Joanne B: [00:00:00] good morning and welcome to the leaders and learning podcast by blue consulting and resourcing the place to get up to the minute information for cutting edge learning design. Today we have with us, Dr. Max Cropper. He is a good friend of mine in someone that I have worked with since his grad school days who has extensive background in instructional design.

We're glad to have you on the show. Max. Welcome.

Max C: [00:00:27] Glad to be here, looking forward to it.

Graham E: [00:00:31] And also Max, you and I have worked together in the past as well. And I know you've got a huge instructional design background, but particularly in the virtual world, virtual training, you've done a whole raft of things in that space.

Haven't you.

Max C: [00:00:48] Yes, I've, done a, quite a bit of online instruction. I've done some webinars and some other podcasts and these sorts of things. And obviously the, you know, the virtual training approaches become a reality that may, you know, may remain for many years,

Graham E: [00:01:08] but the new norm, as they say, yes.

Max C: [00:01:11] Okay.

Joanne B: [00:01:12] So we're saying Max, that there are some really big differences between the virtual learning and the classroom learning. And we're interested to know what you've been noticing in these changing times.

Max C: [00:01:27] Well, I, I think the biggest challenge is not. The difference between face to face and virtual training.

although that is a big challenge and there is a big difference, but ultimately, it's very rare that best instructional practices are applied either face to face or online. And so, I think one of the interesting experiences I had is coordinating the curriculum development for an executive leadership development program for the office of the secretary of defense.

We had 64 civilian leaders from all the departments in the military, and we had very intense activities and role-plays. That we had those people do. we were in a nice setting where we could have them do outside and inside active. and now those are all virtual I have some kind of tact with the facilitator that still facilitates that leadership.

And it's more difficult to do those virtually one of the role plays we did was a, budgeting activity for the Navy and different people represented different departments of the Navy.

Now they have to do that. If they're doing that, they have to do it online. And so you have to be thinking about, okay, how do we do it virtually versus in a classroom they're face to face, they have whiteboards.

And, but you can actually still do a lot of things virtually. And so it's just a matter of saying, okay, what are the best practices? For the, training and the application. And how do we do that virtually?

Joanne B: [00:03:09] What do you think the biggest challenges when you are converting that face to face activity to a virtual training environment?

Max C: [00:03:19] Well, I think the biggest challenge is to, keep your strategy sound. And then you have to look at the media and say, okay, how are we going to do this? Are we going to do breakout rooms? How are we going to do the breakout rooms? Are we going to get to give people a week or two to work on this activity and have them kind of partner and group together and work together?

So I think the biggest challenge is saying, okay, how are we going to do this virtually what can be done online? What. It needs to be done offline and then come back together online. And so I think it's just saying, okay, what are the best practice instructional practices? And then how are we going to implement those online?

Joanne B: [00:04:01] So if you focus on the strategy, that's going to support the learning outcome, whether it's virtual or face to face doesn't sound like it makes that much of a difference.

Max C: [00:04:11] Well, it does, but it doesn't. Because ultimately if you're saying, okay, what is a, you know, I teach, marrow's first principles of instruction.

And ultimately we're saying, okay, how are we going to, how are we going to demonstrate these real world tasks? And then how are we going to have them apply these real world tasks and scenarios? And the demonstration is the easy part, because you can do video, you can do live demonstration, but application, what do you do? Do you have them apply it in video, their application? can they do it virtually online synchronously? And so, the application. It is the real key. And what's really sad is, most online courses. The application is a few true false questions. You know, they get some, instruction, usually it's information only instruction, true false questions.

And that's a certification course. instead we should be showing real world tasks and then having them apply those real world tasks.

Graham E: [00:05:21] And Max, you said something very interesting a little bit earlier when you were talking about, at certain points, you perhaps need to go offline as it were. And, I want you to talk a little bit more about that because.

One of the problems that I think a lot of the people listening to this podcast face is that the programs that they're trying to take into a virtual world are very lengthy they're eight hour

days, and sometimes multiple days. What would be your advice in that kind of situation, Max?

Max C: [00:05:58] Well, I think you have to give people time to, to apply.

And, so if you can apply in the virtual setting and do role plays great, but if they need to, I worked for the department of transportation for a while for the, safety division, for the large, trucks, semi trucks and buses. And, how are you going to have them practice? I mean, we gave certification tests, that the officers, the highway patrol men had to pass.

