Course Design Formula: How to Teach Anything to Anyone Online

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154 Highlight(s)

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The end product of an online course is learning.

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What I learned, the hard way, is that you can't just take an effective offline course, digitize it, and end up with an effective online course.

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Teaching is an art, a science, and a skill. It takes time and training (and some might argue, a degree of inborn talent) to be a great teacher.

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In other words, don't mistake the form or format of your course for its substance.

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"Digital Natives, Digital Immigrants," Mark Prensky makes a critically important point: Many of those designing instruction today have been shaped by a world completely different from the one their students live in.5

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As educators, we need to design and deliver instruction that captures and holds student interest.

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The Human Cost of Poor Instructional Design In his wonderful book The Design of Everyday Things, Donald Norman points out that when something doesn't work right, we as users of that object or device tend to blame ourselves.8 We assume the item is fine and there's something wrong with us for not being able to figure out how to make it work. But that is often not the case. Often the item really is poorly designed.

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Good instructional design is what makes the learning that creates the promised transformation, possible.

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What made the difference? Your teacher. The key factor in making an educational experience great for your online course participants is also you, the teacher. With online learning, you have the opportunity to reach your learners directly, one on one.

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People come to school, whether online or offline, to make their lives better. The students who are facing the most challenging circumstances are the ones who most need what you have to offer. As an educator, you are a point of light, drawing your students towards a greater light. The soundness of your instructional design is what determines whether your students will or won't be able to reach that greater light of new skills, new opportunities, and new understanding.

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The future of civilization depends on the transmission of knowledge. The transmission of knowledge is happening, to a greater and greater extent, online.

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At a biological level, learning is the process of adapting to our environment in ways that promote survival, which means that learning is the most important activity that any living thing can do.

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It takes less mental effort to learn something new if we can relate it to something we already know.

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What prior knowledge must your course participants have, in order to be able to take in, process, and store the material you're sharing with them?

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Do they already have the schemas they need, so you are now just going to help them put some additional new information into their existing mental storage bins?

Or are you going to have to help them build entirely new mental storage bins from scratch (which takes more work on the student's part and more guidance from you)?

We have to build schemas ourselves. Learning is only effective when we build our own mental containers to hold new information, label those mental containers with labels that make sense to us, and then store them in a way that will help us find them again.

From the learner's perspective, there is a difference between learning something and simply being exposed to information.

The parents knew where to find the information but did not have to process it until it was needed, at which point it became a priority for them. Putting only the most critical information on the cards worked with, rather than against, the limits of their short-term memory.

Teaching Means Arranging a Series of Events That Promote Learning

In The Essentials of Learning for Instruction, educational researcher and theorist Robert M. Gagné, Ph.D., defines instruction as the "arrangement of external events to activate and support the internal processes of learning."3

The things that a design situation allows the designer to do, are called affordances. The things that a design situation prevents the designer from doing, are called constraints.

A decision you will need to make is: do you want your students to interact with each other in your online course, or only with you? Or do you only want them to interact with the course materials, and not with other people at all?

From a student's perspective, participating in a video conference or watching a recorded one does not have the same immediacy as attending an in-person lecture, workshop, meeting, or class. It can be extremely boring, and not at all useful, to watch or listen to a recording of other people exchanging pleasantries and addressing questions that are not directly relevant to the subject matter—or not of interest to you personally. What works in a live, synchronous session may not work as well once a recording of that session is put online.

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Creating an archive of FAQs for your students' future use is an example of how you can turn a constraint (the lack of direct face-to-face interaction) into something that works better online than off.

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The best time and place to do this is at the very beginning of your course. You can provide a downloadable PDF of the course schedule, with boxes students can check off as they complete each lesson. This can be printed out and placed on the refrigerator, a mirror, bulletin board, notebook, or somewhere else the student can see it.

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If we haven't stepped outside our comfort zones and changed our brains, we haven't actually learned anything new, we've just been exposed to information.

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Making Your Course Easy to Understand: Cognitive Load Theory Learning anything new, at any age, has a certain amount of difficulty built into it. That's because when we learn something new, we are actually changing our brains. And the brain, like everything else in the world, resists change.

