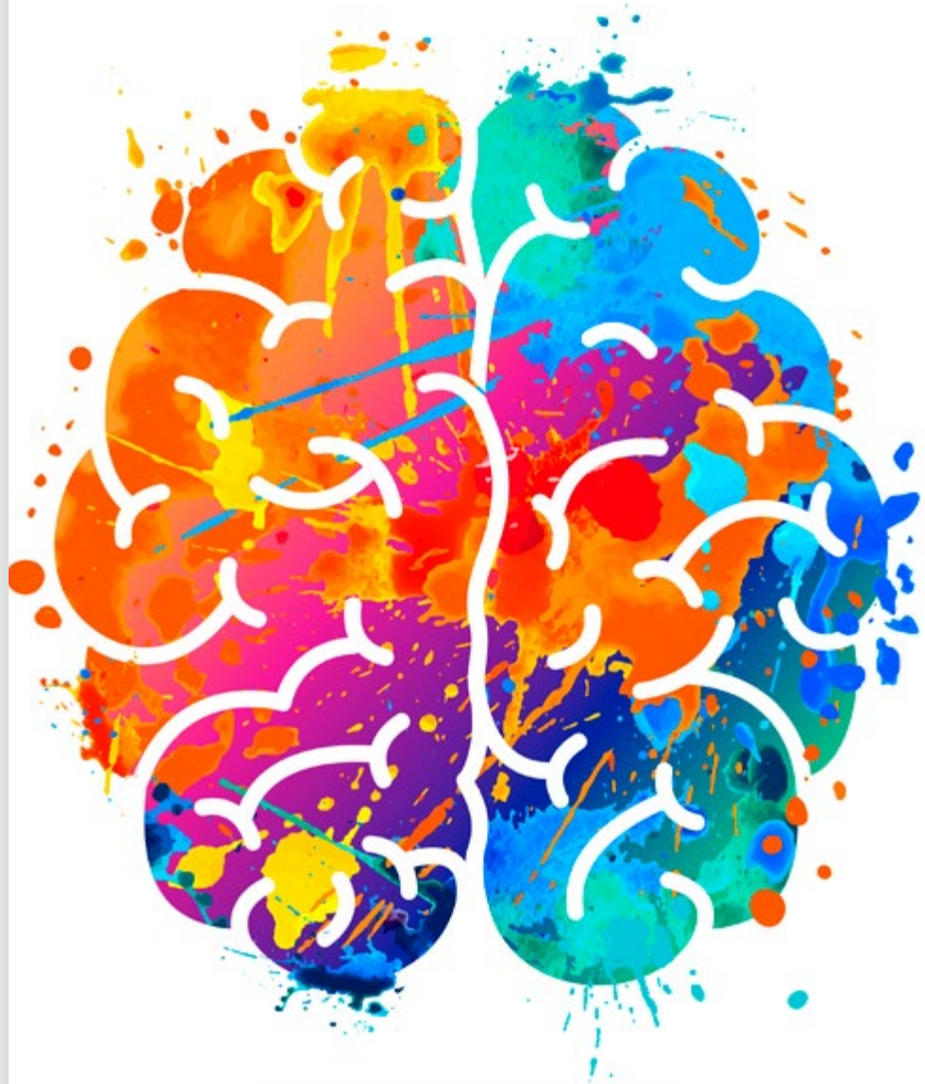
The Science of Learning: Bridging Theory and Practice for Modern Learning