Cause they're the ones that inspect, make sure these trucks are traveling safely, but for application, they've got to inspect the projects. And so do you have a supervisor, you know, that's gotta be done on site offline. And so do you have a supervisor do a checklist? Do you have them video and do a video as they inspect the truck?

Say, okay, I check this and I check that. And so, ultimately, whatever it is, you have to figure, well, can we have them apply that, In class offline in groups between large group sessions. So really it's just a matter of saying, okay, what's the best way to have them practice and , where and when and how,

Graham E: [00:07:09] But in, in that kind of way, signs, like you could see maybe an eight hour virtual classroom having some fairly large chunks of time when people are learning and doing something, but they're not physically in that virtual classroom.

Max C: [00:07:25] Absolutely. Yeah. And the virtual classroom might be spread out. It might be two hours, one week and a couple hours the next week. And because ultimately what we're interested is in learners and employees performing, performing significant real-world tasks and it's. The instructor performance is only beneficial to the client that it, you know, they help the learners achieve that optimal performance.

Joanne B: [00:07:56] Yeah. It sounds like the key here is to make sure that that performance level is met and it's not always in doing the thing that is easy in a virtual environment. It's important to do what the right thing is for the learner.

Max C: [00:08:13] Absolutely. And, one of the biggest challenges and maybe the most important, yes, is to identify the real world tasks that you want the learner to be able to perform that the employee needs to be able to perform and, and the various scenarios, the variations of those tasks that they need to be able to perform.

You know, whether it's, Creating business plans, whether it's creating a business profit loss statements. However complex. The important thing is that you identify well, what is it? They really need to be able to do that they can't currently do. And then, then you figure out, okay, well, how are we going to demonstrate that virtually?

And how are we going to have them apply that? Cause you may have showed them how to do it. And then they work on it for a few days or a week, and then they come back and maybe they share. their business plans or their profit loss statements and maybe they share them with each other and maybe they give presentations online.

whatever you decide is the most important way to, to show their application and to review it. But, the key is to figure that out. What's, what's going to be the most effective way.

Joanne B: [00:09:21] Talk to me a little bit about how you think virtual training is going to change over the next year or so. Help me forecast what you think. Instructional designers today really need to be paying attention to as they upgrade their skills.

Max C: [00:09:41] Well, what, what is going to be done and what needs to be done are two different things.

Because, most, virtual instruction there are a lot of webinars going on and for the most part they're information only, they include some examples, some limited demonstration. And so, they have questionable value. but what should happen? Start applying Merrill's first principles of instruction.

and, and I say that that's kind of not fair because there are many other great instructional design theories, but somehow he's boiled down. What I think are the most important principles. And that is to teach with real world tasks, real world scenarios, so that people will be able to apply those real world tasks, , be able to perform those tasks and, deal with the real world scenarios.

And so how to, transition people. I'm not quite sure. I think we just have to continue to educate them, teach them the best practices. Some people have figured out, Oh, we need to do experiential learning, but they haven't quite figured out. How to identify the optimal experiences, optimal tasks.

And so they're getting closer. We had a program manager at the department of defense that had figured out that we needed to do experiential learning, which was really helpful to us because then we were able to create these creative roleplays and activities, but, That's easy to do face to face.

Very few people have figured out how to do that, for sure. Totally. And so, so we need to somehow I guess really educate people that you're not going to quit going to get good results unless you use core instructional strategies.

Joanne B: [00:11:27] Now that's a really good point, mags about getting good results.

I think in our rush sometimes to put training out there, there it's face to face or virtual, just on getting the learning packaged and sent rather than is it going to change behavior and going to lift performance and get results?

Max C: [00:11:51] Yeah. And I think, as much as I love training and development training is optimal when, you use test centered instruction and it's really only needed when people lack the knowledge and skills, but there are, many other factors.

That influence performance. So right now you have organizations that are struggling to remain profitable. They're having to change how they provide products and services.

They've have had to change how they deliver those products and services. Employees are working from home and they're struggling through all these challenges.

And so ultimately they may have to change their products and services. They may have to change their strategy. They may have to change their goals and. They may have to change how they motivate employees and hire and motivate and enable employees to do their job. And so there are many factors that influence performance and training has just become saying, okay, now we've got to train on.

And, and so they have webinars, you know, a few develop, you know, online, asynchronous instruction. But mostly it's throwing out information, but ultimately you need the best practices for all of the performance factors, including your training and, it's not happening. And so somehow we need to educate people.