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In order to overcome the challenges posed by high intrinsic cognitive load, you have to be highly motivated to learn the subject matter. A strong motivation will enable the learner to persist long enough and effectively enough to learn the material, even though the material is naturally difficult.

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In order for learners to effectively build new mental muscles, they must be actively engaged in mental work.4

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Your online lessons need to keep learners focused, interactive, and alert, so they don't get too bored, distracted, or lazy to move and store the new material you're presenting them with. This is where the real art and science of teaching comes in, especially online.

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The challenge in managing cognitive load is to maintain the delicate balance needed to nudge learners out of their comfort zone without overwhelming the limits of their short-term memory. You can lose the learner in more than one direction: into boredom, into overwhelm, or into over-involvement with an activity that is not essential to learning.

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Lower-order thinking skills include remembering, understanding, and applying what was learned. Many lessons, both on and offline, don't go beyond that point. But to truly engage the learner and make sure the subject matter has been permanently stored in long-term memory, it's important also to include higher-order thinking skills. Higher-order thinking skills include analyzing new information, evaluating it (or using it to evaluate other things), and finally, creating something new that demonstrates the learning that has taken place.

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The factors that determine how you build your course must be the requirements of human learning, not the requirements of your media or course platform.

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The media in your course should be the result, not the cause, of your design plan for how people will learn what you're trying to teach them.

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The specific type of transformation you want your course to deliver will be one of five possible types, which relate to Gagné's five domains of learning.

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the domains of learning later in depth, but if you're eager for a sneak peek, they are: Verbal information. Attitudes. Cognitive strategies. Intellectual skills. Motor skills.

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Step 1: Get Clear on the Transformation Your Course Delivers

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The purpose of an online course is to deliver a specific transformation.

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The first thing you need to do in order to be sure your course delivers the transformation you promise, is to be very clear on what that transformation is.

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Everything you'll do to design your course depends on getting the answer to this one question right. Ask yourself: What will my course participants be able to do after completing my course that they can't do now?

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Cognitive strategies are methods for learning how to learn.

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Gagné points out that cognitive strategies can help us learn how to do one particular thing, or can have broad applicability to all kinds of learning.4

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There are three phases to learning a cognitive strategy: understanding the strategy, practicing it, and observing its effectiveness.

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Gagné points out that in such cases, the broader type of cognitive strategies (which he calls executive strategies) are developed over a long period of time, rather than learned quickly all at once, like the more specific type (which he calls task strategies).6

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Gagné points out that teaching attitudes differs from teaching other kinds of material, because attitudes have more to do with feelings and behavior than with intellectually based information.7

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As I understand it, a key factor in choosing to adopt a new attitude is indeed that it is a choice: the learner's own choice. Attitudes that are forced on a learner are not really learned; they are simply imitated or faked (as any parent who has ever said "Tell your brother you're sorry!" can confirm).

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The art in teaching attitudes consists in helping learners become aware of the attitude you want them to adopt, helping them understand the long-term benefits that adopting the new attitude

holds for them, and helping them experience positive effects over time as they choose to adopt that new attitude.

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One way to provide support for attitude learning is to set up a sequence of lessons where you consistently help the learner practice and reinforce the target attitude and its resulting behaviors, including support and guidance for dealing with any slipups or setbacks that arise along the way.

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Really learning a new attitude can be hard, especially for adults who have had more time than children to get set in their ways.

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In order to teach attitude change, it's important to: Identify the desired behavior. Demonstrate the desired behavior. Reward the desired behavior. Provide opportunities for learners to practice the desired behavior.17

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You might wonder about the emphasis on intellect in teaching how-to skills. I mean, isn't this area of learning more focused on doing things, than on thinking about them? Aha! That's just where it gets interesting. Because in order to do something, in the how-to sense, you first have to understand exactly what it is you are doing, what (or who) you are doing it to, and under what conditions you are doing it . . . in the intellectual sense.

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Teaching intellectual skills involves four main steps.24   1. Teach the discriminations the learner needs to know in order to apply the rule. 2. Teach the concepts the learner needs to know in order to apply the rule. 3. Teach the rule. 4. Teach any exceptions to the rule.