~Digital eBook by Ingenuiti

Topics

1. Overview of Learning Science

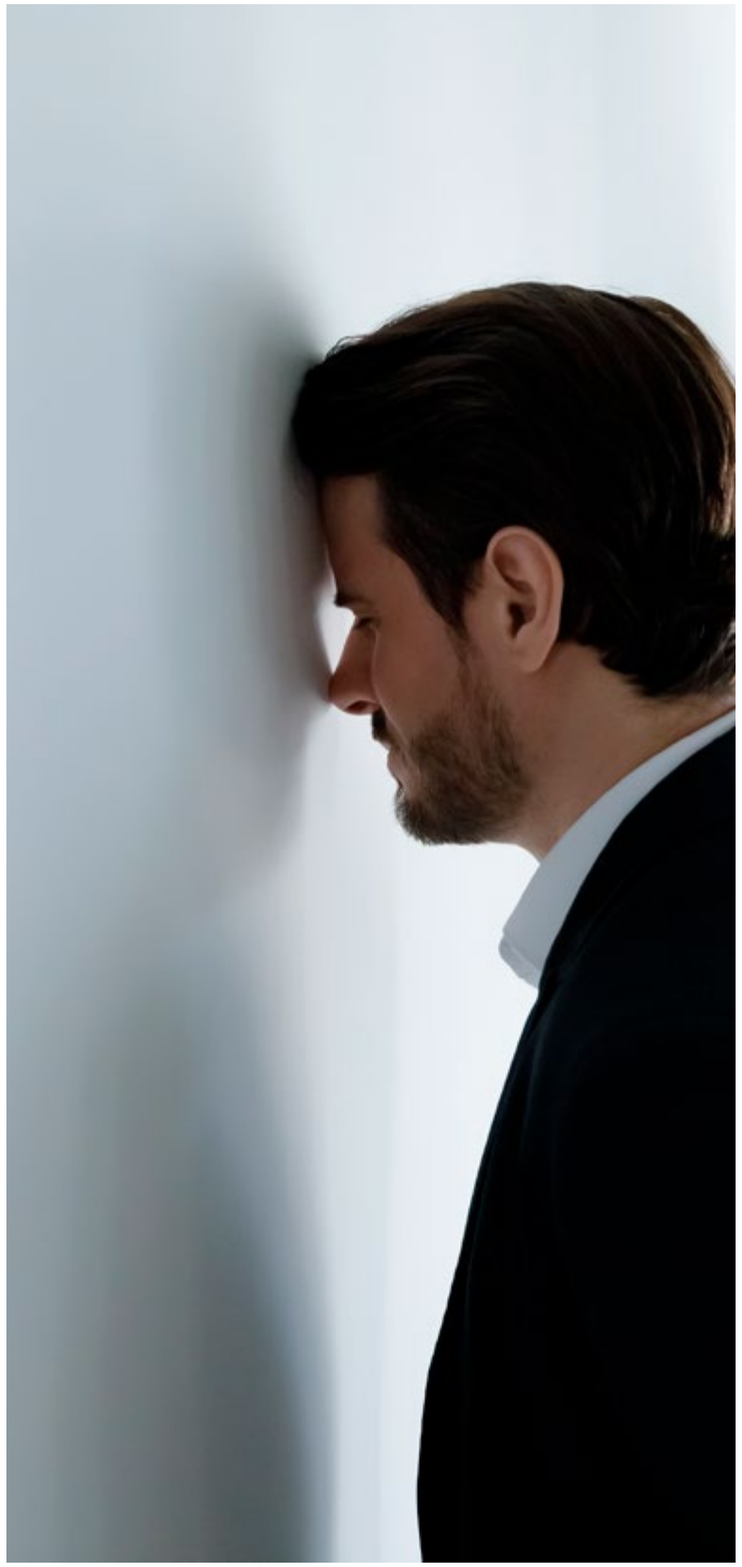


The human capacity to learn is a fascinating and complex phenomenon. Through the years, scientists across various disciplines have marveled at our shared ability to learn from our mistakes and change our patterns of behavior. In the quickly changing world of training and development, understanding the intersection between various sciences and learning can be a game changer. Collectively known as learning science, these disciplines shape our understanding of how people acquire knowledge. Tapping into them can greatly impact the quality of your employees' learning experiences and the overall effectiveness of your training programs.

Interestingly, not everyone agrees on which sciences should be included under the umbrella term learning science. The key contributors that help us comprehend the multifaceted nature of learning include at least the following: **cognitive science, psychology, sociology, linguistics, consumer science, and behavioral science**. They each shine a slightly different light on the complexity of how people process information given their psychological makeup, sociological setting, language, consumption decisions, and actions. In this eBook, we will briefly address each of these influences.

Learning sciences work together to produce better learning experiences.

The insight that comes from these various sciences helps us better understand the human learner and their context. When an instructional designer creates learner profiles, this basic demographic



information is helpful to pinpoint the targeted learner.

But do these learner profiles include things like the context of learning for a particular person who is already struggling with cognitive overload in their job? Most profiles don't dive deeply into psychology or sociology when both sciences could greatly improve the learning experience.

Think about what many people experienced in COVID. Most L&D leaders had to immediately shift to remote learning because almost overnight many of their learners became remote workers. It was jarring for learning professionals, but it was also a shock for people who were used to going to an office, store, or factory every day. They were patterned to think and act in very specific environments and did their work, most of the time anyway, without the distractions of being in their homes.

The cognitive stress of working from home greatly increased for many people. Psychologically, they were uncertain of their futures. Sociologically, they were suddenly disconnected from their peers. All these factors had an impact on their ability to not only do their jobs but also effectively learn.

Learning sciences should be considered during each phase of design and development.

Before we discuss these sciences and how they contribute to our understanding of learning, it is important to remember one important tip. Be sure to integrate the findings from the sciences into every stage of the design and development process. Whether it be the initial stages of needs analysis, identifying and motivating your learner, or the final stages of internal marketing and product delivery, the diverse sciences related to learning demand attention and consideration throughout the process. In practice, this holistic approach is essential for creating more effective and impactful learning experiences.

Cultural identity and background inevitably shape the way we perceive and understand our world.

In some sense, there is a commonality to all human beings and how they learn. The sciences we've listed all contribute to understanding how learning happens across the globe. It is difficult to imagine a cultural situation where the science of cognition, for example, would not contribute to our understanding of learning.

However, cultural identity and background inevitably shape the way we perceive and understand our world. Even to the point where they influence our cognitive processes from an early age. If we consider the science of psychology, we will quickly recognize that motivations to learn can vary from culture to culture. Some cultures are mostly individualistic. Others are more collectivist.

Similar dynamics are evident as we consider learning and sociology or linguistics. For example, it is interesting to note that for many years, Swahili did not include a future tense. This must have had an impact on this people group's thought process because they could not verbalize anything about the future. It could be said that people in the US are the opposite in that they only think in terms of the future and do not reflect enough on a shared past. The science of linguistics would be helpful here especially when thinking about learning and development.

What are some practical tips to keep learning science in front of L&D leaders?

One suggestion is to work from a list through the design and development of courses. Think through each phase and how the sciences can inform what you are building. Make it visual. This list of questions may be helpful:

In practice, this holistic approach is essential for creating more effective and impactful learning experiences.

1

Cognitive Science

How are you connecting to what people already know?

Are you giving learners enough time to reflect and process what they are learning?

What is the proper amount of content given the other demands on the learners' time?

2

Psychology

What is motivating or demotivating your learners to engage?

Are you making use of scaffolding in which learners are encouraged to be more independent and less reliant on the learning materials, instructor, mentor, or coach?

3

Sociology

What social structures are in place to reinforce the learning?

What in their context is detracting them from learning?

4

Linguistics

Will this material be translated into other languages?

Are there specific cultural language contexts that need to be considered?

5

Behavioral Science

How do you expect learners to act differently after they have engaged with the learning you create?

What are the emotional, environmental, and social factors that will influence the choices your learners make?

