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My Teaching Philosophy – A Summary

I think that being an instructor / trainer is a profession that requires personal commitment to continuous development and life long learning. I am a practical theorist. For me, theory is a guide for making practical choices.

My teaching philosophy is “it depends”. But that “it depends” is not an opportunistic response. Rather, it is one shaped by my professional discipline, and the theoretical frameworks which I use to guide that discipline. I respond to the needs of an immediate instructional situation because my past responses to similar situations have been made within a working framework about learning. An outline of my working framework will follow.

I don't always think through each of my responses when interacting with course or program participants. Instead, my particular response in a specific instructional situation may occur as a “smart habit” that I have developed as a result of working within my framework. Given that I behave in this way, I am aware I don't always respond effectively. I hope that I use my frameworks to learn from my ineffectiveness.

Any “it depends” approach to instruction is in the final analysis a pragmatic one. But a pragmatic approach, guided by a working framework built up from other peoples' insights into the nature of human ability and human learning, is, I believe, an effective way to show a disciplined flexibility while striving for teaching effectiveness.

But I am also aware that “it depends” is a “deceptively” simple, and somewhat evasive, way to answer the question “What is your teaching philosophy?” I believe that what I say in the following pages eliminate that evasive element in my answer.

Background

My approach to instruction has been profoundly impacted by the following:

1. Having completed $\frac{3}{4}$ of my undergraduate education at night, in the presence of class mates who were adults and working full time,
2. Reading Malcolm Knowles' book on Adult Education¹ while pursuing additional studies in applied social science at night after having finished by undergraduate degree in philosophy and sociology,
3. Reading and working with David Kolb's² Learning Style Inventory, first in an academic environment, but then as a way of improving the effectiveness of problem solving groups while I was an IT manager,
4. Reading Michael Polyani's³ reflections on tacit knowing,
5. Reading Chris Argyris'⁴ work on action learning and organizational learning,
6. Reading Robert Sternberg's⁵ work on triarchic theory of intelligence: analytical, creative – synthetic, and practical,
7. Understanding and appreciating Howard Gardner's⁶ theory of multiple intelligences,
8. Working extensively with competencies as a consultant, driven by Richard Boyztis's⁷ and the Spencer's (and Hay McBer's) work on the competencies in the workplace⁸,

¹ <http://infed.org/mobi/malcolm-knowles-informal-adult-education-self-direction-and-andragogy/>

² <http://infed.org/mobi/david-a-kolb-on-experiential-learning/>

³ <http://infed.org/mobi/michael-polanyi-and-tacit-knowledge/>

⁴ <http://infed.org/mobi/chris-argyris-theories-of-action-double-loop-learning-and-organizational-learning/>

⁵ http://en.wikipedia.org/wiki/Robert_Sternberg

⁶ http://en.wikipedia.org/wiki/Howard_Gardner

⁷ http://en.wikipedia.org/wiki/Richard_Boyatzis

⁸ Spencer, Lyle M. and Signe M. Spencer. Competence at Work models for superior performance. Wiley. com, 2008.

9. Working with Bloom Taxonomy of Educational Objectives⁹, in its various forms and updates,
10. A framework for curriculum design of professional development programs that I have been using for years treats action or applied knowing as being of three types:
 - **Knowing that** – factual knowledge: many of the common “tests” used in education test students’ abilities to demonstrate that they know that – that they are in possession of factual knowledge;
 - **Knowing how to:** - the ability to do, whether that ability involves the use of factual knowledge applied to solve cognitive problems or involves a bodily response in a situation to achieve a desired result;
 - **Knowing Why** – knowing why to do or not do based on an understanding of why the response is appropriate or not appropriate in a given situation – avoiding negative consequences involves knowing why not to do.¹⁰
11. Years of working with adults as a team member and as a manager in information technology software development, a professional practice which is full of intellectual and creative challenges.

My Model of Learning

For me, theory is a guide to practice. In order to integrate these influences, I needed to develop a guiding framework that allowed me to make thoughtful choices about my own instructional practices.

Instruction is all about creating a change in a learner- a change that results in that person knowing more than when they first engaged in the learning experience. Teaching is not the only means by which such a change can be created. Self directed

⁹ Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). “A taxonomy for learning, teaching, and assessing: A revision of Bloom’s Taxonomy of Educational Objectives” (Complete edition). New York: Longman – as presented and modified by the Iowa State University Centre for Excellence in Learning and Teaching on the Internet at www.celt.iastate.edu/pdfs-docs/teaching/RevisedBloomsHandout.pdf

¹⁰ See “Rules of Thumb for Course Development for Professional Development” on the Internet; <http://wcilt.com/pdfquark/adult%20ed%20rules%20of%20thumb.pdf>. Professional development programs are directed towards creating abilities that can be applied on the job in a meaningful way. The knowing that, knowing how to, and knowing why” framework is a simplification of Polanyi’s and other’s work on tacit and active knowing – the kind of knowing that is best assessed by watching individuals carry out tasks in the course of their day to day work.

learning and Internet based e-learning are two other examples of learning activities which can create this kind of change in a learner.

