	B1	c1	B1–c1
Nonadaptive	B2	c2	B2–c2

So, the calculation is fairly simple:

If (B1–c1) > (B2–c2), **do adaptive.**

If (B1–c1) < (B2–c2), **do nonadaptive.**

If (B1–c1) = (B2–c2), **who cares?**

But obviously, measuring these is tricky. What are the numeric values of B1 and B2, and c1 and c2, to make these kind of analyses work?

Let's start by looking at B1 and B2. They represent the value, quantitatively and qualitatively, of each approach. We go with an adaptive approach and get B1, or we choose a nonadaptive one and gain B2. If we don't see quantitative improvements in our KPIs (retention, productivity, or engagement) as a result, we might then conclude the benefit of our approach (B1 or B2) is essentially zero. But can we blame either option? We didn't build the alternative, and so can't really say whether it would have worked better. Yes, it may well have been due to weak learning design. But maybe it was due to other factors, such as, oh, I don't know:

- **Inadequate measurement** (measuring engagement is challenging)

- **Organizational pressures** that work against changing behavior (e.g., managers don't coach because they're overwhelmed with day-to-day concerns)

- **Attitudinal resistance** in our coach or coachee (either of whom might be thinking, *things are fine, I don't have time for this, get me out of here*)

Dozens of factors influence employee behavior, and training is only one of them, regardless of whether we went adaptive or not.

ROI from a Cost Standpoint

Suppose we can't say whether B1 and B2 will be significantly different. So, B1 = B2, more or less. It then comes down to the costs of each approach, c1 and c2: whichever is lower wins. So you add up the total hours to build and deploy each option, times the labor rate plus vendor costs (if any), to derive values for c1 and c2.

But to calculate the real value of c1 and c2, you need to factor in not only the cost to develop and deploy the training, but also the cost to *consume* it.

Let's envision what might happen if we don't adopt an adaptive learning approach. Returning to our coaching example, we develop a traditional 2-hour course, either ILT or eLearning, or a combination, to teach 100 managers how to better coach their employees. This is a one-time experience, 2 hours total, that all 100 managers have to complete. The audience includes young managers fresh out of business school and ones who have been managing people for years.

It's likely that some of the learners won't get it, regardless of the cleverness of our treatment: they can't connect the content to their concerns, life experiences, or daily decision-making. And many won't get it because they think they already know how to coach, are busy, and don't pay attention.

Chances are, the course won't make much impact on either group, and those managers will return to their desks behaving exactly as they did before the training.

Let's attach numbers. Say 15% of the group doesn't get it because they can't relate it to their experience, and 15% doesn't get it because they think they know it already and don't engage. In that

case, 60 hours (2 hours times 30 managers) were wasted. This 1.5 weeks of wasted manager time, at managers' labor rate, needs to be factored into our calculations of c2.

Now imagine that, instead, we use an adaptive learning design. We choose to build a course that has a mandatory 15-minute path through content, with 3 hours more in pull detours (links, PDFs, explanations, "More" buttons, and the like seeded at strategic points along the way, which allow learners to go more deeply into areas of interest).

Yeah, people may not get it for the same reasons as above. But if 30 managers don't gain value, they'll likely spend the minimum time in the course, 15 minutes as per the design, so that's only 7.5 hours total (30 times 15 minutes each) wasted. That's less than 1 man-day of waste in contrast to the 1.5 man-week with the nonadaptive approach.