6

Consumer Science

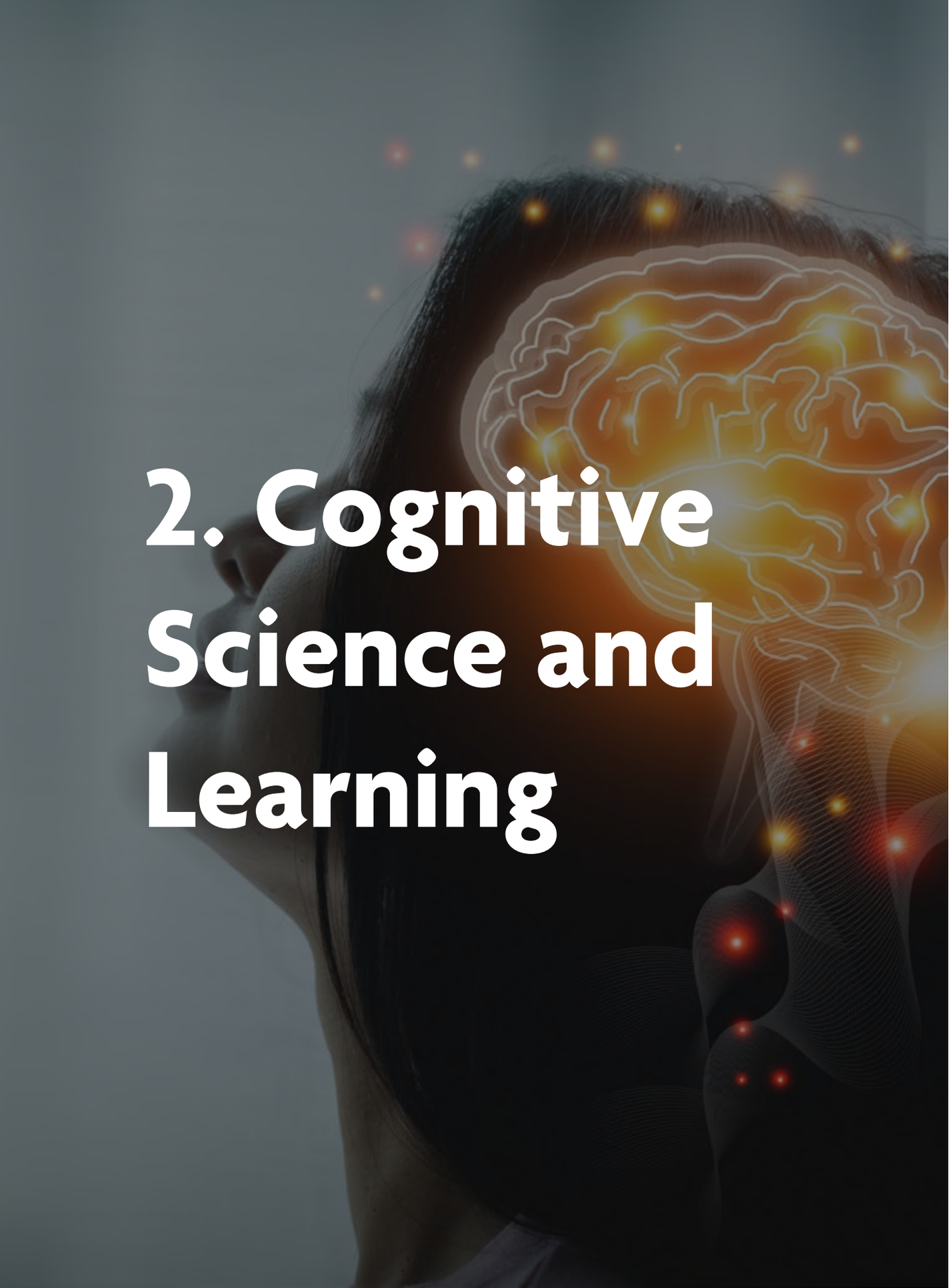
How is your learning being designed to capture the attention of your learners?

What other tasks are competing for your learners' time?

Embracing the multifaceted nature of learning sciences and integrating them into each design and development phase of your training and development processes is pivotal in creating effective, inclusive, and engaging learning experiences.

By using principles from cognitive science, psychology, sociology, linguistics, consumer science, and behavioral science, training professionals can launch programs that align with employees' cognitive, psychological, and sociological needs, thereby driving transformative learning experiences and enhancing performance. As you can imagine, a deeper appreciation for the impact of learning science can result in bolstering employee engagement and improving learning outcomes within an organizational setting.

Coming Next... The first learning science that we will delve into is cognitive science. Cognition involves perception, memory, and language. Cognitive science offers insight into how we gain and use knowledge and what decisions we make based on what we learn.



2. Cognitive Science and Learning

After a week, we retain only about 60% of what makes it to long-term memory while the rest is filtered out.

Cognitive science is the study of how we process, store, retain, and use information. The definition seems simple while the reality is not. Cognitive science is a fairly new science and much about how the human brain works is yet to be discovered. At this point, there are more questions than answers, but there are still insights to be gained. Cognition has to do with perception, memory, language, and retrieval. It helps us understand how we make judgments. It provides a perspective on what we know, how we know it, and what we decide to do with it —all of this, of course, impacts learning. In the context of corporate training, understanding cognition allows professionals to design learning programs that align with how individuals process and

retain information. This impacts everything from your curriculum map to the design of each slide, leading to materials that stick with your learners even after they sign out and close their laptop.

Let's talk for a moment about the wonder that is the human brain. The typical human brain can store the equivalent of three million hours of television shows. That is a remarkable amount of information but is still only a fraction of the total amount of information that we receive. The brain has a kind of sorting system because even with that amazing amount of storage capacity, we can only retain a small percentage of the information that comes at us. Information moves from our sensory memory to our working memory and then eventually to long-term memory.

Sensory lasts about three seconds and is mostly forgotten. What continues down the pathway to working memory is only 5-9 pieces of information and does not last long. What makes it through into long-term memory is even less. What eventually gets stored in long-term memory most often is saved because it connects to other ideas, concepts, and pieces of information we already know. And even then, there is another kind of sorting going on.

And if there is no reinforcement of what is learned, only about 10% will be retained. Those are daunting statistics for people who are committed to helping adult learners be better at their jobs. It sounds like much of what we spend our time building in learning experiences could be filtered out or even forgotten in a very short period of time.

