BYU
IDAHO

# *Seven Principles of*
# INSTRUCTION

FACULTY CONVERSATION SERIES **BOOK FIVE**

# *Experienced educators know that*

# MASTERFUL

*Because teaching is such a complex and real-time experience, some educators hesitate to discuss techniques of classroom instruction, fearing it will somehow minimize the complex professionalism they bring to the task. Yet even among accomplished educators, there is a place for the discussion of instructional craft for the simple reason that what we do in our classrooms matters demonstrably.*

Two teachers, equally expert in their fields, can vary widely on their ability to teach effectively. Yet the disparity in results between the two can be changed. It might be that one has to work harder than the other to achieve gains in student learning, but the point is that the change can be made, and there are principles to guide that improvement.

# TEACHING

## *requires more than technique*

As with acting, or a martial art, or any other craft, natural endowment plays a big role in how good we get as teachers, but just as with these other crafts, almost anyone can improve teaching expertise with consistent, dedicated practice.

Additionally, we have been promised access to the gifts of the Spirit, among which are the ability to "teach the word of wisdom" and "the word of knowledge." (Moroni 10:9-10) And we have been exhorted to "seek . . . earnestly the best gifts" (D&C 46:8).

The principles and ideas in this book start from the assumption of deep subject matter expertise, maintain a healthy respect for the professionalism of educators, and attempt to avoid a teach-by-numbers approach or uncritical faddishness. They reflect an understanding of the complexity involved in teaching and the role of the Spirit in all of this. From that perspective, they review a few of the principles of classroom instruction which make the most significant difference in terms of student learning.

**PRINCIPLE I | Focus on Student Learning**
Underlying the most effective teaching is a focus not on what the teacher does, but on how the teacher affects what the student does.

**PRINCIPLE II | Lesson Planning**
While constantly open to flexibility and adaptation, effective teaching is not an improvisational art. Effective teachers plan for the student learning experience.

**PRINCIPLE III | Make the Process Visible**
Effective teachers "pull back the curtain" to help students see the learning intentions, processes, and success criteria involved in their courses.

**PRINCIPLE IV | Create a Classroom Culture**
The fluid, human context of a classroom will develop a culture that impacts student learning and should be carefully shaped and managed.

**PRINCIPLE V | Frequent, Formative Feedback**
Learning requires iteration, trial, and error. Feedback which is educative helps students polish and cement their understanding.

**PRINCIPLE VI | Actively Engage Students**
Student time and energy lead to learning. Engagement provides the energy that transforms exposure to understanding and long-term memory.

**PRINCIPLE VII | Know Your Impact**
Replacing the "gut check" with actual data about performance empowers effecive teachers more than any other variable to help students learn.

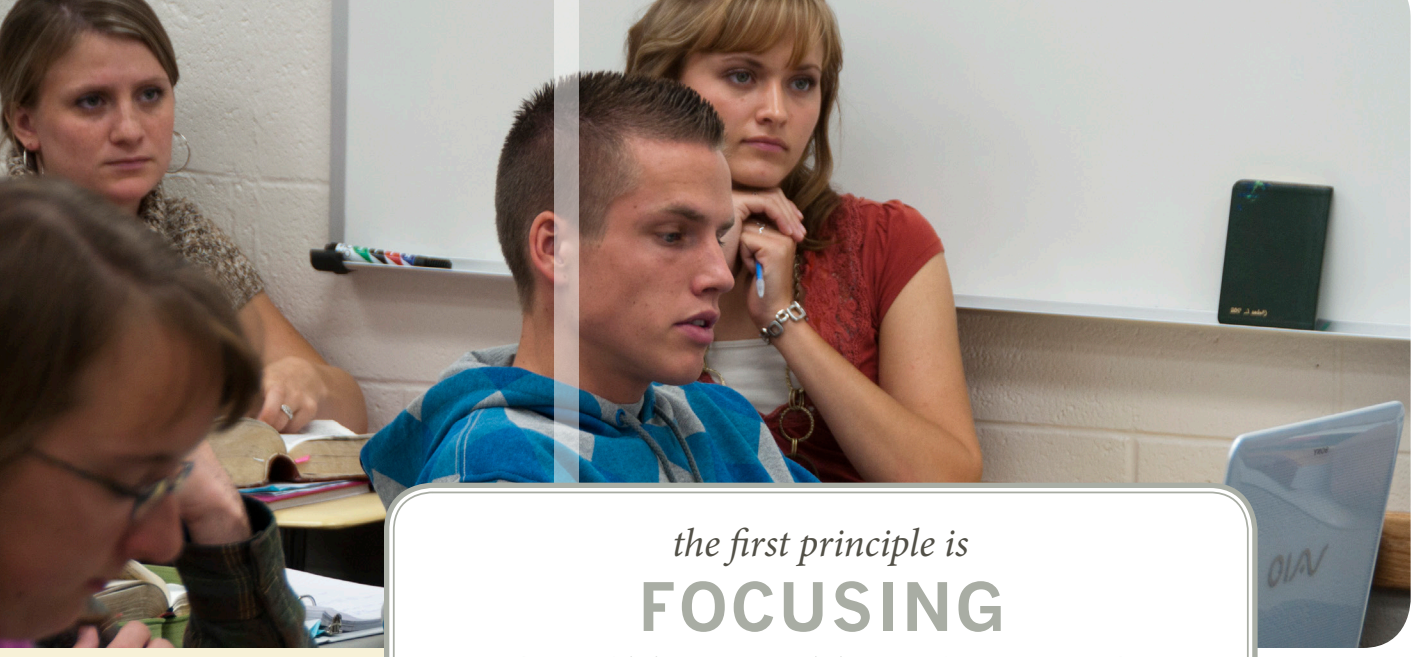
**OTHER RESEARCH BASED PRINCIPLES |** Various authors have derived principles from an overview of the research literature which restate and compliment those presented here. A few examples are highlighted.