That's what I'm trying to do.

Joanne B: [00:13:23] I'm really impressed with that, man. I'm impressed with Graham too. Yeah, we'll cut that bit out.

Graham E: [00:13:32] What you're describing here is a lot, a lot of things to be done. And a lot of people listening into the podcast here are the kinds of people who right now are being asked to create virtual learning and to do that quite quickly, under some pressure, having learned what you've learned and been through what you.

Being through. What kind of advice would you give to people what's the top kind of tips and advice you can give to people face with that challenge?

Max C: [00:14:05] Well, I have a few papers on my LinkedIn site and soon there'll be on my website about first principles of instruction and, and Joanna and I have taught workshops on how to apply.

first principles and instruction, how to develop five star instruction. I teach a certification workshop, in which I teach how to design and develop, I've start instruction. So I think guide, you know, go to some of those articles. Some of those pages, Dave Merrill has a website and I have that, on my w on my LinkedIn site.

And so I think, also you and Joanne are pretty good at developing high quality instruction. So I'm sure you have some resources too.

Joanne B: [00:14:52] So Max let's dig in a little deeper because I think task centered is really good. Is it enough? There's a lot of folks out there doing task centered instruction. What would you tell them to sort of take their performance from average to impressive?

Max C: [00:15:10] Well, there, there are some subtle, additional. Keys to developing task centered instruction. One of those is to create a hierarchical task analysis or just a task analysis. what that does is you take a big task and you break it down and you identified the subtasks.

Well, by doing that almost automatically, you're going to teach the critical subtests that we're going to help them perform the whole task. Now, most people did not develop task analysis. They do, some type of content analysis, maybe at least a content outline. But if you do a task analysis and I teach how to do that, then.

You have a better chance of teaching all the subtests that are going to help them do the whole task. I developed a course for the veterans administration on tinnitus, which is a hearing disorder. And I created a task analysis and the big task is productors and audiologists and psychologists to treat tinnitus patients that have this ringing in their ears that doesn't go away.

And some of these people have serious emotional challenges. And so. we identified all of the sub tasks. these are smart people, but they maybe didn't have all the knowledge and skills to deal with tinnitus. These are doctors and audiologists. So ultimately you have to identify all of the subtests so that you can teach the whole task.

And then that way you can tend to teach tasks rather than topics. Which it's more typical, the teach topics and then say, okay, here's all the topics. Now we'll teach the task, but you know, this way you teach the topics with the tasks.

Joanne B: [00:17:04] And one of the key things for that is that it reduces the amount of time that they have to be in the instruction if you teach by, task rather than by topic, because they're getting the clues and the, triggers for what they'll actually have to do when they're performing the task and that increases application.

But how do you actually get them to do it and integrate it on the job? What are you setting up in the instruction? That encourages integration.

Max C: [00:17:36] Well, what I do, I have, a model. I call the events of learning and, Merrill assumes in his model, but people plan and implement this on the job. Right?

Well, I. make that explicit. So in the classroom, in the learning environment, I have them plan how they're going to, implement it on the job. I worked at Novell for awhile and was involved with training of network administrators, and they'd have experts at the front of the classroom, teach these network, administer how to.

Administer their network, and then they'd send them to the back of the classroom and they practice on some servers in the back of the classroom. Then they'd go back up to the front. They'd get more demonstration, they'd go to the back, get more application. But ultimately they had to plan how they're going to implement it on their version of the system, back on the job.

So if they plan how they're going to perform on the job, they have a much better chance of actually performing on the job,

Joanne B: [00:18:41] I really liked them. That's a great, a great way of approaching it. One of the things that we've found to be really successful at blue consulting and resourcing is to look at the barriers to performance and to actually integrate those into the course.

Why is this hard to apply? How are you going to overcome those barriers to integrating it on the job? When you make visible, then you have to address it.

Max C: [00:19:09] So one of the models that I've created is a comprehensive performance management model and, it addresses, a majority of major factors for, human performance.

and these factors include, factors such as commitment. Character competence, resources, standards, you know, vision, mission, strategy goals, standards includes evaluation of performance, includes, management and empowerment by management and includes a teamwork and also.

culture and attitude of the organization. And in the middle of that model, I've put lean process improvement because if you have a bad process, yes, or a bad system, it will sabotage all of the other factors. and it's a rare performer that can do optimal performance. and so ultimately, If you address all of these other factors as part of your needs analysis and how you're going to deal with them, you should have identified all of the obstacles and how, you're going to manage those.