The challenge for people in training and development in the corporate world is to acknowledge the reality that learners' brains continually purge information, and then do everything they can to reinforce the information necessary to do their jobs well. Let's begin with one of the more important factors: cognitive overload. There is a limit to how much information a person can process at a time. Exceeding that limit makes it difficult for a learner to process, retain, or act on the information that is coming at them. Think of trying to read a book while someone in the room is watching a movie, someone else is playing music, and two other people are having a conversation. Chances are, unless you have remarkable powers of concentration, you will not retain much of what you are reading.

If we take this idea into the workplace, it is obvious that dedicated learning could be overlooked. People have schedules to keep, tasks to carry out, meetings to attend, and work to get done. Maybe their laptop flashes a notification every time someone emails them and their phone buzzes with texts or calls. And that is the setting in which we often expect people to learn. It isn't just that cognitive overload means someone isn't learning much. It can also cause negative consequences such as frustration and irritation for learners. Instead of increasing productivity, failed learning attempts can actually be the cause of decreased productivity.

What are some practical guides for creating learning experiences that apply the principles of cognitive science?

There are many but let's highlight a handful. The first is understanding the environment in which learning takes place. What else is going on that might be causing cognitive overload? We have talked primarily about being in the work setting, but cognitive overload can also happen for people who work from home. Mail delivery, family members, pets, repair people, the neighbor's lawn mower, and dozens of other things can overload our cognitive abilities.

It is helpful to suggest that people find one place where they can concentrate and limit distractions. That might be a room or even a chair where they tend to do their learning.

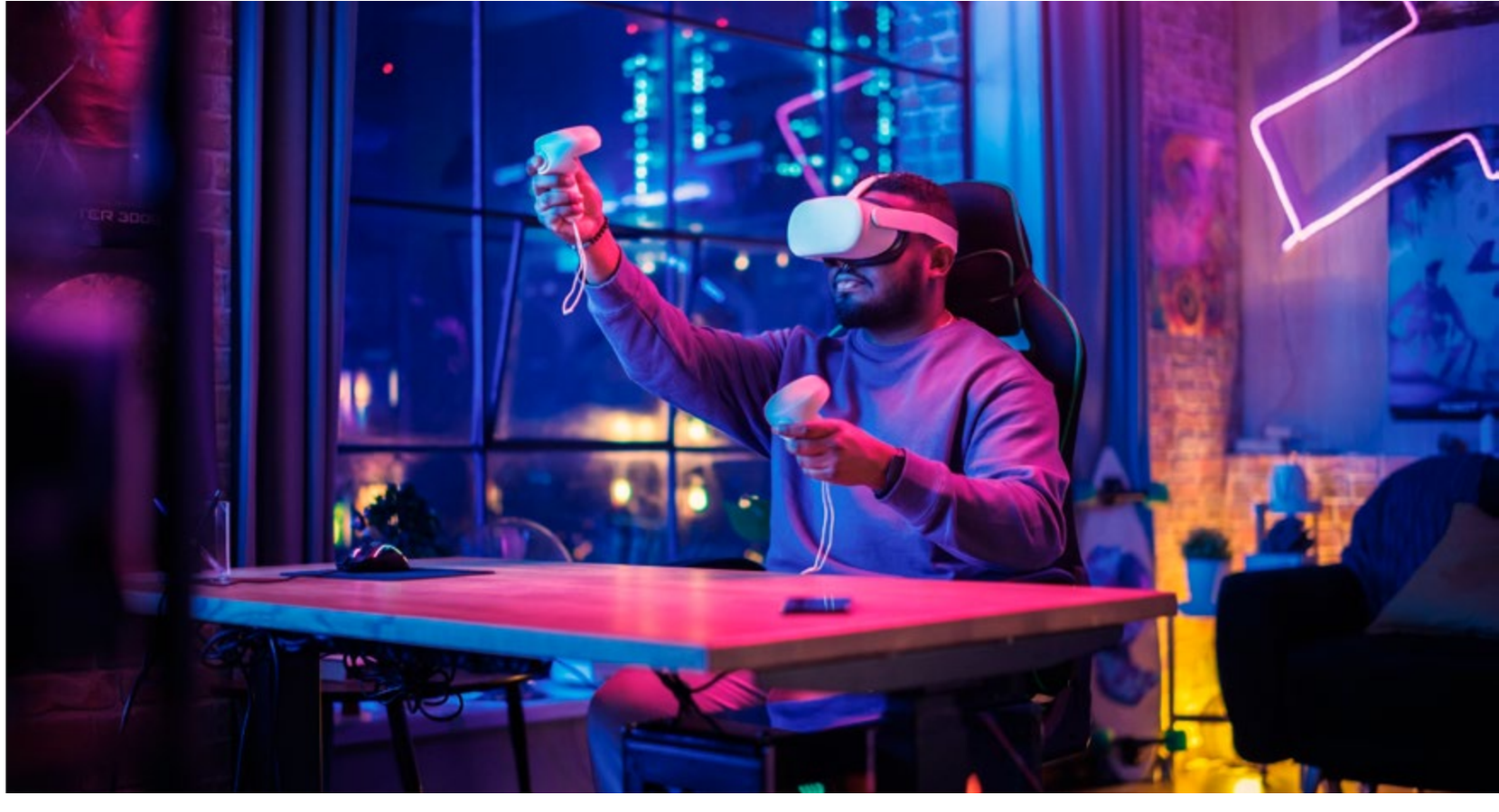
It is important to pay attention to the length, pace, and spacing of learning. Remember when it seemed perfectly logical to expect someone to take a 60-minute eLearning course that just looked like a fancy PowerPoint deck? Because of cognitive science, we now know that smaller amounts of information at a time allows the learner to have better gains overall. Pacing also matters.

Depending on the topic, it may be necessary to give learners some time to reflect on the information they are receiving before moving on. In other words, give them the opportunity to connect what they are learning with what they already know. Give them a moment to move information to their long-term memory. Spacing is another key element, especially for reinforcing what is being learned. There are some excellent studies based on work done by Herman Ebbinghaus that are solid guides for when to reinforce what has been learned so that it remains in long-term memory and can be utilized.