Using a multivariate regression mindset as an underlying conceptual model, the amount of learning achieved by an individual in a learning situation can be depicted in a verbal manner as follows.

Learning Achieved by An Individual in a Learning Situation

=

a function of:

(

- the content / material to be learned,
- the capability of the instructor / mentor / coach,
- the motivation of the learner,
- the capability of the learner.

)

Actually translating these 4 factors into operational measures that allow quantitative data to be collected that meets the requirements and assumptions of the multiple regression statistical procedure may be difficult or even impossible. Still, stating the model in this format makes clear the following.

1. Instruction results can only be measured by measuring the learning achieved by individual learners. However, since individuals also bring something to the learning situation, a “instructor” can never be fully held accountable, or rewarded, for a specific individual’s learning.
2. Given an instructor’s interaction with a number of learners, especially as the number of learners¹¹ taught by that instructor increases, it becomes possible to hold an instructor accountable for average learning results that occur across a number of learners taking part in a learning experience delivered by that instructor. This is especially the case if the instructor takes steps to design and to deliver course content in ways that:

¹¹ And the factors about the individual tend towards the mean: see http://en.wikipedia.org/wiki/Regression_toward_the_mean

- take into account the motivation of individual learners,
- and their individual capability to learn,

in both

- the design of the curriculum that is intended to allow the individual learner to achieve this learning result,
- and the manner in which the instructor chooses to deliver this curriculum to the learner.

Content / Material to be Learned

An effective instructor translates the content / material to be learned into a related set of learning objectives or outcomes. Each outcome clearly describes in behavioral terms¹² what the learner will be able to DO once the individual has successfully completed a learning activity intended to achieve that learning outcome¹³.

Once stated in English, a learning outcome can be categorized as falling within the

- Knowing that,
- knowing how to,
- or knowing why

framework set out previously. Doing so allows the instructor to design learning activities that have been shown to be effective for accomplishing that kind of knowing for most learners.

To make what this means more explicit, here are two examples. The first involves a very high level, learning outcome in the realm of computer programming. The second is a quite specific learning outcome - an interpersonal skill. These two very different

¹² **In behavioral terms** means – a description of a behaviour which any reasonable observer can see the individual do. There may be many internal dynamics happening inside that individual that lie behind or lead to that behavior. The learning outcome does not describe these. They are “not observable behavior”, unless the learning outcome is itself about “externalizing in speech and bodily expression, insight into the dynamics occurring inside an individual”.

¹³ Learning outcomes are often progressive. That is, one learning outcomes depends on the successful completion by the learner of one or more previous learning activities during which the learner achieves previous learning outcomes. We normally talk of prerequisite courses. This really is a short hand way of saying prerequisite learning outcomes.

examples are intended to show that the process outlined applies to all kinds of learning outcomes.

Example One: Develop Interactive Web Sites Using Ruby on Rails

Learning outcome

Develop and place into production web sites that have interactive components,

i.e. allow a person using a browser to access the web site to make and to communicate choices, and receive responses that are different depending on those choices, using the Ruby on Rails software development framework.

Type of knowing involved

A large number of **Knowing that** elements, including:

- knowledge of elements of the Ruby program language,
- factual knowledge about the “gems”, i.e. Ruby on Rails reusable software components that can be used to create parts of the functionality of the web site,
- ... and so on.

A large number of **Knowing how to** elements, including:

- knowing how to translate the functional requirements of the web site into specific pieces of HTML and Ruby code using the latest Rails software development environment, and its component tools , e.g. GitHub, an appropriate text editor, production environment deployment tools such as Heroku,
- ... and so on.

A large number of **Knowing Why** elements, including:

- knowing why Ruby on Rails places such great importance on testing elements of the eventual web site as soon as they are developed,
- knowing why Rails best practices suggests certain development options for security reasons, and avoids other possible ways of developing the same web site functionality,
- and so on.

Commentary

Clearly any educator or instructor doing curriculum development for this learning outcome will break it down into a progressive series of smaller learning outcomes, organized into a logical sequence that allows a learner to achieve this high level outcome.

Example Two: Ask A Closed Question In an Interview

Learning outcome

During the course of an interview, ask a question to which the interviewee is most likely to elicit a “yes” or a “no” response.