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For motor skills, if you can't perform the action or sequence of actions skillfully and automatically without having to stop and think about it, you haven't yet learned the motor skill.

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When teaching a motor skill, feedback should be immediate: provided as soon as the learner has performed the movement routine.

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If your goal is to teach motor skills and you are teaching online, it is important to be clear about the parts of the learning process you can and can't teach entirely online.

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It is particularly helpful when teaching motor skills to provide learners with an example of what correct performance looks like.33

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But it cannot be emphasized enough that the only way you can actually learn a motor skill—as opposed to just being exposed to information about it—is to physically practice the actual movements that make up the motor skill, over and over, in the actual physical world, using your actual physical body.

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Current research suggests that simulation-based training is important and helpful for learning motor skills although it cannot replace actual training with real patients in the real world.35

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When you present your instruction to your learners, you will present it differently if you are teaching an attitude, a cognitive strategy, a motor skill, and so on.

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The nine events of instruction remain the same no matter what type of learning you are presenting. But when you get to Step 4, "Present the Instruction," you will present the lesson material differently based on the domain of learning for the specific lesson you are teaching.

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A skilled practitioner, whether educational or medical, needs to know how to help you move from your "before" state to your desired "after" state in a way that is relatively painless. In fact, the art of truly skilled teaching involves knowing how to help the learner get from their starting Point A to their desired Point B while experiencing a sense of enjoyment and excitement along the way.

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Everything they need means: the prior knowledge necessary to allow the new information to be processed and stored in long-term memory.

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Event 1: Gain the Learner's Attention

So, how do you get your learners' attention? At the level of your course as a whole, one way to get their attention is through proper use of search engine optimization (SEO) and digital marketing techniques. You want your course to be visible to and gain the attention of the people you created it to help.

Event 2: Tell Them What They Will Learn in This Lesson

One way you can simultaneously gain learners' attention and tell them what they are going to learn is to present a short, self-scoring online quiz or challenge inviting them to perform the skill they will be learning about in this lesson. Examples: "Can you stand on one foot for two minutes without losing your balance?" "How many of the capitals of Europe do you know?" "Do you wish you could balance your checkbook in your sleep?" "How fabulous would it be to lose weight and keep it off, without feeling hungry?"

Event 3: Help Learners Focus on Their Prior Relevant Knowledge

Having the right prior knowledge is the single most important determinant of how easily and well someone will be able to learn something new.

A lot of the art of teaching so that people really learn resides in correctly identifying the prior knowledge your learners need, and then ensuring that they have it.

The way to do that is to start with the course goal (what will your learners be able to do after taking your course, that they could not do before?) and work backward step by step to be sure you are very clear on all the prior knowledge needed for each lesson.

Pink highlight

The sentence above is called a student learning objective or instructional objective. You can create your own student learning objectives using this handy Mad Lib®-style student-learning-objective generator that I've created just for you. "Given _____, students will be able to _____ to _____ standards of achievement, as demonstrated by _____."

Effective teachers make sure they have the students' attention, make sure their students are clear on what they are about to learn, and make sure students can access relevant prior knowledge needed for the upcoming lesson. Once all that has been taken care of, it's time to move directly into actually teaching the lesson. Both your students and you will be primed and ready to do so!

Event 4: Present the Instruction

The goal of your online course is to create light-bulb moments. (Source: Getty Images)   For all true educators, this is why we teach. This is what we live for.

Event 5: Provide Guided Practice

Lower-order thinking skills include remembering, understanding, and applying what was learned.

But to truly engage learners and make sure the subject matter has been permanently stored in their long-term memory, it's important also to include higher-order thinking skills, such as analyzing the new information, evaluating it (or using it to evaluate other things), and finally, creating something new that shows the learners they've truly achieved their learning goal.

Providing guided practice to your students is important for solid learning. You want to be sure that as they start using the new material you've just taught them, they do it right. It's important not to allow them to reinforce mistakes accidentally.

Event 6: Help Learners Perform on Their Own

The point here is to carefully structure an activity that forces your learners to use the new information you presented in your most recent lesson, on their own, without guidance from you. In

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Steps to Take After You Present the Instruction (Events 7–9)

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They need feedback and guidance on how they are doing and on whether corrections need to be made in their performance of the learning task. They also need some kind of objective assessment to let them know where they stand. And finally, they need help in taking what you've taught them out into the real world and using it—applying it in various situations or under various conditions.