Length, pacing, and spacing are certainly key elements. But what about involving other senses and experiential learning?

The opportunity to immediately apply what has been learned is key. Learning a skill and being able to practice it will greatly increase retention. Wonderful tools like augmented and virtual reality are now available to most learning teams.

It is also important to help learners visualize what they've learned, which is why we often build job aids or infographics that provide an overview of what has been learned. Just-in-time learning will have higher retention rates because the learner actually has a need in the moment. What they are learning is not being stored away for some future application. The information is needed in the moment and, even more importantly, used in the moment. That information will stick.



How might artificial intelligence change how cognition works in the corporate world?

It isn't likely that AI will change how we process information, but we will be able to personalize learning in ways that we are just beginning to think about. For instance, AI can track at a very deep level what an individual person already knows, making it much easier to connect new information to existing knowledge. Truly personalized learning.

AI can also very quickly deliver information that is needed by the learner as they need it. The same information can be delivered in a variety of formats depending on the desires and preferences of the individual learner. Learners could choose all words, images, animations, videos, or even a song. And all could be delivered by AI using the same content. The future will be an amazing place.

Coming Next... How might the study of psychology influence learning design? Psychology provides valuable insight into how learners think, what drives them, and what influences their behavior. By adhering to research findings from psychology, you can implement instructional strategies that lead to powerful learning experiences.

3. The Impact of Psychology on Learning

Because of the emphasis on how individuals perceive, process, and retain new information, psychology plays a crucial role in our understanding of the process of learning. For most learning and development professionals, this is what we care most about! Helping our learners process and retain new knowledge or skills is the main thing.

Learning, human motivation, and behavior are topics that psychologists explore. We all know that our learners' cognition, motivation, and behavior are interconnected. When we can more deeply understand how learners think, what motivates them, and what triggers behavior, we develop far more effective teaching techniques.

Entice your learners!

Let's look at a few examples of how the study of psychology influences educational practices and strategies, particularly with adult learners. Using both intrinsic and extrinsic motivation, take the time to consider how to entice your learner to begin training. Learning opportunities should be relevant, timely, fun, and engaging! Make them so. Adults are motivated best when they can take the lead in their learning process.

So, whenever possible, learning experiences need to provide opportunities where adults set their own learning goals and solve real-life problems that matter to them. This could be something as simple as creating non-linear eLearning modules that allow your adult learner to explore areas of interest in the order they want. Or, it could be as complex as a personalized development plan for an individual that contains curated eLearning, coaching, ILT sessions, and AI-recommended resources to fit their exact situation.

Even if your adult learner has started a program interesting to them and where they have set their own goals, they may need additional motivation to continue through the program. To keep them from getting bogged down, you can incorporate strategies such as peer review or lunch discussions about the topics. Adults learn better when their newly learned ideas are linked to actual behavior through doing and experiencing things firsthand. And It's easy to forget how important in-person, hands-on, social, or coaching experiences are. In this post-COVID world, the pendulum is swinging back to a more balanced blended approach instead of focusing just on cognitive gains with eLearning, but also including hands-on activities and discussions that connect new ideas to adults' real-life experiences. This is a more effective learning strategy and will keep your learners motivated.

Feedback follows practice.

When it comes to giving feedback, adults benefit from reflecting on their experiences and getting constructive feedback. This helps them connect new knowledge to what they already know and apply it to their work or personal lives. How many of us have taken hours of eLearning modules with feedback like, "That's incorrect, try again?" Not only is this frustrating, which decreases motivation, it also provides nothing substantive to the learning process.

Providing quality feedback that explains why answers are correct or incorrect with chances for practice also greatly improves the quality of the learning experience for an adult.

Motivation is the fuel that ignites learning.

Understanding the elements of motivation and emotion are key because they play a big role in how we learn. Think about it—when we're motivated and interested in something, we're more likely to pay attention, work hard, and remember it later. On the other hand, if we're feeling bored or stressed, it's much harder to focus and learn effectively. Research in psychology tells us that motivation is like the fuel that ignites our learning. When we're motivated, whether it's because we find the topic interesting or because we have a personal goal, it can boost our engagement and effort in the learning process.

Emotions also have a big impact on learning. Negative emotions like anxiety or frustration can get in the way of learning by making it harder to concentrate and process new information. But when we feel positive emotions like curiosity, joy, or excitement, it can help us to be more open to new ideas and information. And don't forget to celebrate when your learners reach completion. Brag on them!

Acknowledge their behavior change and improved metrics. Give them an opportunity to teach someone else what they have learned. Support your learners by recognizing the importance of emotional triggers and build a healthy culture of learning by leveraging learning principles that are grounded in psychology.

Researchers look at how we encode, store, and retrieve information.

Before we finish, we must mention the role of memory in learning and how it is studied. In psychology, memory has been labeled with various metaphors in an effort to understand how it works. Researchers look at things like how we encode information (that's information getting it into our memory), how we store it, and how we retrieve it when we need it.

For example, researchers might study different techniques that help us remember things better, like using visualization, repetition, or creating associations between new information and what we already know. They also look at how our memories can change over time, and how we sometimes forget or mix up information.

Let's think about how memory comes into play when adults learn new things, such as a new, complex software process for placing orders. Researchers have found that chunking information, which means breaking it down into smaller, more manageable parts, can make it easier for our memory to manage new information. This is useful for adults who are often juggling multiple responsibilities. Instead of trying to memorize an entire process at once, they can focus on learning a part of the process, or the part they'll use most, and then build on that.

Another way to support memory in adult learning is through retrieval practice. This means practicing retrieving information from memory, which strengthens the memory trace. So, in our software ordering process above, the L&D team could design practice simulations that allow the learner to practice the most complex portions to reinforce those memories. If the simulation provides good quality feedback about what the learner got wrong, why it was wrong, and then a chance to practice the correct way, the memory trace grows even stronger.