And also, leadership is so important. I work with Kevin Miller of vision bound and he has a transformational leadership model and, Leadership is so critical to enabling all of these factors. So employees can achieve optimal performance. And of course, Graham, you, you have the what great.

Looks like program where, Performers identify what optimal performance looks like, but when you include that also then, you have the engine performing on all the pistons going and, and you get a really transformational, Organization

Graham E: [00:21:05] and Max, you said a little earlier that you got some resources on your LinkedIn page and information and material DNR there, but.

Max C: [00:21:15] Well, I have, I have a short paper on first principles of instruction. I have some information about my five star instructional design certification program. My workshop. I'll put my, I have a short paper on, the comprehensive, performance model. I'll put that on there. And, and then a link to Merrill's first principles of instruction.

He's always way ahead of us mentally, but Joanna and I try to simplify it so stuff so people can easily apply it. But Dave, facilitated a workshop with his last October, which was a brilliant experience. It's just amazing to have him there, but, we're trying to simplify it so people can easily apply it.

Joanne B: [00:21:58] That's a great point, Max. so to the instructional designers who are listening to this call, Max, they've got a 10, 15 minute training module that they have to put out today. How are, how can they apply the principles? They're not going to do a full task analysis or needs analysis for that short piece of instruction.

What can they do to apply the recommendations that you have suggested on the podcast?

Max C: [00:22:26] Well, if they can identify a real world task or real world scenario that their learners need to be able to, apply, our perform, and then come up with demonstration and application, of that real world task.

There'll be 80% of the way optimal instruction or 90% even.

Joanne B: [00:22:49] Well, and do you think they should add a scenario based questions rather than true, false, even multiple choice tied to a scenario so that that task and assessment is aligned?

Max C: [00:23:03] yeah. That approach a set or if they can figure out how to have them apply it in the real world or plan to apply it in the real world also, that'd be good, but yeah, scenario based questions Can be reliable and ballot.

Joanne B: [00:23:18] Excellent. So let me summarize, you saying, find a task, make it as real world as possible and tie your assessment to actually integrating it , on the job. And if they do those two things they'll have lifted the performance. Does that sound fair?

Max C: [00:23:33] Absolutely.

Joanne B: [00:23:35] Excellent. Well, we sure appreciate you joining us this morning, Max, you've been listening to leaders and learning design podcast by boot consulting and resourcing

a weekly podcast for cutting age learning design.

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5-Star Course Design: Applying First Principles of Instruction

Max H. Cropper, Ph.D.

Enabling Employees with Instruction

Instruction is a very important part of enrolling, enabling, and engaging employees. But don't forget to implement the other important factors for enrolling, enabling, and engaging your individuals and teams. They are equally important, or even more important than instruction.

Only when your individuals or teams *don't* have the necessary knowledge or skill to perform, they need to be enabled with instruction and training. If they don't know how to use a tool or a system, or they lack an important skill, you need to provide instruction and training.

Torture in the Name of Training?

But what has been your experience with instruction and learning?

Think of the best classroom instruction you have had. What made that instruction effective? Did it provide demonstration? Did it involve your participation, and include meaningful discussion and practice of important skills? Were you able to transfer your learning to work and life?

Then think of the worst classroom instruction you have suffered through. Was it primarily information-only lecture, or did it involve meaningless discussion? How did you feel about the experience? What did you learn? Was it torture in the name of training?

What about your experience with online learning? Have you taken any online courses that dramatically improved your knowledge and skills? If so, what made them effective?

What about ineffective online courses? What were their characteristics?

Unfortunately, many training developers are so focused on media and technology as they develop online instruction, that in many cases they forget about instructional strategies. They may believe that the technology or the media is the strategy.

So, if instruction and training are needed, how can you make certain that it is efficient, effective, and engaging?

Despite negative learning experiences you may have had in the past, you have the opportunity to incorporate best-practice training strategies in your own instruction.

Applying M. David Merrill's First Principles of Instruction

The best-practice core training strategies that I recommend are M. David Merrill's First Principles of Instruction, which use real-world tasks for demonstration, application, testing, and integration. Merrill's First Principles synthesize most instructional design theories and accommodate most learning theories. This means you don't have to look any further to find core training strategies that really work.