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Event 7: Provide Learners with Feedback on How Well They Did

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some way for learners to know whether they've achieved the learning objective for that lesson. (In order for them to achieve it, the lesson must have a clear learning objective to begin with!)

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The purpose of feedback is to let learners know whether they are on track to achieve the learning goal.

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Feedback is related to assessment, but the two are not exactly the same. Here's a simple way to think of the difference: Feedback lets you know how you're doing, while assessment tells you how you did.

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You can use a type of assessment as a way to provide feedback while a course is in process. That type of in-progress assessment is called formative assessment, while the final assessment at the end of a course is called summative assessment.

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It is a general principle of good instruction that the more immediate the feedback, the more helpful it is.

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If the nature of your subject matter allows it, you can provide your learners with immediate feedback after every lesson or even after each piece of content within each lesson, by creating a short (one- or two-question) self-scoring, no-credit quiz. This will provide immediate feedback without you, the instructor, having to be directly involved. This is one of the truly fantastic affordances of the online-learning medium, so use it to your, and your students', advantage.

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Providing feedback is important not only for student success, but also for student satisfaction with your course.

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A key to providing effective and satisfying feedback is to make it encouraging, performance-based, specific, timely, and clear. For a preschooler doing a painting, saying, "The way you made the sun bright orange makes me feel so warm and happy" provides more useful feedback than saying "That's pretty!" or "I like that!" or "You're such a good painter!"

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For college students and adults, find out what their goals are for why they are pursuing the course of study. That helps align feedback to the reason they are taking the course, making it more meaningful to them. It's not one person "judging" another, but rather someone they have selected to help them achieve their goals, providing helpful information as to how they are doing on achieving those goals.

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Event 8: Help Learners Assess Their Learning and Performance

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Rubrics. In creating assessments for your course, it's important to be clear on the exact learning you are evaluating. The best way to clarify this, for yourself and your learners, is to create a rubric. A rubric is a chart that lists the skills you expect your learners to develop, the behaviors you expect them to exhibit, or the activities you expect them to perform. To set up a rubric, create a document with rows and columns giving you a series of boxes. A table that you can create in a text document works very well for this. I've created a blank template you can fill in to create your own rubric. You can download this on my website (see "Next Steps").

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Usually, in an online class, peer assessment would involve the learners' classmates, rather than family and friends. But since pleasing family and friends was a built-in feature of the learning objective for this course, this is a valid peer assessment in this case.

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Be mindful, however, that students often do not find peer assessment an adequate substitute for the type of response they are hoping to get from their instructors.6

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To assess an attitude change, you will have to observe the learners' behavior over a long period of time. (They can't prove they've changed their attitude about smoking by simply saying so. Others have to be able to observe that they no longer smoke, for a long period of time.)

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Your final assessment for any learning activity needs to refer back to the learning goal for that activity, so that you and your learners can know that they have actually learned it.

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Event 9: Help Learners Expand on What They've Learned so They May Use It in Other Contexts, Beyond Your Course

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In order to really cement learning and anchor it to the student's life beyond the classroom or online-learning space, there is an additional step that Gagné observed in the lesson-planning repertoires of excellent teachers. The ninth step of instruction involves helping students consolidate and expand on what they've learned, by applying this new learning to the broader context of their lives.8

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Keep your media decisions focused, relevant, and tight. The media is there to deliver the content to the learner's brain, not to be flashy in and of itself.

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All of his principles are focused on the reduction of cognitive load needed for various kinds of mental information processing. Mayer identifies extraneous processing as mental processing that is not essential to attainment of the learning objective.3

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To reduce extraneous processing: Eliminate extraneous material. Highlight essential material. Place printed text next to the relevant parts of a graphic. Present graphics and the words that describe them at the same time.   To facilitate essential processing: Break down narrated animations into learner-paced segments. Provide pre-training on the discrete elements of a complex animation.   To encourage generative processing: Add appropriate graphics to text. Use a conversational rather than formal style.   Some additional multimedia guidelines from Mayer and others8:   Limit the amount of new material presented at any one time. Use appropriate graphics with text. Avoid extraneous graphics and text. Allow the learner to control the pace of instruction.