It's one thing to know you got something wrong, but you'll keep making the same mistake if you don't know why. So, providing good quality feedback creates a formative assessment loop that further reinforces the retrieval of the correct information from the memory.

All learning sciences have value, but understanding cognition (from the previous chapter) and psychology are the two that can really reshape the way we approach learning.

Thankfully, there are a lot of good resources out there such as Design for How People Learn by Julie Dirksen. It's an easy read largely because she practices good design principles throughout her book. In fact, you'll see the principles that have been talked about here modeled there.

Coming Next... The goal of having a base of knowledge with learning science is always to increase the success of applied learning solutions. By considering cultural factors, IDs can create instructional materials that address the diverse needs of their audience, promote equity, and support varied learning contexts. Keep reading to learn how the study of sociology can shape your next learning experience, even when designing for a global audience.

4. Integrating Sociology into Instructional Design

Learning science, a multidisciplinary field that explores how people learn and develop, serves as the foundation for instructional design. Within this broad spectrum, sociology offers crucial insights into the patterns of human interaction and the social structures that shape our behaviors. Instructional designers, while not experts in every discipline in learning science, must nonetheless possess a foundational understanding of how these fields, including sociology, inform their practice. By filtering these insights through the lens of instructional design, you can create effective, culturally sensitive learning solutions that resonate with diverse audiences.

The Role of Sociology in Instructional Design

Sociology examines how people interact and relate within various communities, from entire nations to small workgroups, highlighting the influence of social structures and cultural norms. These sociological insights are invaluable for designing instruction that acknowledges and respects the diversity of learners'

backgrounds, needs, and experiences. Effective instructional design should promote inclusivity, celebrate diversity, and foster a sense of belonging.

What Can Go Wrong?

One critical challenge that learning and development (L&D) teams face is the potential disconnect between instructional designers or subject matter experts (SMEs) and their target audiences. A lack of commonality in education, cultural background, or socioeconomic status can result in instructional materials that fail to resonate with learners. This risk underscores the need for tailored, culturally inclusive approaches that accommodate varied learners.

For instance, when considering learners from a specific country, broad sociological norms can provide a starting point to understand audience characteristics. While rigid stereotypes should be avoided, these norms can guide instructional designers in appreciating underlying cultural dynamics. Let's consider the potential differences between a home office and satellite offices' sociocultural environments. What unwritten rules and local customs could significantly influence your training effectiveness? Do your learning objectives violate a social norm in your audience's culture? Ignoring these norms might lead to initiatives that fail before they've begun, simply because learning objectives clash with local sociological expectations.

Addressing Social Inequalities

Sociology also equips instructional designers with the tools to recognize and address social inequalities that may affect the learning experience. For example, learners from disadvantaged socioeconomic backgrounds might face challenges in accessing eLearning resources and technology. You should not assume that all employees of a global organization have equal access to learning resources.

Designing with empathy involves considerations for accessibility, affordability, and technological equity. Instructional designers should plan for alternative access options, such as offline materials or low-bandwidth content, ensuring that all learners can engage with the material regardless of their circumstances.

Sociological Norms as a Design Lens

Understanding and leveraging sociological insights allows instructional designers to create more relevant and impactful learning experiences. By acknowledging the importance of diversity and cultural sensitivities, you can better curate content that speaks to the unique experiences and preferences of each learner group. This culturally attuned approach not only enhances engagement but also contributes to a more cohesive learning environment that supports team unity across different backgrounds.

Obviously, at Ingenuiti we've spent a lot of time thinking about this because of the richness of our global audience. Consider the following checklist as you approach your next project to make sure you consider the learning science of sociology.

Ideas for implementation

1. Incorporate cultural references and examples in the training material that are relevant to your audience. This could include using case studies, examples, and scenarios from the different cultural backgrounds represented to ensure that all employees can relate to the content.

2. Invite virtual guest speakers or trainers from diverse cultural backgrounds to share their experiences and insights. This can provide different perspectives and help employees to understand and appreciate cultural differences.

3. Incorporate learning assets such as videos, graphics, music, and audio voices to engage employees of all representative backgrounds and provide them with a broader understanding of the different cultural perspectives within your organization.

4. Encourage open discussions and share personal stories about cultural experiences. This can help employees to learn from one another and gain a deeper understanding of different cultural perspectives.

5. Provide opportunities for employees to participate in cultural immersion experiences, such as field trips or volunteer activities, to gain first-hand exposure to different cultural perspectives.

6. Use technology to connect employees from different cultural backgrounds, such as virtual team projects, forums, or social media groups, to foster collaboration and understanding.

7. Last and most important, make sure to promote the need to belong that we all share. If nothing else, 2020 and the Covid restrictions taught us how much we need each other. Don't underestimate the potential impact of people learning together. eLearning and remote learning are here to stay, but the impact of the human touch is undeniable. Build in time spent together and watch what happens.

Integrating sociology into the instructional design process is essential for crafting inclusive and effective learning experiences. By recognizing and respecting the intricacies of social structures and cultural norms, instructional designers can develop training programs that are both meaningful and accessible. This approach not only benefits individual learners but also strengthens the overall learning ecosystem, ensuring that it meets the diverse needs of a global workforce.

Coming Next... Have you ever considered that the science of linguistics serves as a foundation for instructional design? See the next article to dive deeper into linguistics and how it forms the basis for your next learning materials.

Integrating sociology into design creates learning that resonates—inclusive, impactful, and culturally attuned.

5. The Role of Linguistics in Enhancing Learning Science

Linguistics, as a part of learning science, offers deep insights into how humans acquire, use, and process language to gain and communicate knowledge. By understanding the cognitive processes behind language acquisition (and its components such as grammar, syntax, vocabulary, and cultural nuances) instructional designers can revise learning materials to improve clarity, effectiveness, and relevance for diverse audiences.

Linguistics as a Foundation for Instructional Design

Effective instructional design hinges on the use of language that resonates with learners. When we remove language barriers to comprehension, we increase engagement and retention. Linguistics equips instructional designers with the knowledge needed to craft learning materials that avoid ambiguity and confusion, ensuring that their message is clearly communicated.