Type of knowing involved

Knowing that elements:

- Be able to correctly classify a presented question as “closed or open” based on an understanding of the difference between the two.

Knowing how to elements:

- Be able to verbally state a “closed question” at any point in an interview, either based on something the interviewee has just said, or based on something that the interviewer wishes to find out during the interview.

Knowing why elements:

- Understand that in our culture, certain forms of verbal expression are more likely to get “yes” or “no” responses than others.
- Understand that asking a closed question is not a “guarantee” of receiving a yes or no response, only that it increases the probability of getting such a response.

Commentary

This learning outcome, even though it involves all three kinds of knowing, is clearly “small” enough to allow a learner to achieve a behavioral learning result. Therefore, it

can be used by the instructor to define the “learning” content needed to accomplish this learning outcome.

Personal Statement About Content / Material

When developing a new course, either in a university or professional development environment, I start with learning outcomes. I put energy into getting a clear high level learning outcome which covers the entire course or program. I take steps to ensure that this high level learning outcome is:

- Clear and understandable by others,
- Agreed to and accepted by appropriate others when the course is a new one to be delivered in an institution or a professional development program having its development funded by a client¹⁴.

Once the high level learning outcome is clear, I start to break it down into component learning outcomes, and arrange them in a logical sequence. In essence, this step is much the same as logical decomposition in work flow design, work break down analysis in project management, or functional decomposition in functional design. In all cases, it means breaking the whole down into a set of “reasonable” parts.

I use the word “reasonable” because one person’s breakdown will not necessarily be the same as another’s. There is no “right” answer here, only good enough ones. The first version of such an analysis is only a first approximation, sufficiently good to get started¹⁵.

At some point in this breakdown, it becomes clear that there is a pay back limit to proceeding further with the breakdown. There are too many intangibles to move forward with further decomposition work. There are too many unanswerable or vague questions that will only become clear by actually building the content itself. At that point, I move to actual content development.

As one piece of content development work moves forward, changes may need to be made to the logical breakdown of the learning outcomes. When making these changes, the work remaining to be done on the remaining content development becomes clearer. Content development work load / expected learning outcome benefit trade off decisions are made based on these considerations until a first version of the content is complete.

¹⁴ When I am developing the course based on an investment of my own time for my own purposes, I do not need to do the second.

¹⁵ Even the agile approach in software development often starts with some sense of the whole before moving onto working on the first pieces. Sometimes characterized by the following phrase “design a little, code a little, test a little, use a little, then iterate), approaches have become the norm in many software development environments today; see http://en.wikipedia.org/wiki/Agile_software_development

At that point, the actual content needs to be presented to a representative sample of the learners. There is no other way to test content effectiveness, since the results of instruction can only be measured by achievement of the learning outcome by an “average” set of learners. Usually, this means putting in place a “good enough” version of all the course content, and collecting feedback. Changes to the content are then made based on that feedback.

Depending on the complexity and size of the learning outcome breakdown, this may even be done in stages. Feedback from the presentation of early parts of the content to representative learners may impact and shape the later stages of content development.

When asked to teach an existing course, I look for evidence that this approach has been taken in developing the course. If no such evidence exists, I teach it as it is. I collect feedback on each of the course’s components. Based on this, I may reconstruct components of the course. As a result, the course may have somewhat different content in my second and subsequent deliveries of it, as I work towards the learning outcomes I think it was intended to achieve.

The Capability of the Instructor / Mentor / Coach

Consciously Designing Course Content to Appeal to Different Learning Styles

When I first started to teach swimming as a young teen ager, I did not think about “how” I was teaching, I just did what the instructors who had taught me did.

I taught as part of my PH.D program at the University of Massachusetts. The University has a Centre for Teaching Excellence. All new instructors were required to go through its introductory program.

I was videotaped teaching in the classroom. I never realized how much my teaching style was a direct reflection of my own learning style. I had worked with Kolb’s Learning Style model by then. Watching the video tape, I realized that although I spoke well enough, I always answered questions and presented material from a Assimilator¹⁶ perspective. In many ways, this was a peak insight experience.

¹⁶ Kolb’s four learning styles are:

- **Diverging** (concrete, reflective) - Emphasizes the innovative and imaginative approach to doing things. Views concrete situations from many perspectives and adapts by observation rather than by action. Interested in people and tends to be feeling-oriented. Likes such activities as cooperative groups and brainstorming.
- **Assimilating** (abstract, reflective) - Pulls a number of different observations and thoughts into an integrated whole. Likes to reason inductively and create models and theories. Likes to design projects and experiments.

