

LESSONS LEARNED COMPARING THE ACADEMIC CURRICULUM HIERARCHY
IN PARALLEL TO INSTRUCTIONAL SYSTEMS DESIGN

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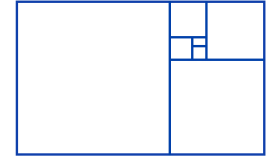
“ LESSONS LEARNED WHEN THE ACADEMIC CURRICULUM HIERARCHY IS VIEWED IN PARALLEL TO INSTRUCTIONAL SYSTEMS DESIGN ”

In common practice, educators both academic and corporate know that to build the most effective learning experience they start from the bottom and work their way up. It would be rare to come across any instructional program that did not begin with a set of formal objectives. Written so that results can be demonstrated (via Bloom, Gagne, et.al) and at varying degrees of difficulty and complexity, they form the scaffold from which all learning is subsequently created.

When developing a complete curriculum; that is both the plans for learning and the actual delivery of those plans, we create content and its methodology using a specific hierarchy. Interestingly, the most common and accepted model too often demeans the very best content because of the nature of instruction. Once again, whether in schools or in the think tank certain realities enforce a rigid interpretation of the very best information. The forces that act upon the transfer of knowledge, skills, and behaviors are equally potent whether the learning is delivered face-to-face or online—by teachers or computer—including the adoption of portable or disruptive learning via tablets and smartphones.

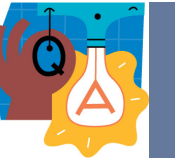
What is Curriculum?

Curriculum consists of setting conditions for teachers and schools to proffer content so the maximum amount of information necessary to command expertise can be taught, learned, retained, and applied. In the corporate sphere, the goal is to improve business outcomes by building learning programs that not only transfer knowledge and skills but proves, once acquired; these components offer a demonstrable positive change in the enterprise.



The golden mean, credited to Aristotle, is the desirable middle between two extremes, one of excess and the other of deficiency. In the learning domain it represents how the most desirable information can be applied even when acted upon by a variety of constraints.

The ratio of units remains constant regardless of the change of scale. Used by early architects, resurrected in the modernist period, and studied by mathematicians like Fibonacci since its creation as a 'proof.'



Developing Learning

Learning design and development is not an impromptu activity; though it is to a degree conditional and sensitive to change that might yield a better results. A variety of constraints devolve the very best, contemporary thought, research and socialization of content because of organizational mandates that, instead of enhancing education actually diminish it. Does this have to be so? I'm afraid as long as learning is time bound, and subject to funding--class size to interactivities online, the paragon of knowledge is generally, perhaps always titrated to a much weaker solution.

Very few of us learn for knowledge sake without a practical application of what is learned. The concept of the 'philosopher king' left us as an occupation with the demise of Plato. Ergo, it's not a stretch to say all learning has a vocational bent. We learn because we need to learn.

What Improvements Can Be Made?

The challenge to all those in the academic arena—academic or corporate—is to close the distance between what should be the best learning with what learning is actually reduced to after its meeting with reality. The tighter the connection between the paradigm—and the shorter the distance—between the pinnacle of knowledge and the solvent that reaches the learner, the more reputable the course of instruction.

"We have met the enemy and he is us," said Pogo in Walt Kelly's long running comic strip. So learning, regardless of the content and information, skill sets and decision-making will always be a simulacrum of what it should be the at the very highest of standards but never can be.

If this is to the case now and forever, what can be learned from academic curriculum development and corporate instructional design that can enhance the educational experience in quality and richness? To that end, here is a chart that offers definitions and insight providing a road map to leveraging what best practices can be cross-pollinated for maximum learning effect.

“ LESSONS LEARNED ”

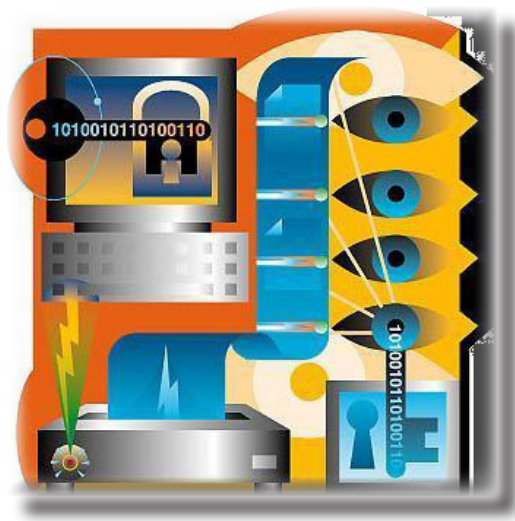


Though a clear relationship exists between the the processes used in the Hierarchy of Curriculum and Instructional Systems Design, exact alignment would be imprecise .