The Craft of Writing in Instructional Design

Instructional designers often play the role of writers, where understanding linguistic elements is crucial. This encompasses grammar, syntax, and vocabulary.

Clarity and Precision: Have you ever read a sentence and thought, "I have no idea what I just read?" Mastery of grammar and syntax helps to make writing coherent and clear. A well-structured sentence can significantly enhance understanding, preventing the learner from misinterpreting the content.

Effective Communication: The choice of vocabulary can greatly impact the readability of training materials. Often, less is more, as simplicity aids in comprehension. Designers often need to reword content received from subject-matter experts to remove unnecessary complexity and enhance clarity, ensuring that each word contributes meaningfully to learning outcomes.

Compliance with Language Standards: Ensuring materials align with grammatical conventions is crucial, especially in formal settings or industries with stringent requirements, such as legal, financial, or medical fields. Precision in language ensures that learning materials meet required standards and effectively convey critical information.

Tailoring Content to Audience

Demographics

Reading Level Considerations: Did you know that the average American reads at a sixth-grade level? Instructional designers must design content to match the audience's reading abilities. Comprehensive learner profiles, which include demographics such as education, experience, and linguistic background, guide the development of personalized content.
Cultural and Language Sensitivity: In global companies, understanding the first language of learners is vital, particularly if translation options are limited. Additionally, cultural preferences dictate the appropriate tone—formal or casual—thus influencing how content should be presented to different cultural audiences.

Enhancing Learner Engagement

To further engage learners, designers can implement strategies such as:

- Glossaries: Providing definitions of complex terms through glossaries or digital aids helps learners grasp unfamiliar concepts easily.
- Interactive Elements: Using hotspots over commonly misunderstood terms offers learners immediate clarification at the point of need.

Linguistics fundamentally informs instructional design by ensuring the language of learning materials serves as a bridge rather than a barrier. Words matter, and by understanding the grammatical, syntactical, and cultural aspects of language, instructional designers can create materials that resonate with and meet the needs of diverse learners. This commitment to linguistic precision and cultural sensitivity not only enhances learning experiences but also supports ready access to knowledge across varied contexts and settings.

Coming Next... Are you ready to explore the ins and outs of behavioral science? The next chapter will give you effective instructional strategies based on behavioral science to help your learners improve their skills and be successful in their jobs.

6. Modern Learning Methods from Behavioral Science

Applying behavioral science transforms learning from information delivery to real-world skill building

Behavioral science is the study of human behavior and its underlying processes, including thoughts, emotions, and actions. Behavioral science seeks to explain why people behave the way they do, and how they might change their behavior to improve their lives and society. It gives us insights into how people think and make decisions which affect the learning process.

Much of the focus in the training industry today is about changing behavior. We often ask: What facts do we want learners to understand? What behaviors need to be modified? And what attitudes or values need to change? Certainly, behavior changes and upskilling are a large part of our mandate. By implementing the key findings from behavioral science research, we can actively engage learners'

brains and stimulate effective responses to the material presented. This approach moves beyond the mere dissemination of information, aiming instead to captivate learners' attention, enhance memory retention, and encourage the practical application of new skills.

What learning strategies make use of behavioral science?

1. Isolate the desired behavior

The best way to realize behavior change is to specifically plan for it. What actions should the learner take? Too often, learning modules or assets are created with only nebulous or general behavior goals in place. Isolating the exact chain of behaviors that the learner needs to perform will give clarity both to the designers and the learners. This specificity also enables the L&D team to analyze Return on Investment gains.

2. Chunk material into simple decisions and actions

After the end goal is articulated and the process to get there is clearly defined, the content can be created into small, manageable chunks that are readily organized or grouped. This learning strategy can change behavior by helping individuals process information more effectively. When learning is chunked, it can reduce cognitive load and allow for better focus, which can lead to improved memory retention and recall. By breaking down complex concepts or tasks into smaller, manageable decisions, learners can approach challenges with a more systematic and organized mindset, leading to more effective problem-solving.

Chunking can also enable a learner to reach a larger goal. A behavior goal that may seem mountainous, can be broken into small simple actions making it attainable and reasonable. By going step by step, making the right decisions and performing actions correctly, learners will improve quickly.

3. Behavioral modeling

Modeling is the "go-to" strategy in certain industries. If you think about fast food, retail, or manufacturing, demonstrating skills as the learner watches is the most efficient way to train new employees. The model of "I do, We do, You do" is a frequently used approach. Showing those desired behaviors or skills can be an effective way of teaching, as learners can observe and imitate the modeled behavior.

In recent years we've seen an increase in standardizing modeling, making certain that the process is normalized so that what is being modeled is consistent throughout, and everyone completes the tasks in the same way. Additionally, it is important to standardize how the behavior should be modeled. Not every manager or trainer is equally gifted at being able to demonstrate well. So, learning teams must create specific instructions for their trainers to ensure learners have consistent experiences.

4. Reinforcement

Rewarding desired behaviors, or correct responses, can help positively reinforce learning and encourage the repetition of those behaviors. Have fun with this! It is always interesting to see what types of rewards

or prizes can stir up motivation toward a learning goal. Sometimes a break from a strenuous day with something light-hearted can be the boost that your employees need.

The opposite, negative reinforcement, (either removing a reward or giving a punishment) can also be a viable strategy. However, negative reinforcement may have negative psychological and emotional effects on employees. If used liberally, it can even create a fear-based culture and lead to decreased morale and motivation. So, it's important to implement a balanced approach, strategically using positive reinforcement along with constructive feedback to create a supportive and encouraging learning environment.

5. Practice with feedback

The learning strategy that probably best aligns with behavioral science is practice with immediate feedback. And of course, with the continued growth of VR, we are seeing more practice taking place virtually. Just in the past year there has been an

explosion of AI-based feedback. Specific, immediate feedback with the opportunity for the learner to improve is a strong motivator, especially if there is a reward tied to the process. It feels good to see progress toward a viable goal, and the positive endorphins generated drive more learning.