Roelf Woldring
Statement of Teaching Philosophy

I continue to have Assimilation as a personal learning style preference. However, over the years I have:

- Consciously sought out opportunities to experiment with and add the other three learning styles to my own personal behavior repertoire,
- Explicitly included elements that addressed the learning needs of individuals with each of the four Kolb learning styles in each in the courses / training programs that I developed.

In many ways, common curriculum development practices reflect this type of approach, as the following table suggests.

Kolb Learning Style	Common Instructional Practices which match or suit it
Assimilating – think and watch – integrate what you see and hear into a conceptual whole	<ul style="list-style-type: none"> ○ Theory bursts and mini-presentations ○ Conceptual frameworks ○ Unifying frameworks which integrate the case / example into the conceptual whole
Converging – think and do – try it out and see how it works – form general principles about what to do	<ul style="list-style-type: none"> ○ Problem sets / cases that require the formulation of solutions / recommendations / approaches ○ Analysis of instances
Accommodating – feel and do – do and get feedback on how it is going and what	<ul style="list-style-type: none"> ○ Doing under the guidance of an

-
- **Converging** (abstract, active)- Emphasizes the practical application of ideas and solving problems. Likes decision-making, problem-solving, and the practical application of ideas. Prefers technical problems over interpersonal issues.
 - **Accommodating** (concrete, active) - Uses trial and error rather than thought and reflection. Good at adapting to changing circumstances; solves problems in an intuitive, trial-and-error manner, such as discovery learning. Also tends to be at ease with people.

See <http://www.nwlink.com/~donclark/hrd/styles/kolb.html>, the source of these descriptions. Kolb's model has its drawbacks, especially on the theoretical level. However, it is a useful pragmatic guide that dramatically increases the awareness of course designers to move beyond what feels best – elements which match the instructor's personal learning style.

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Kolb Learning Style	Common Instructional Practices which match or suit it
works	<p>“expert”</p> <ul style="list-style-type: none"> ○ Role plays / simulations / cases that require “acting” out the situation / consequences of decisions and lead to feedback about how well things went
Diverging - feel and watch – watch others do and pull the results together	<ul style="list-style-type: none"> ○ Listening to others’ experiences ○ Watching others’ do ○ Providing commentary on others’ presentation of solutions to problems, participation in role plays/ simulations and cases

One of Knowles’s adult education principles is to let the learner come to the learning opportunity which best suits the individual. Assigning course capstone papers or presentations which contain a menu of options: e.g.

- develop a framework or model which can be used to address actual situations, and apply it to one or more such situations,
- or develop a case and its recommended solutions, showing how these recommendations address a number of the learning points we have covered,
- or present an analysis of a situation, or develop and present a role play simulation – showing what learning lessons it develops,
- do a commentary on a case (i.e. analyze) a case or actual situation, using one or more of the frameworks or models we have covered,

allow participants to flow to their learning style preference.

By consciously designing such elements into my course or professional development program content, I am striving to increase the “average learning results” of the participants. The down side is that some elements will not appeal to everyone.

By combining Kolb’s learning style preferences with the knowing that, knowing how to, and knowing why framework, it is possible to create a design grid which is very useful for creating specific course elements.

Roelf Woldring
Statement of Teaching Philosophy

The following design grid is not definitive. It is illustrative of the kind of insight which is possible by combining these two frameworks¹⁷. Keeping the framework in mind during content development work allows a course / program designer to ensure that the program contains elements that cover each of the Kolb learning styles.

Examples of Learning Activities that Fit Each of the Kolb Learning Styles

	Knowing that	Knowing How To	Knowing Why
Assimilating – think and watch – integrate into a whole	Moves beyond simple fact retention to integration into wholes	Use cases, capstone complex problem sets focusing on multiple elements	Guided discussion of a number of complex cases which could not “happen”, i.e. must be avoided
Converging – think and do – try it out and see how it works – form general principles about what to do	Try out / consider counter factuals and see what happens / develop the implications	Provide opportunities to apply and get feedback on what went well and not so well – develop principles out of this	Carry out role plays / simulations which “demonstrate” negative consequences without actually having them happen
Accommodating – feel and do – do and get feedback on how it is going and what works	Problem sets that include feedback on what did not work so they can be repeated in a better way	Guided working through sequences of problems / cases that get progressively more complex	Interaction with people “who have done it” and have experience with avoiding negative consequences as well as handling them
Diverging - feel and watch – watch others do and pull the results together	Opportunity to listen to others speak / present / do when they learn / apply / use the facts	Working with others in “pairs” so that the diverger can watch the other individual, do, reflect and then add to improve the jointly produced results	Listening to others who have “been there – done that” talk about why they did what they did and how they handled things

¹⁷ As such it is a Assimilator / Converger approach to this situation. Adding Accommodater / Diverger elements to it would mean providing at least one, possible more concrete examples in each cell.