Even if we apply a common method of courseware creation like A.D.D.I.E., the stages will not line up. There exists no machine that can stamp out an exact matrix. Instead, think in terms of actions necessary to formulate learning. We are examining information delivery systems that conveys information to transfer knowledge, skills, and behaviors. Because all learning begins with the formulation of objectives, goals, performance outcomes—each are actually the same—then we can justify a sequential process that starts and ends in the same place. For regardless of the sector, educational or corporate, the intermediate steps can be aligned without compromise.

The result of the progression is the same; a chain of activities that leads learners to know, do or perform differently...and of course, better. No matter the measurement or metrics used to qualify or quantify the acquisition of useful information, the processes and/or activities on either side of the aisle are easily matched—though they may have different titles.

Essentially each action step has title that is a code known within each establishment.



There is much to be gained by examining how schools districts or counties, states or other entities establish what is to be learned and how it is to be taught. And courseware built in the corporate world too has unique drivers and forces that provide a unique way of building and delivering learning.

The templates that follow demonstrates both sequences, closely matched, with events in close proximity. Once it is clear how learning is developed we can draw conclusions gleaned from each process and from there, draw conclusions about how learning—and its results—might be improved.

ACADEMIC Hierarchy of Curriculum

- Recommended
- Written
- Taught
- Supported
- Learned
- Tested

Corporate Translation Development Model

- Desired Performance Outcomes
- Goal & Outcome Development
- Learning Design
- Instructional Design
- Learning Outcomes
- Business Outcomes



1

ACADEMIC CURRICULUM

RECOMMENDED CURRICULUM

The ideal information set or total body of knowledge distilled in its most pure form. All the facts, the skillsets, and actions that, in a perfect world could be transmitted from acknowledged content sources to learners.

CORPORATE TRANSLATION

DESIRED PERFORMANCE OUTCOMES

A complete change of state or condition where naïve employees become experts in knowledge, skills or behaviors and will apply their learning to directly and universally impact business results pre-determined by metrics set by corporate leadership.

LEVERAGING EACH APPROACH

CONFORMING TO THE HIGHEST STANDARDS

Identifying, resourcing, and corroborating information from the most reliable and highly respected sources sets the foundation for all that comes after.

When content is dictated by any organization, the developer's first task is to learn the content well enough to ask probative questions. Inquiry leads to original research that ensures the content is complete after examining all perspectives and can provide insights to that point unknown.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

1. Research, discover, and employ content from the highest regarded sources.
2. Use multiple research tools from printed matter to Wikipedia.
3. Ideas that are considered timeless should be considered alongside contemporary thinking.
4. Innovative concepts not yet universally 'trusted' are useful but should be labeled as not fully embraced by experts in the field.
5. Do not immediately trust a source; learn to question until a definitive and defensible body of information can stand up to scrutiny by an authority.



2

ACADEMIC CURRICULUM

WRITTEN CURRICULUM

From the 'perfect' body of knowledge, authors develop instructional materials such as guides, scope and sequence plans, instructional methodologies and attainable goals recognizing the forces of time on learning and the availability resulting from scheduled time-on-learning.

CORPORATE TRANSLATION

GOAL AND OUTCOME DEVELOPMENT

Identifying business goals and stating them as learning objectives is a roadmap to the development of a working framework to organize the elements of instruction.

Time—whether measured as hours of development or time on learning—as well as budget modify the quantity and depth of content delivery.

LEVERAGING EACH APPROACH

GOALS SETTING EXPRESSES PRIORITIES

When setting objectives and goals, content selection for inclusion is made by fiat. Reflecting the most critical outcomes upon which the learning will be built, the process automatically includes only those learning elements that will ultimately yield specific results for which learners are responsible. It stands to reason, material is also excluded.