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The planning you've put in up front will save you time and trouble as you build your course, because you'll be sure you are creating the right content in the right sequence and using the right media to produce the transformation your course promises. But for your course to be most effective, there are even more factors to consider before you start to build it.

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In other words, the way you "package" your lesson should be intriguing enough to get your students to open the package, but not so intriguing that they spend all their time playing with the packaging while ignoring what's inside the box.

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Three Factors to Consider That Motivate Online Learners

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1. When considering a learner's motivation for online learning, it's important to recognize what other options they have for learning the same material.

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Just by being able to study the traffic school material online and not in the real world, I already felt very lucky. I was happy to be in the online class because the alternative was a lot worse.

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2. When considering a learner's motivation for online learning, consider how important and how urgent the learning goal is to them.

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Curiosity about the subject matter is an important factor, but it's only one of many.

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What does this tell you as an online course designer? It tells you that no matter how well you design your course, and how many students you sign up because they are motivated and interested in learning the subject matter, you will see a higher rate of course completion if the topic is both urgent and important to your learners. In other words, before you spend a lot of time preparing even the tastiest well-seasoned food, be sure people are actually hungry enough to eat it.

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3. When considering learner motivation, consider how much time and effort it will take before learners experience achievement and rewards from taking your course.

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The hieroglyphics course, on the other hand, didn't help me solve a problem. Instead, it showed me that I had a problem.

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What can we learn from this in designing our own online courses? Clearly, if your course solves an urgent and important issue in your students' lives, they will be more motivated to complete it than if it does not. But any issue is going to be urgent and important to some people, while not to others.

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But self-improvement, even if it matters to us, is hard. Real learning requires effort and actually changes our brains. And it's only natural that people resist change—even changes they've signed up for, paid for, and sincerely want to make,

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Gagné also further elaborated on the ARCS model of motivational factors originally developed by J.M. Keller. The acronym ARCS is short for attention, relevance, confidence, and satisfaction.4 Gagné's recommendations based on that model include5:

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Make Your Learner the Focus as You Design and Build Your Course

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It's important to learn how to use the technology, of course, but it's even more important to understand how your course participants will interact with and learn from the online course materials you create—and what you must do to ensure that they learn from them.

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As human beings, we exist in multiple dimensions: physical, emotional, social, intellectual, aspirational, and spiritual. Although online learning mainly engages your learners' minds, the other dimensions of their being are also present while they are interacting with your course.

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Use simpler, rather than more complex types of media in order to reduce extraneous cognitive load.

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If you want your learners to pay attention, you have to show them that what you have to offer deserves their full attention. If

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the more options you give your students for accessing the material, the more you allow them to learn best according to their individual differences.

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Ideally, it will become second nature for you to create a transcript of every video you make and also save it as an audio file for MP3 playback.

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There are three important questions to consider when it comes to designing e-learning for different learning styles.   1. What is the best way to present the material itself?

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2. What is the best way for you, as the course designer, to present the material?

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3. What is the best way to create the course, given the online platform you are using?

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In addition to keeping cognitive load low for your human learners, it's important to keep the technology load low for the equipment they are using.

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The specific ways that will be included in your course depend on the specific nature of your subject matter. Designing your instruction in ways that use multiple intelligences will make your

online course meaningful and memorable for your students and will make you truly stand out from the crowd as a skilled online course designer.

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The taxonomy organizes thinking skills into two major groups: lower- and higher-order thinking skills. "Bloom's Digital Taxonomy" specifically applies Bloom's taxonomy to e-learning.[12]

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lower-order thinking skills include remembering, understanding, and applying what was learned. Many lessons, both on and offline, don't go beyond that point. But to truly engage the learner and make sure the subject matter has been permanently stored in long-term memory, it's important also to include the higher-order thinking skills: analyzing new information, evaluating it (or using it to evaluate other things), and creating something new that demonstrates learning has taken place.

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A wonderful tool for checking the accessibility of any URL is the Wave Web Accessibility Evaluation Tool from WebAim.org. (see "Resources").