Personal Characteristics of An Instructor

Every instructor is a unique individual. Each person will have different capabilities and levels of energy when it comes to things like:

1. Cognitive capabilities,
2. Self expression / articulation abilities,
3. Passion for / energy for the content material,
4. Experience with the material,
5. Experience with teaching,
6. Ability to inspire / to motivate,
7. and so on.

Each of these will have some level of impact on the extent to which average learning result is achieved in a specific delivery instance of a course.

Since an instructor can only be held accountable for the average level of learning results across a number of learners taking part in a learning experience delivered by that instructor, it make no or little sense to attempt to set out a “model” of what an instructor should be like on these personal characteristics. It really does not matter as long as an appropriate level of “average learning results” is achieved by the instructor.

Instructors can take steps to increase the following behavioral skills, each of which is relevant to teaching.

- Presentation ability in the classroom.

My own presence, personal projection, use of presentation aids, use of my voice and speaking style benefitted from my involvement with the University of Massachusetts Centre for Teaching Excellence program and many subsequent professional development programs.

- Preparation of presentation and other “course” materials using word processing, desktop publishing and other modern teaching support tools.

My content preparation skills own are constantly growing, partly because I am personally interested in the convergence between education, the Internet, computer technology and visual media technologies.

- Question responding skills, so that response contain elements that are directed to all four Kolb learning styles.

Often I now consciously start a question response:

- by fitting my response into one of the course frameworks (assimilation),
- then move onto provide a concrete example people can reflect or comment on (divergence),
- and then add a situation and ask people to get involved with addressing it (depending on their response style either convergence or accommodation).

This is a learned skill that I can choose (or not) to apply when appropriate to a question that is asked.

- Discussion guidance skills.

I deliberately chose this label rather than group facilitation skills. I think that group facilitation skill involves elements like conflict resolution and effective confrontation that are not needed to guide 98% of the discussions that occurs in instructional settings. My professional development included advanced group facilitation and training of trainers for group facilitation. But I find that my instructional discussion guidance skills involve activities like:

- Using “minimal encouragers to talk”,
- Asking open ended questions,
- Encourage “quiet people” to talk by directing questions to them that play to their learning style (e.g. asking divergers to comment on their reflections about what they have been seeing happening),
- Summarizing a discussion theme in order to close it and then open another one.

The Instructor As Motivator

People do not learn unless they are motivated to do so. Motivation is the result of many personal factors. But instructors can inspire, and thereby motivate learners.

However, there is no simple formula for what makes up inspiration. What inspires and motivates one learner turns off and de-motivates another.

Roelf Woldring Statement of Teaching Philosophy

Some people are more people than others. That is just the way it is. Some people inspire individuals that even other 'publically' acknowledged inspirational people cannot reach.

Consequently, the ability to inspire is situational, and can be unique to a specific relationship between two specific people at a unique point in time.

Whenever someone tells me that I have inspired them as an instructor / coach / mentor, I am thankful that for that person at least, I have made a positive contribution to their learning.

Instructors can also motivate by acting as models. Their passion and enthusiasm for the content material and for the process of learning itself can impact others, and motivate them to learn.

I have been told that I am full of passion about learning. I feel it. I am glad that it inspires some others to be motivated to learn that about which I am passionate.

The Instructor's Response to Each Participant's Motivation and Capability

The final two elements of my Learning Model have to do with what the participants bring to achieving a learning result.

Learning Achieved by An Individual in a learning situation

=

a function of:

(

- the content / material to be learned,
- the capability of the instructor / mentor / coach,
- **the motivation of the learner,**
- **the capability of the learner.**

)

As an instructor, I have to take these two as givens, things that are beyond my control, and that I can only choose to respond to.

Roelf Woldring Statement of Teaching Philosophy

When I meet a participant for the first time at the beginning of a course or program, that person's motivation and capability come to me without me having had any impact on them in the past. If they are individuals who I have taught or coached before, then I will have had some level of impact on both their motivation and capability.

But I find that it makes most pragmatic sense to my functioning as an instructor to treat both situations in the same way, as if I was teaching the person for the first time. I assume that each person will bring a person level of motivation and capability that has nothing to do with me. As a result of that stance, I can focus entirely on what I can do to increase the engagement of each participant in the learning activities that I am delivering, by responding to that person where they are on these two factors. Of course, my ability to do so is limited by the economics of the instructional situation. I have to make trade-offs choices that reflect the time, dollars and resources that are available for a particular delivery of a course or program.