Objectives provide the first stage of scaffolding from which content can be expressed.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

1. Goals, objectives, outcomes must be demonstrable. Any objective using the phrase "will understand" is not acceptable. Understanding is a mental state—developers must have physical, visual, or other tangible evidence that proves an element of learning has been acquired.
2. When outcomes of any type are dictated by a state curriculum or a client's needs, objectives provide an interpretation of those requirements.



3

ACADEMIC CURRICULUM

TAUGHT CURRICULUM

Within the constraints of time, location, materials, equipment and technology, the teacher, working from the written curriculum, develop measurable or demonstrable objectives as targets. Lessons that are aimed to meet these goals represent a segmentation of the whole body of knowledge. An assemblage of these fragments, ipso facto, equals the written curriculum.

Let's not forget the academic calendar too often defines the breadth and depth of content development and exploration.

CORPORATE TRANSLATION

LEARNING DESIGN

A determination of dollars and time to value is often a construct used to articulate the type of instruction and information essential to change the condition of learner performance.

A commitment is made to achieve specific formal objectives, manageable targets, methods of knowledge transfer and human resources to achieve acceptable levels of employee improvement.

LEVERAGING EACH APPROACH

ANALYSIS

At this stage, restrictions due to time, available materials and technology, as well as methods of instructional delivery begin to shape content. Teachers may directly influence when and how a concept is taught.

While schoolteachers have autonomy, they are too often segregated from other teachers from whom they might learn additional techniques and methods.

It is vital that repetition be part of every taught program whether online or face-to-face to avoid knowledge decay.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

1. Objectives are occasionally in conflict with real world constraints. If compromise is required the default position is to narrow the focus of the objective(s) rather than extinguish one or more completely; otherwise standards are lowered and learner expectations for performance improvement are weakened.
2. Prior to building the learning, ensure authority figures recognize that objectives express their expectations for achievement and change.
3. Though objectives are stated once, the learning must offer repetition in a variety of instructional modes & appropriate times to stave off knowledge decay. (See next page)

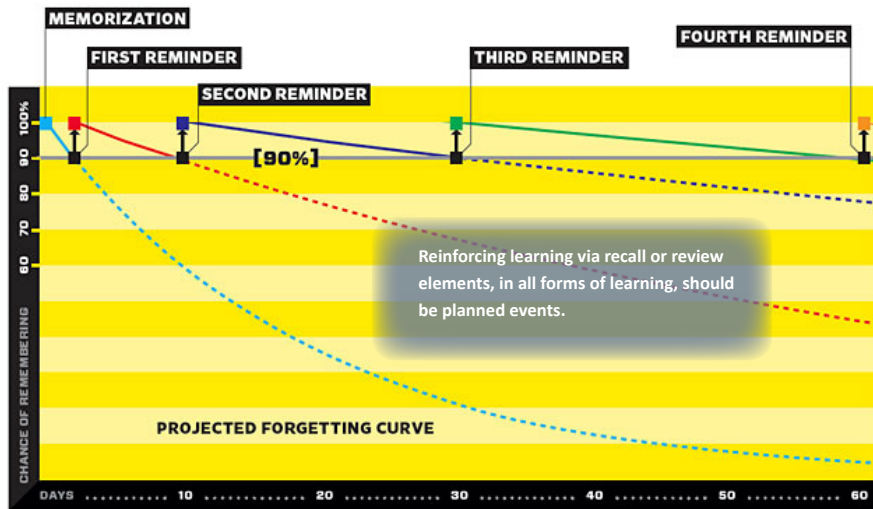


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THE EBBINGHAUS FORGETTING CURVE

The original source for the Forgetting Curve is Hermann Ebbinghaus, a German philosopher who in 1885 conducted a series of experiments on memory. The concept of the Forgetting Curve was further developed and explained by experimental psychologists throughout the twentieth century, and has received a lot of attention in the last few decades.

We start forgetting new information almost as soon as we learn it. For the information we want to retain, there is an optimum time to review information: not too soon, not too late, but just around the time where the information is just about to become difficult to retrieve.



The Remedy

If we reinforce our memory at those key moments (and it varies by person, situation, content and context) Forgetting Curve can be substantially altered. This idea of having strategically placed intervals of time between reviews is sometimes called the “Spacing Effect.”