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In a face-to-face setting, learning occurs in two directions. The teacher provides the students with instruction, and the students provide the teacher with feedback about how the instruction is going.

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The drip feature puts control of the pace of instruction in the hands of the teacher, not the student. This directly violates one of the best practices for online learning in adult learners, which is to allow the learner to control the pace of instruction.[10]

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The assumption behind dripping instruction is that the student needs a certain amount of time to complete each lesson, and therefore the next lesson should not be released before that amount of time has passed. However, some students are fast learners who are highly focused and engaged. Forcing them to wait for the next lesson only serves to dilute their focus, interest, and momentum toward completing the course.

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It does not (except in a few specific types of situations) make sense to release lessons based on how much time has passed.

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But as a general practice, many adult learners will not be able to consume a course in the way that works best for them if a time-based drip feature is used.

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As teachers of adult learners who are taking a course of their own free will, we are not policemen, we are partners in their learning journey. Our job is to structure that learning journey effectively, and then support them as they navigate it according to their own interests, autonomy, timetable, and skills.

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Just as too much of the teaching focus online today is on making money, too much of the feedback request focus is on getting testimonials. There is nothing wrong with either making money or getting testimonials, but neither should be the main reason for getting feedback. The main reason for teaching is to help your students learn, and the appropriate main reason for getting feedback is to make sure that they are in fact learning.

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That approach, however, does not work to create an effective and engaging online course. It is a slow, tedious, and time-consuming process that leads to poor results.

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This correlates with multimedia best practices described by Ruth Clark and Richard Mayer, emphasizing that all media included in a course must serve an educational, rather than a purely decorative purpose.5

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In order to help others learn the skills you have mastered, you have to outline your course from the learner's perspective, rather than from your own.

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Are you starting to notice a pattern? I did. I started to notice that the various failure points were often caused by including things in the course that did not lead directly to the course's learning goal.

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You can't just digitize classroom-based instruction and get an effective online course

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Your online course must be the solution to a specific problem that people care about solving

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Your course must have a single clear, specific, overarching learning goal You must understand what's fundamental to making your course effective You can't outline your course as if it were a talk for a lecture or presentation Everything in your course must lead directly to the course's learning goal.

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The purpose of this book is to help you be that teacher in your students' lives: the one they look back on, even many years later, and remember with gratitude, because you truly changed their lives. Because you truly helped them achieve goals that mattered to them. You will have been able to do that because you understand what it takes to be a transformative teacher.

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Warm, fuzzy design techniques (such as going with the flow and following your gut) may feel creatively satisfying to the course creator, but they do not lead to good learning outcomes for the learner in the long term.

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Digital media may afford us the ability to do certain things. But we should only do those things if they help human learners achieve the course learning goal. The purpose of your course is to help humans achieve a specific transformation. This means that your course must be designed based on how the human brain processes information.

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The true art and skill that master teachers possess is the art and skill of seamlessly structuring learning in a way that unobtrusively leads the learners to discover answers or develop skills for themselves.

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they are fundamental to how the human brain takes in, processes, and stores information. These rules are fundamental to how deep learning occurs. Technology is evolving at a rapid rate, but we're not. And when designing for human learning, it's the constraints of human intelligence (not the affordances of artificial intelligence) that matter. Technology must serve the requirements of human learning if an online course is going to achieve its goal, which is to help people actually learn.

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so utilities rely on redundant systems, which means having backup plans and extra equipment so that if any particular piece of machinery or part of a process is not working, there's always a workaround readily available. What redundant systems mean for your online course is that you should have multiple ways to connect and communicate with your course participants and convey your course content to them.

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Remember this underlying principle: just because you've said something (or written it) does not mean that the information has been taken in and processed by your course participants.

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On the one hand, learners must be able to maintain a sense of safety and self-esteem in order to be ready to learn anything new. (That includes you, as a course creator who is learning from your students about ways you can improve in your course). The positive feedback (the "bread" in the sandwich) helps people feel ok about themselves and gives them the security to be ready to hear what they can do better. Learners do want to improve, and genuinely need to hear what they can do to achieve that. The constructive criticism (the "meat" in the sandwich) addresses that second factor by helping learners improve and grow.