Plus, for the 70 managers that do engage, there is an opportunity to get 3.25 hours effective training, which factor into the value of B1.
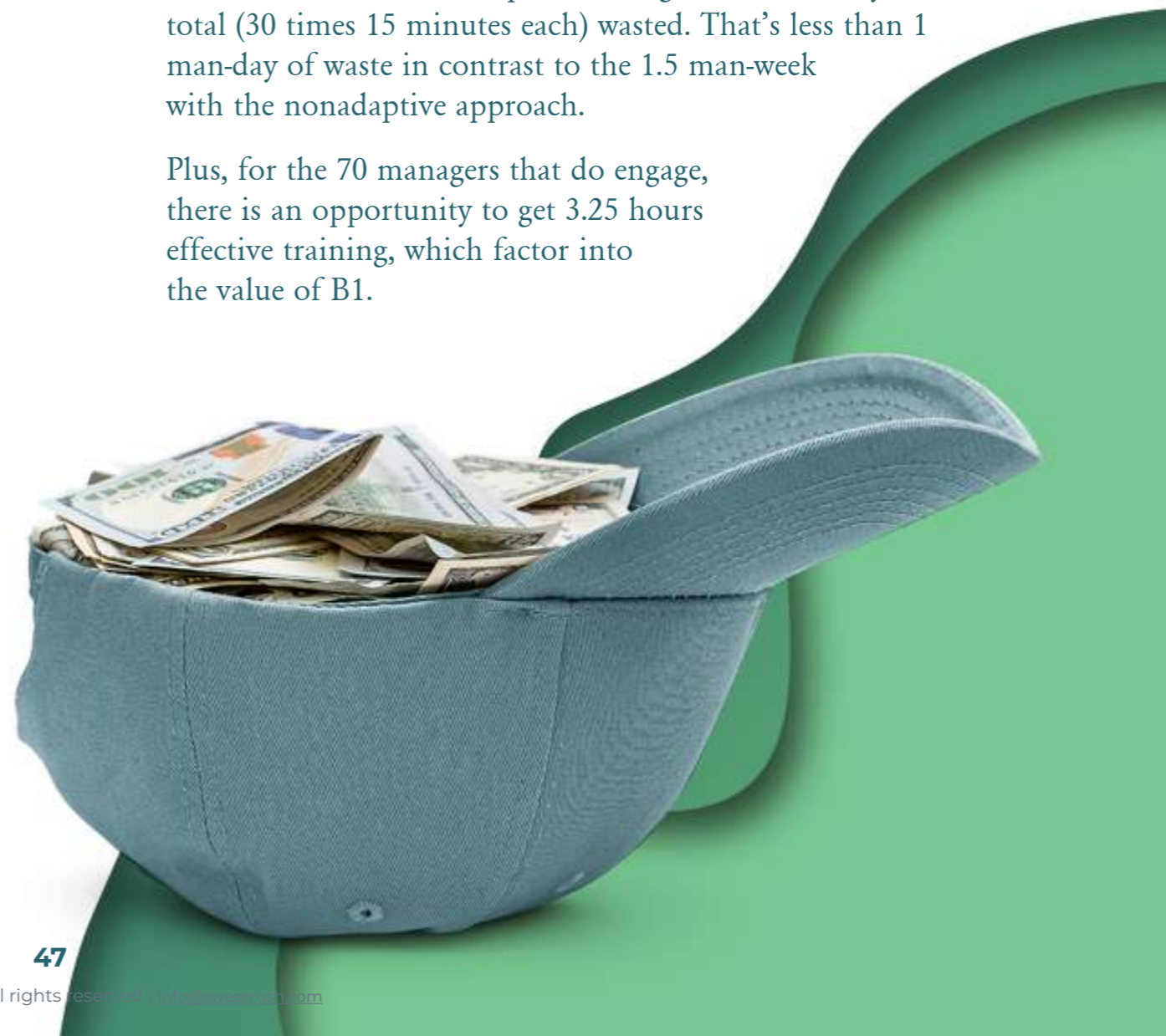
Add in the Value of Analytics

And let's suppose our measurement of things such as employee engagement are imperfect at best. **By adopting an adaptive approach and faithfully measuring learner choices (say, via xAPI), we have an opportunity to learn more about what our audience is interested in and cares about. We can then use that data to improve L&D in the future.** This insight can't be gained from a lecture, video, animation, or page-turner, because learners have few choices that reflect their mental state, other than next, pause, and rewind.