More and more, as I explore the potential for e-learning for knowing that and some parts of knowing how instruction, I realize that given enough investment and skill, it is possible to develop learning programs that adapt to:

- The learning style of each learner,
- And the current level of capability of each learner.

Effectively, some types of learning can be completely customized to where "each learner is at" on these two elements. Doing so takes work, and the amount work needed do develop programs that do this translates into money.

With e-learning, the economics of course / program delivery change. Cost per delivery predominates. Large numbers of deliveries drive down the cost per delivery¹⁸. As a result, it is often possible to invest more in the development of an e-learning course or program. This means that it is possible to include more of such "personal custom response" elements. Doing so increases learner engagement, which increases learner motivation.

I personally believe that we have a moral imperative as educational professionals to explore the potential of e-learning. It does have a substantial role to play in replacing the classroom for knowing that learning. Factual content can be delivered effectively in e-learning programs that respond to the learning style and learning capability of each

¹⁸ See my voice over presentation on "Making Effective Decisions About Developing E-Learning Content" at <http://www.wecrut3.com/wecrut3materials/MakingELDecisionFixed/Making%20Effective%20E-Learning%20Content%20Trade-Off%20Decisions/player.html>

Or the white paper at "\$ vs Development Time vs Learner Engagement: Making Effective Trade Off Decisions During the Professional Development Content Development Process", Spring 2012 at <http://www.wecrut3.com/wecrut3materials/SvsTimevsLearnerEngagementv11.pdf>

individual learner. Some types of knowing how to learning can also be delivered in this way.

My View of the Future of Learning

E-learning will never replace learning communities. Person to person interaction is essential for developing the human interaction component that is so essential to how we apply our learning in the world. Person to person and person in group interaction is also essential for developing many of the less tangible elements that are crucial to the effective use of knowing that and knowing how to learning in complex social situations.

We will never sit in front of computers for all of our learning. But computers will play a part in motivating and engaging learners as individuals for certain kinds of learning. E-learning programs will also, when well designed, allow students to learn at the personal pace, and with the type of corrective repetition that works best for each one of them as an individual. When we as educators embrace those possibilities, we will increase the level of average learning that is the real measure of our professional success.

Appendix One: Reconciling Bloom's Taxonomy and the Knowing That, Knowing How To, and Knowing Why Framework

Professional development programs are designed to increase an individual's ability **to do** on-the-job. As such, successful professional development programs are focused on **action** - on creating abilities that can be **applied** to back on-the-job. Professional development programs often must successfully convey "know why NOT to" knowledge, so that individuals do **NOT DO** certain things back on-the-job.

The knowing that, knowing how to, and knowing why framework works well as a framework for addressing such curriculum design needs. It is focused on behavior. The final test for any professional development learning objective is "Can the participant successfully do this back on-the-job?" Curriculum design for professional development must involve careful consideration of what it takes to transfer new program learning back to the person's day to day work environment. Organizations investing in professional development must there also explicitly take into account the dynamics of the "extinction effect"¹⁹.

The knowing that, knowing how to, knowing why framework allows professional development instructional designers to deal with and incorporate "tacit" knowing elements. Such elements can often only be creditably be conveyed to individuals through dialogue between more experienced and less experienced participants. These dialogues include discussion of elements, reasons and insights that the more experienced participants have formed after many repetitions of a particular behaviour, or by having gone through repetitions of a type of event.

The more experienced participants know these elements as a result of their "built up" experience. They may have little or no insight into how they came to these "conclusions". In fact, two individuals may come to the same conclusion in ways that involve uniquely different combinations of experiences and reflections on those experiences. Tacit knowledge can often contains large numbers of such elements.

Bloom's Taxonomy, in both its original and updated forms, is cognitively deeper, and at the same time, behaviorally narrower than the know that, know how to, know why model. Bloom's Taxonomy is founded on insights from cognitive psychology and epistemology, not work place behavior. The Iowa State University representation of it shown in the following schematics demonstrates this well.

¹⁹ See Appendix Two in the pages which follow.

Roelf Woldring Statement of Teaching Philosophy

The Knowledge Dimension classifies four types of knowledge that learners may be expected to acquire or construct—ranging from concrete to abstract (Table 1).