It’s unrealistic to assume we can review everything we learn, all the time. Knowing the realities of the Forgetting Curve is very useful for learners and instructors alike... and it’s especially useful for those who design Learning & Development.

4

ACADEMIC CURRICULUM

SUPPORTED CURRICULUM

In addition to the primary or lead teacher, other instructional personnel and physical resources (computer resource instructor, librarian, and their physical spaces) are provided by a district or school to carry out the taught curriculum and instructional program. Textbooks, workbooks, in class computers instructional video and film are resources, too. This is also the curriculum hopefully found in the knowledge and skills—as well as talent—of the teachers.

CORPORATE TRANSLATION

INSTRUCTIONAL DESIGN

An assemblage of information; data, materials, subject matter expertise, as well as images, interactivities and other participatory elements are scripted in sequence to create a document that describes the content in words and image. In consideration of media-based, self-paced instruction, varieties of specialized techniques ensure the learning program is compelling enough to focus employees towards the objectives that lead to bottom line change. Quality ID is paced like film, as instructional designers endeavor to make content into a cogent story.

Face-to-face or Instructor Led Training (ILT) is a mashup of the taught and supported curriculum found in academic settings.

LEVERAGING EACH APPROACH

DIVERGENCE/CONVERGENCE

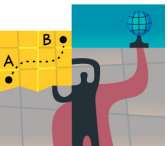
At this point, in the world of school the curriculum has been adopted and written. At each stage, the process demands that material has been shaved away from the most desirable content in order to meet practical considerations. In supporting instruction, teachers assemble (hopefully) a system, both in tangible components, e.g. texts, website, film, etc., and availed themselves of human resources as well. This serves two purposes: one clear and the other controversial.

Firstly, there are people who will visit classes and provide first-person accounts.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

1. Support for curriculum or instructional design can often add back in those elements that had to be trimmed by external realities.
2. Investigate ways of introducing or amplifying a concept by changing the form or modality; for instance, a guest speaker can often deliver first person accounts of vital ideas.
3. Equally important is the use of other media from voice to video to convey critical information.
4. Replicating events such as case studies, scenarios, and simulations whether in a school or the corporate office adds reality to instruction.



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ACADEMIC CURRICULUM

SUPPORTED CURRICULUM,
CONT

CORPORATE TRANSLATION

INSTRUCTIONAL DESIGN

LEVERAGING EACH APPROACH

DIVERGENCE/CONVERGENCE

So too, a local university professor, author, area notable who can embellish and enhance instruction. Teachers will plan for, and 'book' these assets to appear at salient points in the instructional year.

Gathering more steam and regular inclusion in some schools is the idea of coaching to improvement.

Professional athletes, psychiatrists and surgeons reach out to skilled observers to observe, analyze and provide feedback. Teachers can be resistant--yet this model is frequently used in the corporate world.

Experts in virtually every dimension of instructional design, courseware development, scenario and simulation, gaming, and video pros are available—as well as specialized software that can add necessary or special elements to a project not otherwise found in a local team or vendor.

APPLICATION OR LESSONS LEARNED

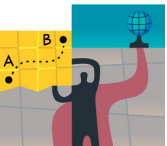
IMPROVEMENT CRITERIA

Learners always want to know

1. Why should I care?
2. What's in it for me?
3. How should I do it (on my own) and how will I be prepared and supported?

Have you prepared your core and supported material to answer those questions?

The enriched user experience is more likely to make the learning event more interesting and memorable, but richer, wider and deeper.



5

ACADEMIC CURRICULUM

LEARNED CURRICULUM

From formal and informal sources used to measure learner uptake, teachers discover if and how the curriculum that students acquired during their time on instruction and additional enrichment met the objectives – and make suitable adjustments.

The goal is to close the gap—or at least shrink the distance between the most ‘true’ of all recommended content through the tides of constraints to elevate the quality of information and delivery

CORPORATE TRANSLATION

LEARNING OUTCOMES

Completion of the course or instructional module has provided learners with the knowledge, skills, and decision-making behaviors to express the performance improvement identified by the organization.

If the objectives have been accurate; that is they directly express performance expectations and can be assessed by demonstrable means, and the method of instructional delivery meets the learner at the appropriate moment of need then learning outcomes should be met.