As you look at the First Principles of Instruction model, and review them, I think you will immediately see why they are so effective.
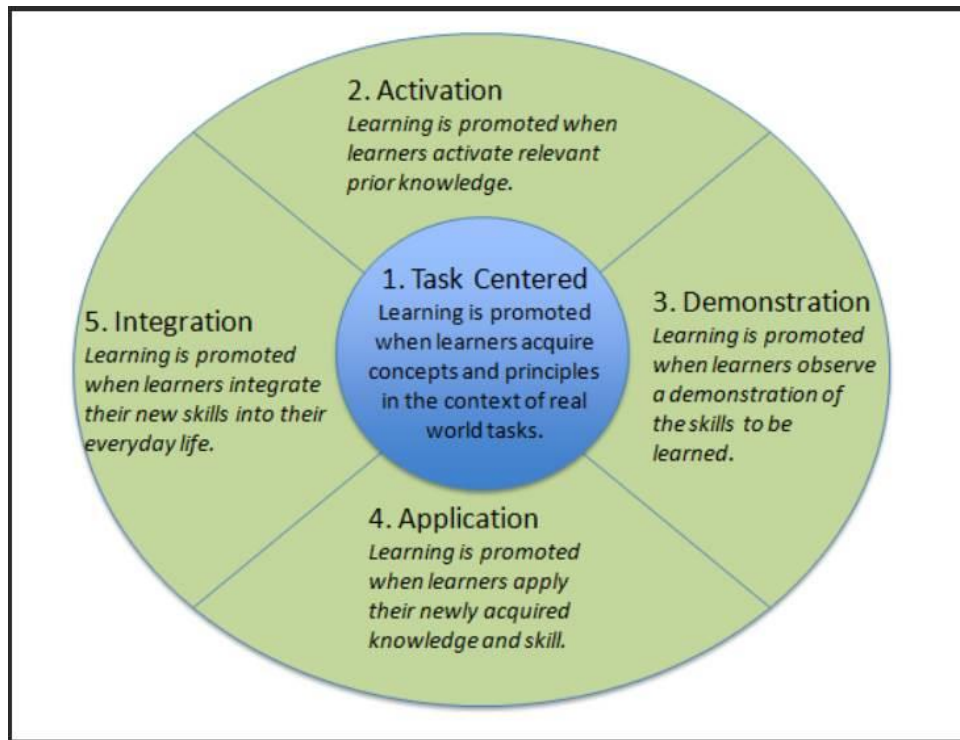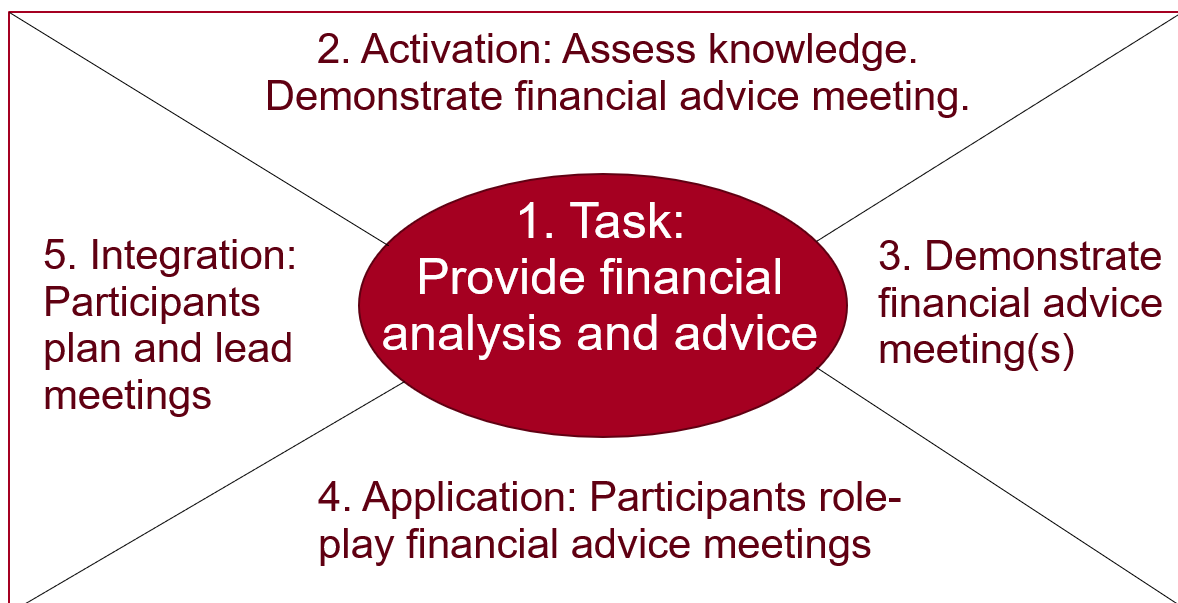