If we've deployed the adaptive eLearning course with, say, a 15-minute mandatory path and 3 hours of optional pull detours, learners will spend anywhere from 0.25 to 3.25 hours in the course, of their own will. More if they're revisiting stuff, less if they skip class. We can now look at the average total amount of time people are in the course, and the standard deviation, to gain insight.

If the average is just 16 or 17 minutes, it tells us that none of our detours are interesting to our audience. Or maybe they didn't see value in the subject as a whole and so paid as little attention as was allowed. That's depressing data, but useful.

But suppose the average time spent in training is 40 minutes. Or 2 hours. Or that a segment of the population spent a significantly long time, and another segment didn't. There's something to whatever the data gives you. A significant number of managers pursuing various detours gives us things to ponder.

First, we can look at which detours were the most popular. Why? They may represent unanticipated areas to provide additional content to managers.

Second, we can find clusters in how managers behave that correspond to their demographic: e.g., younger managers spend more time here and experienced managers spend time there, or managers in this department or region went here, while others went there. Sifting through this data yields clues, and these clues can help us improve the quality of our training.

Adaptive learning gives learners choice, choice is data, and data has value, which needs to be factored into B1.

And Maybe Adaptive Learning Teaches Better

Because adaptive learning design allows learners to get what they want and need, and not stuff they don't, it likely leads to greater retention and understanding. If only from reduction of cognitive load, since they can spend their time and energy on the stuff that connects and not on stuff that doesn't. This also reduces the potential for the "expertise reversal effect." This would mean B1, in terms of learning, is higher (maybe much higher) than B2. If so, and c1 and c2 are close, there's greater ROI in adaptive learning. Though quantifying this is hard.

And Don't Discount Joy

Even if there is no greater learning from adaptive learning design (and as said, plenty suggests there is), there's another consideration, that's hard to quantify for ROI calculation, but important. **Humans intrinsically value agency. That is, the ability to control their environment—in the case of training, what they see and experience, based on what actions they take.** Being forced to do something is sometimes necessary, but often tedious and unpleasant.

Adaptive learning offers greater agency to learners, which all else being equal, heightens joy. If B1 and B2 are close, increased joy alone warrants doing an adaptive approach—all else being equal, it's better to make learners happy than not. To put this another way: if in doubt, offer learners choice.

This puts ownership for learning into the hands of learners, making them to greater extent responsible for their own growth and development by what they do and so learn. Like throwing a teenager the keys to the convertible. This shows respect, and trust. That, in turn, may shift their attitude and compel them to pay more attention and possibly pursue optional learning in other areas, a value that can be added into our calculation of B1.

50

Final Calculation

So, determining the ROI of an adaptive learning design should include the following calculations:

+ **Less time wasted in training**

+ **Greater insight into the mind of the learner**

+ **Greater potential learning gains**

+ **Greater joy**

This makes a strong case for adopting adaptive learning wherever feasible.

Insider's Take
Betsy Lee, Learning Architect

" *As part of your ROI exploration, why not get feedback from learners? Consider conducting a Kirkpatrick Level 1 assessment on any new adaptive learning endeavors. I always share this information with stakeholders, along with the ROI data!* "

Glossary

Adaptive learning:
any training design that tailors a learning experience to the understanding, skills, and interests of each individual.

Adaptive learning approach:
a course design that provides adaptive learning.

Adaptive learning techniques:
functional and organizational methods that alter the experience for different learners.

Adaptive teaching:
a synonym for adaptive learning.

Algorithm:
code placed in an online learning environment that causes something to happen.

Branching simulation:
an eLearning approach that presents an interactive, real-world scenario that learners must work through, in which they make a series of decisions over time and receive feedback based on the choices they make.

Differentiated instruction:
an approach to providing training that varies based on the student's level of skill and knowledge. Commonly used in K-12 education.

Dynamic assessments:
tests in an eLearning course that measure learners' mastery of the subject matter, and then use that information to decide, algorithmically, what to do next. These can sometimes be trees of questions, which drill down into sub-topics or sub-skills based on learner performance.

Flipped classroom:
rather than conduct classroom training and assign further learning as homework, learners take eLearning to achieve a common baseline, and then attend class in order to practice their new skills or to discuss their experiences.