LEVERAGING EACH APPROACH

QUALITY OF LEARNING DELIVERABLES

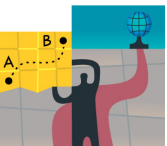
In a school setting, teachers often held to deliver high stakes testing results can only embellish instruction as time will allow. In subject areas where teachers are encouraged to augment content—and further to develop exciting instructional strategies—both the teacher and student benefit. The idea of teacher burnout is often the result of being automatons simply following a course guide to ensure superior test results that, too often, evaluate them.

cont.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

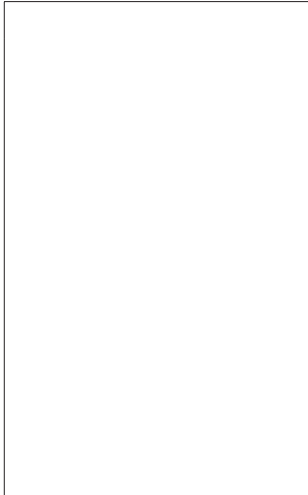
1. Too often, we neglect to measure, in empirical terms, the differences between the “recommended curriculum” and the “learned curriculum.” No measure of the acquisition of information, concepts, skills, etc. of learners would be fair unless developers can establish the ‘best or perfect content set’ from that which has been taught and learned.
2. Therefore a comparison is necessary to ensure that there has been adequate information, etc., carried down from the “recommended curriculum” to the “learned curriculum”



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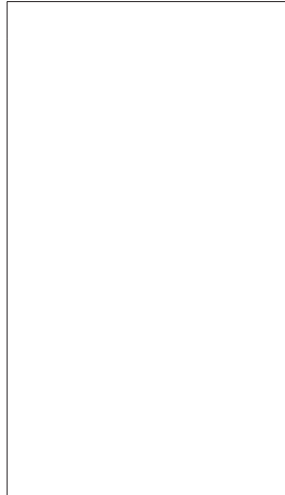
ACADEMIC CURRICULUM

LEARNED CURRICULUM, CONT



CORPORATE TRANSLATION

LEARNING OUTCOMES



LEVERAGING EACH APPROACH

QUALITY OF LEARNING DELIVERABLES

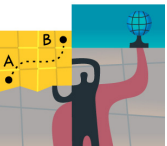
Nevertheless, given the current system where a state or local authority has deemed the Recommend curriculum to be met, the teacher is compelled to devise ways to 'game' the system in order to deliver great learning despite the obstacles of the hierarchy limiting their ability to exercise their own creativity into the teaching act

In the corporate world, the price of success or failure is more direct. Has the cost of building the learning, pulling workers from their paid responsibilities, and the amount of time and dollars invested in the learningware paying off? If well designed, compelling, and especially with real world content the answer should always be a resounding yes.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

3. Deficiencies resulting from objectives that have been weakened, written material trimmed to fit both time, scheduling and budget constraints are often the cause of diminished performance improvement.
4. If this condition is systemic, the curriculum requires significant adjustment, or specific constraints ameliorated to get learners closer to better results.
5. Metrics need to be developed at some point to examine what was intended to be a powerful learning experience and one that had to be compromised to fit within concrete rules for development.



6

ACADEMIC CURRICULUM

TESTED/ASSESSED CURRICULUM

A reflection of not merely student intelligence or capacity, this metric defines, especially with a large cohort over a longer period; the ability of the teacher to ensure what was intended as worthwhile learning is in evidence.

CORPORATE TRANSLATION

BUSINESS OUTCOMES

Since corporate education is quite clear defining instruction as a tool for performance improvement by personnel or the entire organization, metrics established for the learning project; based on analytics identifying employee "downtime" vs. net positive change should be in evidence, revealed as having an impact on business and/or a return on investment.

LEVERAGING EACH APPROACH

PROOFS

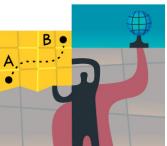
All learning results are tested regardless of whether in school or on the factory floor. In schools we test, in the corporate environment we measure human performance, new knowledge that has workers of all types become more efficient, effective, and useful to the organization.

In both areas, metrics are employed to take these measures: in school an aggregation of test scores that define the level of learning for its own sake; whereas in the commercial space, evidence is gathered and metrics used to examine the rate, amount, quality and attitudinal change resulting, quite often in dollars and cents either saved or earned.