Merrill's First Principles of Instruction

1. The Task Centered component is located in the center of Merrill's model because it is central to the five principles, and is by far *the most important component* of the instruction. What does task-centered mean? It means to use significant, comprehensive real-world tasks, situations, and scenarios for demonstration, application, testing, and integration.

   I recently asked some instructional technology graduate students why it was so important to use real-world tasks for instruction. They gave me a deer-in-the-headlights look. I asked myself, "How are these graduates going to train effectively without using real-world tasks?" I explained to them that you must teach with real-world tasks if you want learners to be able to perform those real-world tasks in the workplace and in the real-world. If you don't teach with real-world tasks, you can imagine what happens. It is what happens with most training. No significant transfer. No significant improvement in performance.

Example: I recently helped with some training and certification testing for Wealth Advisor Associates who were in training to become Financial Advisors for Morgan Stanley. The real-world task was to meet with clients, provide an analysis of their financial situation, and recommend wealth-management and retirement strategies. With this real-world task at the center of the overall learning experience, the activation, demonstration, application, and integration would involve variations of this real-world task. See 1 Task, in the diagram below.

2. Activation includes finding out what the learner knows about the task (and what they know that isn't so), and providing an example of the completed task that they are going to be able to master. It is also important to provide a helpful framework for learning to perform the task. Example: Find out what learners know about conducting financial analyses and giving financial advice. Correct misconceptions. Show an example of an effective financial analysis and advice meeting, and explain that they will learn how to effectively lead meetings like these. See 2 Activation, in the diagram below.

3. Demonstration involves showing and describing how to perform a real-world task, while incorporating the framework for performing the task. Example: Demonstrate, describe, and discuss how to lead effective financial advice meetings. See 3 Demonstration, in the diagram below.

4. Application involves having the learner practice performing new variation(s) of the task, with diminishing guidance and coaching. Example: Have Wealth Advisor Associates role play leading effective financial advice meetings. Provide diminishing coaching. Then certify Wealth Advisor Associates with advanced financial advice role plays. See 4 Application, in the diagram below.

5. Integration includes having the learner plan, and then implement the real-world tasks in their everyday life. Example: Have Wealth Advisor Associates plan how they will lead effective financial advice meetings with actual clients. Then have them lead effective financial advice meetings with actual clients. See 5 Integration, in the diagram below.

Task-centered instructional design for financial advice meetings based on First Principles of Instruction

Can you see how simple this process is? Yet very few educators and trainers use First Principles. You can be in the forefront of instructors with your use of task-centered instruction.

Begin designing your task-centered instruction by penciling in the real-world task that you want to teach in the center of the diagram. Then pencil in appropriate activation, demonstration, application, and integration of real-world tasks. You will have the foundation for your task-centered instruction!