Individualized learning plan (ILP):
in K-12 education, a learning strategy that is specific to the learner's understanding, skills, and knowledge.

Just-in-time:
describes learning content that can be accessed, on a smartphone or tablet, at the exact moment the learner needs it; also called point-of-need.

Glossary

Learner-centric:
basing the training design and learning experience around the learner, rather than around the subject and what must be learned, as is typically done in a traditional, teacher-centric approach.

Mental model:
the collections of understandings about how the world works we use to make sense of situations and direct our behavior. We each have hundreds of them that we have acquired through our experiences and reflections since birth.

Nonlinear narrative:
the use of branching in eLearning, so that successive content is dynamically determined by the learner's choices.

Personalization:
the act of tailoring learning content to be specific to the learner's understanding, skills, and knowledge. Synonymous with adaptive learning, though often is used to describe opportunities for learners to shape their learning environment.

Personalized learning:
another synonym for adaptive learning. It is more commonly used in the K-12 education space.

Point-of-need:
describes learning content that can be accessed, on a smartphone or tablet, at the exact moment the learner needs it; also called just-in-time.

Pull detour:
a detour off the main learning path in which optional, additional content is provided, which the learner can choose to follow or skip past.

Push detour:
a mandatory detour off the main learning path typically based on a gap in their skills and knowledge, or based on their responsibilities in the organization.

Simulation:
a form of adaptive learning in which the learner navigates through an interactive, real-world scenario and analyzes the situation and makes decisions, which alter the state of the world. Tutoring is often provided along the way based on the learner's decisions.

Thank you for reading *Hats Off to Adaptive Learning:*
Tailoring Corporate Training for Each Learner!

Adaptive learning is as much belief as science, and there's much to be
learned about how, where, and when to apply it. We hope more organizations
experiment with it, because even if they guess wrong on the design initially,
the data they get from trying can help them improve their technique, and we
all gain from it.

We believe that it is our duty, as L&D professionals, to make the training
needed to meet business objectives as joyous as possible. One way this can
be done is by giving learners freedom, as much as is reasonable to grant.
That is the essence of what adaptive learning promises to do, via whatever
approach fits the audience and subject matter, and whatever technology
makes the most sense for the situation.

If you'd like to learn more, or share your experiences with adaptive learning,
please reach out to me.

CALL: 312.405.9550
SKYPE: john.b.cleave
WRITE: john.cleave@sweetrush.com
LINKEDIN: /johncleave/
WEBSITE: www.sweetrush.com

John Cleave
eLearning Technologist

In Our Clients' Words: **Custom Learning Solutions**

SweetRush's ability to creatively problem solve, brainstorm, adjust, and find new solutions was amazing. Also, the team's consistent, deep engagement, throughout and then leading up to the launch—getting all the last details right and going the extra mile—was exceptional.

—Global social justice foundation

SweetRush delivered a first rate eLearning/ blended learning curriculum. The people we worked with were professional, intelligent, creative, and dedicated.

—Global research and advisory organization

Our team always felt an intense collaborative spirit when working alongside SweetRush... Their attention to detail within every component that was created made a world of difference, and truly understanding our audience led to the successful creation of a product we are proud to have built.

—Silicon Valley innovator

The company and staff are highly innovative and collaborative. They bring together a specialized team for each project, a team that collaborates throughout the project.

—Global health care NGO

SweetRush has been an amazing partner! Everyone we have worked with over the last year and a half has been open, honest, fun, respectful, creative, flexible...I could go on and on! We were looking for a new partnership and we are so glad we found that with SweetRush.

—Global supermarket and specialty retailer

Hats Off to Adaptive Learning:
Tailoring Corporate Training for Each Learner

BROUGHT TO YOU by SWEETRUSH

Share the love!

Let your peers and colleagues know about this great resource!

Choose your favorite way to share: **in** **f** 🐦

SWEETRUSH

in f 🐦 📷

www.sweetrush.com | info@sweetrush.com