Table 1. The Knowledge Dimension – major types and subtypes

concrete knowledge			→	abstract knowledge
factual	conceptual	procedural		metacognitive*
knowledge of terminology knowledge of specific details and elements	knowledge of classifications and categories knowledge of principles and generalizations knowledge of theories, models, and structures	knowledge of subject-specific skills and algorithms knowledge of subject-specific techniques and methods knowledge of criteria for determining when to use appropriate procedures		strategic knowledge knowledge about cognitive tasks, including appropriate contextual and conditional knowledge self-knowledge

(Table 1 adapted from Anderson and Krathwohl, 2001, p. 46.)

*Metacognitive knowledge is a special case. In this model, "metacognitive knowledge is knowledge of [one's own] cognition and about oneself in relation to various subject matters . . ." (Anderson and Krathwohl, 2001, p. 44).

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Table 2. The Cognitive Processes dimension — categories & cognitive processes and alternative names

lower order thinking skills			→	higher order thinking skills		
remember	understand	apply	analyze	evaluate	create	
recognizing • identifying recalling • retrieving	interpreting • clarifying • paraphrasing • representing • translating exemplifying • illustrating • instantiating classifying • categorizing • subsuming summarizing • abstracting • generalizing inferring • concluding • extrapolating • interpolating • predicting comparing • contrasting • mapping • matching explaining • constructing models	executing • carrying out implementing • using	differentiating • discriminating • distinguishing • focusing • selecting organizing • finding coherence • integrating • outlining • parsing • structuring attributing • deconstructing	checking • coordinating • detecting • monitoring • testing critiquing • judging	generating • hypothesizing planning • designing producing • constructing	

(Table 2 adapted from Anderson and Krathwohl, 2001, pp. 67–68.)

The intersection of a “kind of knowledge” with a “way of cognitively processing” results in a different type of learning for learning objective creation purposes.

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A statement of a **learning objective** contains a **verb** (an action) and an **object** (usually a noun).

- The **verb** generally refers to [actions associated with] the intended **cognitive process**.
- The **object** generally describes the **knowledge** students are expected to acquire or construct. (Anderson and Krathwohl, 2001, pp. 4–5)

In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Remember: these are **learning objectives**—not learning activities. It may be useful to think of preceding each objective with something like: “Students will be able to . . .”

*Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.



Model created by: Rex Heer
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For additional resources, see:
www.celti.iastate.edu/teaching/RevisedBlooms1.html

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Both Bloom’s Taxonomy and the knowing that, knowing how to, knowing why frameworks have great value. Bloom’s taxonomy has found wide application in academic environments. It allows university level courses to be designed in a way that ensures that students receive consistent, progressive, multi-year education in wide subject areas, essentially disciplines.

The knowing that, know how to, knowing why framework works well for professional development. It allows professional development programs to be built in ways that allow the incorporation of essential tacit knowledge components. It focuses these programs on ‘actions’ that can be immediately transferred back-to-the-job

There is no great need to theoretically “reconcile them”. They start from different conceptual basis and are used for different purposes. Each is a tool intended to improve the quality of the instructional experience in its own domain. Therefore, each has its value and use.

Appendix Two: What is the Extinction Effect? How Does It Apply to Professional Development Activities?

Organizations spend money on interpersonal skills training. The program goes well and receives "rave" reviews. The participants come back to the job. Several weeks later, there is no obvious sign of changes in their behavior. They do not exhibit the new skills they have learned. It is as if their new learning has become "extinct".

What is the Underlying Cause of the Extinction Effect²⁰?

Skills are not applied in an interpersonal vacuum at work. The very word "interpersonal" indicates that using a skill is about interacting with others. Every new skill an individual learns in a professional development program will impact the way that person interacts with the others around her or him back on-the-job. If that impact is large, that is, if it changes the way the person will interact with these others, then the possibility for extinction of the new skill is very real.

As organizational psychologists have shown, people in the workplace interact in "repetitive interlocked patterns of behavior"²¹. That is, individuals develop smart habits, or patterns of behavior, that allow them to get work done efficiently when interacting with others.

Take a simple example. A client waits in line to deal with a bank teller. When the client reaches the teller's wicket, the client presents the teller with a deposit slip. Based on the deposit slip, the teller knows that the client wants to make a deposit. The teller engages the client in social chitchat while using a computer terminal access to client's account and make the necessary entries. The teller provides the client with printed piece of paper verifying the deposit.

With minor variations, this "interlocked pattern of behavior" is repeated an uncountable number of times each business day in the bank's offices. Each person knows how the other person will behave, and therefore they can conclude their business in a reasonably efficient and pleasant manner. Their individual behavior patterns are predictable. Their joint behavior patterns are "interlocked". This pattern is repeated over and over.

Such "repetitive interlocked patterns of behavior" are essential to achieving results in the workplace. At varying degrees of localness and complexity, they are the essence of workplace behavior. But their very effectiveness brings with it a price. Because smart

²⁰ I started to use this term in work and presentations with clients on the design and the delivery of professional development programs in the 1990's.