APPLICATION OR LESSONS LEARNED

IMPROVEMENT CRITERIA

1. Any type of testing or assessment must abide by the dictum that one tests the way one is taught. By example, if a curriculum is designed to inject factual recall and sequential knowledge then MCTs are appropriate.
2. As a curriculum requires higher order thinking, complex skills, and decision-making, the curriculum designed with simulations and scenarios (among other techniques) deploys testing consisting of incomplete simulations and scenarios from which learners can synthesize appropriate solutions.



stepoff:

Knowledge for its own sake is the province of thinkers and researchers. Our intent is more specific and utilitarian expressed in these four stages of knowledge management:

1. **Knowledge is discovered, developed or in other ways acquired**
2. **Knowledge is validated**
3. **Knowledge is archived**
4. **Knowledge is retrievable, purposed/repurposed**

Knowledge, and particularly knowledge management is a utilitarian construct. There's no sense, in the development of content for transfer to develop insights and keep them sequestered from those who might benefit from this information.

Knowledge management encompasses the continuum that from content discovery to utilization, there is a methodology that makes information accessible and applicable in many forms.

From smart help to metatagging our ability to benefit from a huge body of knowledge, provides accessibility that eliminates redundant effort while democratizing our ability to leverage intelligence. with relative ease.

A COMPOSITE OF LESSONS LEARNED



Overcome the forces that diminish the integrity of the recommended curriculum.

Aim to make the learned curriculum as rich as possible despite all constraints.

The benefit to the learning community is simply that time and effort too often expended developing information that already exists be expended in the creation of something new and valuable.



KNOWLEDGE WORTH KNOWING

Learners always want to know

- Why should I care?
- What's in it for me?
- How should I do it (on my own) and how will I be prepared and supported?

Objectives

Goals, objectives, outcomes must be demonstrable. Any objective using the phrase “will understand” is not acceptable.

- Understanding is a mental state—developers must have physical, visual, or other tangible evidence that proves an element of learning has been acquired.
- **Objectives are occasionally in conflict with real world constraints. If compromise is required the default position is to narrow the focus of the objective(s) rather than extinguish one or more completely; otherwise standards are lowered and learner expectations for performance improvement are weakened.**
- When outcomes of any type are dictated by a state curriculum or a client's needs, objectives provide an interpretation of those requirements
- Though objectives are stated once, the learning must offer repetition in a variety of instructional modes & appropriate times to stave off knowledge decay.
- Prior to building the learning, ensure clients agree that objectives express their expectations for achievement and change.

Too often, we neglect to measure, in empirical terms, the differences between the “recommended curriculum” and the “learned curriculum.”

No measure of the acquisition of information, concepts, skills, etc. of learners would be fair unless developers can establish the ‘best or perfect content set’ from that which has been taught and learned. Therefore a comparison is necessary to ensure that there has been adequate information, etc., carried down from the “recommended curriculum” to the “learned curriculum”

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- If this condition is systemic, the curriculum requires significant adjustment, or specific constraints ameliorated to get learners closer to better results.
- **Metrics need to be developed at some point to examine what was intended to be a powerful learning experience and one that had to be compromised to fit within concrete rules for development.**

Research, discover, and employ content from the highest regarded sources.

- Use multiple research tools from printed matter to Wikipedia.
- Contemporary thinking should be considered alongside ideas considered timeless.
- Innovative concepts yet to be fully embraced by experts in the field at useful but not fully trustworthy.

Do not immediately trust a source; learn to question until a definitive and defensible body of information can stand up to scrutiny by an authority(ies).

Support for curriculum or instructional design can often add back those elements trimmed by external realities:

- Investigate ways of introducing or amplifying a concept by changing the form or modality; for instance, a guest speaker can often deliver first person accounts of vital ideas.
- Equally important is the use of other media from voice to video to convey critical information.
- Replicating events such as case studies, scenarios, and simulations whether in a school setting or the corporate office adds reality to instruction.

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By example, if a curriculum is designed to inject factual recall and sequential knowledge then MCTs are appropriate:

As a curriculum requires higher order thinking, complex skills, and decision-making, designed with simulations and scenarios (among other techniques) demands testing consisting of incomplete simulations and scenarios from which learners can synthesize appropriate solutions.