5. Integration	2. Activation
1. Task	
4. Application	3. Demonstration
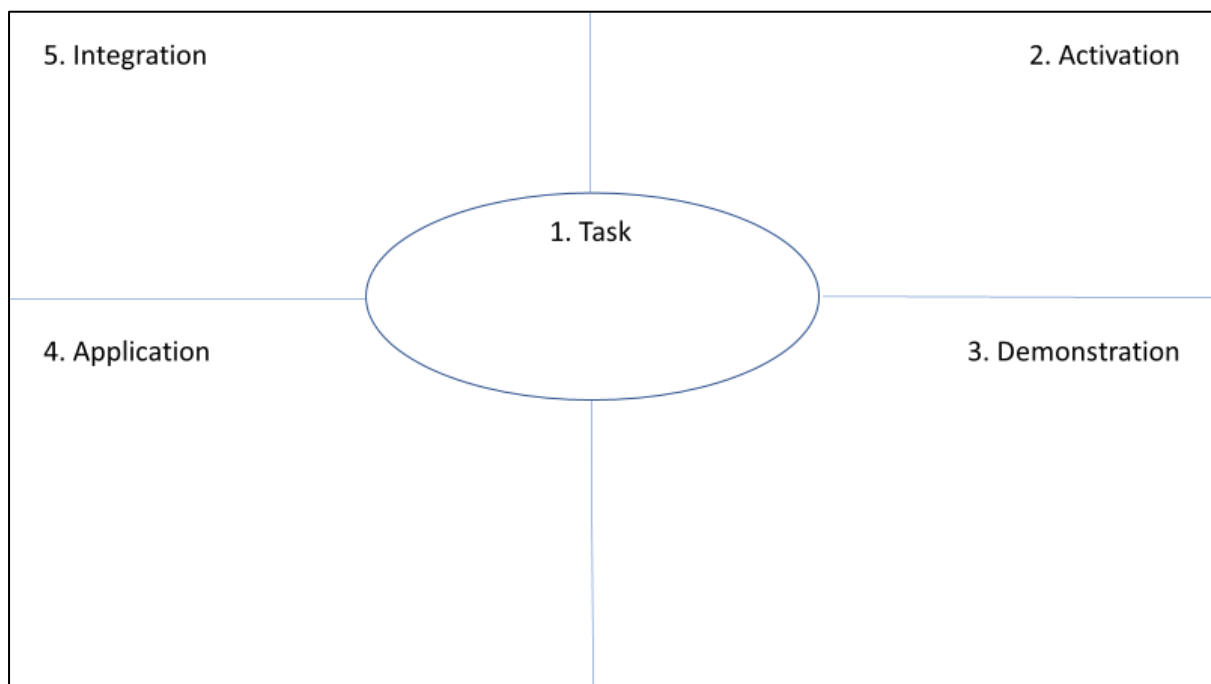
A Learning Organization

What we have discussed so far deals primarily with formal instruction and learning. But in a learning organization, all employees, teams, supervisors, managers, and leaders should take responsibility for their own learning and the learning of peers and subordinates. They should do this through formal and informal means, including mentoring, coaching, employee and career development, sharing and discussing best practices, and simply helping each other to learn and apply best practices. And yes, all of these efforts, formal and informal, should involve First Principles of Instruction, including activation, demonstration, application, and integration of real-world tasks.

Joanne Bentley, M. David Merrill, and Max Cropper after facilitating a full-day workshop on Applying First Principles of Instruction, Oct. 21, 2019, at the Association for Educational Communications and Technology Convention.

Evidence for First Principles of Instruction

Studies involving Merrill's First Principles of Instruction have resulted in renewed confidence in the effectiveness of Merrill's (2013) First Principles of Instruction.

A study comparing traditional computer-based instruction with instruction based on First Principles showed highly significant improvement in learning (Thomson, 2002). A synthesis of current research and instructional theory shows agreement on individual principles and a significant increase in learning (Merrill, 2002, 2006). Cropper, in a synthesis of decades of educational research, showed that individual principles of instruction increase learning significantly (Cropper, 2007). Course quality studies support First Principles as critical for course quality (Cropper, Bentley, Schroder, 2009). Frick found strong correlation between the use of Merrill's First Principles and student satisfaction and perceived and actual performance in the class (Frick, Chadha, Watson, & Wang, 2009) (Frick, Chadha, Watson, Wang & Green, 2010). Frick found a strong correlation between the use of Merrill's First Principles and instructor ratings of student mastery (Frick, Chadha, Watson, & Zlatkovska, 2010).

A dissertation study showed some correlation between student ratings and five-star rating of university courses (Cropper, 2011). In another dissertation study, the task-

centered group performed significantly better than the topic centered group after taking different versions of a Flash programming course (Rosenberg-Kima, 2012). In a study with a MOOC Plagiarism course, with a sample of 2,016 users in a graduate student group, participants who agreed that they experienced First Principles of Instruction and Academic Learning Time (ALT), were about five times more likely to be high masters than those who did not agree that they experienced First Principles and ALT (Frick & Dagli, 2016). Academic Learning Time (ALT) refers to the frequency and time students are successfully engaged in learning tasks that are aligned with assessments of learning achievement (e.g., Rangel & Berliner, 2007; Frick, et al., 2010b).

For more information about First Principles of Instruction see Dave Merrill's website: https://mdavidmerrill.wordpress.com/
For assistance with applying First Principles of Instruction, contact me at max@fivestarperformancesolutions.com.