²¹ This idea started in Katz's and Kahn's classic book "The Social Psychology of Organizations", published in 1978, and was further elaborated by Karl Weick in his subsequent books on sense making in organizations

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habits work so well for people, people resist change precisely when they have interlocked smart habits.

Repetitive patterns of behavior lead to smart habits. Smart habits allow people to only devote part of their conscious attention to what they are doing. In the example above, the bank teller and the client can engage in necessary and pleasing social interaction while the work that needs to be accomplished is being carried out.

Every organization encourages the development of such smart habits in its workers. We all know that smart habits are essential to getting our work done, even though we don't very often consciously identified the fact that we are carrying out a piece of behavior "patterned" by a smart habit that we have learned. Their existence "disappears" from our consciousness.

How do "smart habits, i.e. effective repetitive interlocked patterns of behavior" lead to the "extinction effect"?

People like smart habits. They make work easier. They may take effort to acquire, but once learned, they're hard to give up.

Change requires that people give up old smart habits and learn new ones. That takes effort. People must be motivated to this.

When the smart habits have to do with a piece of work that an individual is doing alone, the only person who needs to be motivated to make this change is the individual. This is why "technical skills training", which often is focused on what the personal does personally, often "sticks". However, often smart habits involve two or more people. Smart habits of this type involve "repetitive patterns of interlocked behavior" that tie all of the impacted individuals together. Changing hared smart habits mean that all of the individuals who participate in the shared smart habit must be motivated to change.

Invariably, new skills acquired on a professional development program must be implemented in work environments where the "learner" achieves results through shared smart habits. When learners come back from a professional development program, and change their personal behavior, they have an impact on the other people who participate in the shared smart habits by which work gets done in that environment. Effectively the learner's behavior is implicitly communicating the following message.

"I no longer want to work in the way that we used to work together. I want to work in a new way. Because this new way is better, you should also change your behavior."

The problem is that the other people with whom the "learner" is engaging are not

likely to have gone on the same professional development program. When they experience learner's new behavior, they feel some degree of frustration. After all, the shared habit - the way they used to interact with this person - worked up to now. They have not had the opportunity to experience why the new pattern may be more effective. So they tend to respond in the old way. They stick to the smart habit "as it is". It makes sense as far as they are concerned.

The learner experiences this as an indication of the fact that the new behavior is not working well. In response, there is a good chance that the learner will also revert to the old way of doing after several repeated attempts to implement the new behavior. In this way, the newly learned behavior pattern becomes "extinct"

How can the extinction effect be avoided in organizations?

There are 4 classical ways to avoid the extinction effect.

1. **Train all of the people in a work group on the new behaviors at the same time.** This way, they all have an opportunity to understand the benefits of the new patterns, and can work together to develop new effective "repetitive patterns of interlocked behavior" or smart habits.
2. **Have the learner move to a new work group.** When individuals first join a group of workers, they have to go through a period of time in which they learn the shared smart habits that make up the collective work knowledge of that group. In this time, they also have an opportunity to influence those patterns and reshape them to some extent. When the introduction of the new individual is properly "couched", the individuals in the work group are motivated to learn from the learner. As a result, the existing stock of shared smart habits in the work group changes to take into account the more effective ways in which the new member does things.
3. **Put the learner in a power position with respect to the other members of the work group.** When the individual with the new skills has the ability to positively or negatively reward the other members of the work group, they are more likely to be motivated to go through the period in which they modify old and learn new shared smart habits.
4. **Change out enough members of the work group, or alter the organizational context in which the work group exists,** so that it's clear that new shared smart habits must be developed in order for the group to collectively survive or be rewarded for their work efforts.

Organizations making investments in professional development skill training need to work through the implications of what it takes to avoid the "extinction effect" if they wish to see a return on their investment.

The extinction effect and universities

The extinction effect is not a visible dynamic during the course of normal full time academic programs. Cadres of students tend to form during the normal course of a class. They advance from year to year together.

However, when universities provide programs that are intended as professional development for people who are currently working, the extinction effect is of real concern. Anecdotal evidence seems to indicate that people often tend to leave an organization when they come to the conclusion of a 'distance program', 'certificate' or other professional development program delivered by a university. One of the reasons they do so is because they have little to no opportunity to apply their new skills and knowledge in their current organization because of the extinction effect.

University continuing education administrators need to take this in account. Dialogue with the individual during course related counseling or with the organization during contracting about extinction effect dynamics can help alleviate its impact on both individuals and organizations.