6. Spaced repetition

This strategy involves spacing out learning sessions over time to reinforce memory and retention, based on the psychological phenomenon known as the spacing effect. Learning is never a one-time event, although historically in our industry modules may have been rolled out as if it were.

We've certainly gotten much better at extending learning with knowledge activation events which lead to various types of learning experiences that are often spaced 30-60-90 days out. The popularity of the word "nudge" in recent years speaks to the industry's understanding of the need for constant reinforcement and repetition.

Many instructional designers already employ strategies that are deeply rooted in behavioral science, albeit sometimes unconsciously. Calling attention to these strategies as part of a behavioral science framework not only legitimizes their use but also improves their application. By acknowledging the influence of behavioral science on learning, trainers can ensure that their methods are not only pedagogically sound but also scientifically validated.

As we continue to explore and integrate the nuances of behavioral science, the potential for enriching the learning experience expands dramatically. This intersection paves the way for more effective educational outcomes, empowering learners with the skills they need to adapt and succeed in their roles.

Coming Next... How does consumer science tie into learning? The modern learner, much like a consumer, faces numerous competing demands on their time, attention, and resources. The parallels are striking because both learners and consumers need motivation, value recognition, and require engagement to process information, make decisions, and act on these decisions. Turn to Bridging the Gap: Applying Consumer Science to Enhance Learning Experiences to read more.

7. Bridging the Gap: Applying Consumer Science to Enhance Learning Experiences

It is true that we traditionally associate consumer science more often with marketing, advertising, or economic choices rather than learning. However, a closer look reveals valuable intersections with learning and development. At its most basic level, consumer science studies the choices people make in the face of scarcity. People have limited time, energy, attention, finances, or other resources, and we are competing for them. It is a field that focuses on understanding consumers' behavior, preferences, and decision-making processes related to obtaining goods and services. While typically aimed at improving products and marketing strategies, its principles can significantly enhance how educational content is designed and delivered.

Consumer science helps to identify key factors that influence learning such as motivation, attention, and memory. This science can also provide insights into how individuals process and interpret information, which is essential for developing effective communication strategies and instructional materials. By understanding these factors, instructional designers can create more effective learning experiences that are engaging and impactful, so a learner (consumer) is more likely to engage in the learning process.

View Learners as Consumers

Every learner we work with faces competing demands on their attention, time, and effort. Even when learning activities are required and monitored, this does not guarantee active engagement with the material. They may not value what we're presenting. They are likely to be distracted and not entirely

engaged. The connection that we in the learning profession often miss is that the learner is a type of consumer, having the agency of choice.

Recognizing learners as consumers allows us to leverage consumer science to motivate our consumers, show them the value of training, help them process information, make decisions, and respond to our materials.

Key Consumer Science Insights

1. Review your learner persona.

Consumer scientists spend a great deal of time profiling their consumers. What drives them? What do they need? What are their current behaviors? Even if you're in an established L&D department, and you serve the same learners over and over, you should review your learner personas frequently. The demographics of new hires are always shifting and certainly our world in the past few years has changed rapidly, so make it a point to revise learning personas often. Stay relevant and responsive to these changes. This proactive approach facilitates the development of learning experiences that are not only valid for the present but adaptable for the future.

2. Identify delivery preferences.

Consumer science emphasizes understanding consumer needs and preferences. For instructional designers, this translates to gathering data on learners' preferred methods of content delivery. Whether learners favor podcasts over videos or interactive modules over discussion groups, understanding these preferences enables you to create materials that resonate with your learners. Surveys, interviews, and direct engagement can reveal insights that shape instructional design to meet learners where they are. And you won't know unless you ask.

3. Create user-centric designs.

Just as consumer products are designed with the

user experience in mind, learning delivery platforms and materials should be intuitive and user centric. By utilizing consumer science principles, instructional designers can make learning experiences that are not only engaging but also accessible and easy to navigate. Instructional designers can incorporate feedback from learners to refine the design and make it more engaging and accessible, enhancing effectiveness and learner satisfaction.

4. Build persuasive learning experiences.

Instructional designers can leverage consumer science insights to create persuasive learning journeys. By incorporating elements that incentivize participation or subtly nudge learners towards desired learning outcomes, instructional designers can stimulate motivation and engagement. Techniques such as gamification, reward systems, or personalized learning paths are practical applications of these principles.

5. Test and validate.

Consumer science can provide instructional designers with methods and tools for testing and validating the effectiveness of corporate learning designs. By collecting and analyzing data on employee engagement, performance, and feedback, learning teams can continuously optimize and improve their designs to better meet the needs of their learners.

6. Market new materials.

The launch and ongoing success of learning initiatives benefit greatly from marketing strategies rooted in consumer science. Clear communication plans that promote new programs and reinforce their value ensure that learners are aware, informed, and motivated to participate. For mission-critical programs, this is especially vital—an effective marketing strategy can significantly enhance awareness and enrollment.

Integrating consumer science into the learning and development world equips instructional designers with robust tools to enhance learner engagement, satisfaction, and outcomes. By understanding and applying these principles, the learning professional can better cater to the complexities and demands of modern learners, positioning them as valued and motivated consumers of knowledge.

Final Thoughts about Learning Science

In conclusion, the human capacity to learn remains a captivating subject, inviting exploration and deeper understanding. As scientists from diverse disciplines have long recognized, our collective ability to learn from mistakes and modify our behavior is not only a remarkable part of being human but also essential for growth. In the world of learning and development, comprehending the convergence of sciences that form the foundation of learning science is crucial. By integrating insights from the fields of cognitive science, psychology, sociology, behavioral science, linguistics, and consumer science, organizations can profoundly enhance the learning experiences of their employees.

This, in turn, boosts the overall effectiveness of training programs, equipping individuals with the skills and adaptability required to thrive in their roles. As we continue to implement the findings of learning science, we pave the way for more innovative, impactful, and transformative learning solutions that benefit both individuals and organizations alike.

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