**SUMMARY |** The Learning Model, the gospel, and academic research can guide us as we seek to apply true principles to our teaching practice.

*seven instructional*

# PRINCIPLES

## BYU–IDAHO



*the first principle is*

# FOCUSING
## ON STUDENT LEARNING

### PRINCIPLE I: Focus on Student Learning

This principle can be illustrated with a simple grammar example.

- The instructor teaches the discipline to students.
- The instructor teaches students the discipline.

The first sentence gives priority to the discipline and places the students in the position of secondary importance. The second sentence emphasizes the students first and places the discipline in second place. The problem with both these sentences, however, is that they place the instructor as the subject. They show the learning/teaching encounter through the lens of the teacher's experience. Now look at this sentence:

- Students learn the discipline with the instructor's help.

Here, students are the grammatical subject. Learning rather than teaching is the verb. The academic discipline is the direct object - that which is learned. The prepositional phrase (with my help) acts as an adverbial phrase, explaining how the learning happens.

Sentence three is indicative of a change in perspective that has gained prominence in many educational contexts. Tagg and Barr, in their 1995 article published in *Change* Magazine, referred to this shift as moving from a teaching to a learning paradigm. They state:

**TO PONDER:**

*As you seek spiritual knowledge, search for principles. Carefully separate them from the detail used to explain them. Principles are concentrated truth, packaged for application to a wide variety of circumstances. A true principle makes decisions clear even under the most confusing and compelling circumstances. It is worth great effort to organize the truth we gather to simple statements of principle.*

■ Elder Richard G. Scott
October 1993 General Conference

> *In its briefest form, the paradigm that has governed our colleges is this: A college is an institution that exists to provide instruction. Subtly but profoundly we are shifting to a new paradigm: A college is an institution that exists to produce learning. This shift changes everything.*

**Write your own thoughts within the sidebars, or consider the questions provided.**

At BYU-Idaho, we have a vision of teaching and learning that departs even more radically from the tradition represented in the previous sentences.

- Students learn the discipline with the instructor's help as all rely on the Spirit.

In sentence four "as all rely on the Spirit" clarifies further how the process is to take place and our role in that process. it is beyond the scope of this book to discuss how to get and keep the Spirit in our lives and in our teaching. Such is the discipline of disciples. But the faculty and most of the students at BYU-Idaho have been given the Gift of the Holy Ghost as a result of their covenants.This should make a difference in our learning and teaching efforts.

Brigham Young famously told Karl G. Maeser at the founding of BYU, "Brother Maeser, I want you to remember that you ought not to teach even the alphabet or the multiplication tables without the Spirit of God." BYU-Idaho faculty members need to be true to that heritage and madate today.

As the teacher, our subject matter expertise, curriculum design skills and instructional skills provide some of the help that aids students. We then help create an environment where the Spirit is wecolme to magnify both our efforts and those of the students.

The individual student and their learning are squarely at the center of our attention. They are the grammatical subject and their learning the predicate of the whole educational experience. Our encounter with the learning individual, with her personality, his needs, her strengths and weaknesses, his faith, her agency, and his eternal potential, makes our role one with profound moral, ethical, and spiritual implications.

## PRINCIPLE II: Plan and Prepare

Great classroom teachers rarely improvise. Having the kind of conversation that feels spontaneous, that involves the students in important ways, and that leads to deep learning takes significant amounts of preparation. Seeking to rely on the Spirit does not release us from the responsibility to plan and prepare. That would be like asking the Lord to bless our family finances at the same time that we neglect to make a budget.

And in important ways, planning is like budgeting. It is a good place to start, but once done, we need to remain flexible to the needs of the moment and the promptings of the Spirit. Dwight D. Eisenhower famously said, “In preparing for battle I have always found that plans are useless, but planning is indispensable.” Since teaching is significantly more predictable than the batllefield, we might amend that to, “Plans are often useful, but planning is indispensable.”

Lesson planning is the process where we take our knowledge and understanding of a topic, our desired learning outcomes, the time constraints of our course design, and our knowledge of the student learning process, to translate all of it into actual learning experiences for the students. We plan the learning experience of the students, not just our instructional efforts. If our lesson plans tend to be a sequence of topics, information, or ideas we want to cover, they are almost assuredly teacher-centered lecture notes rather than learning-centered instructional plans.

Learning-centered lesson plans focus on what the students will do to achieve understanding. They act as a guide and a reminder of our answers to the following questions.

- What am I trying to accomplish in terms of learning – not just in terms of content coverage?
- How do I “hook” students into the day’s learning experience?
- How do I ensure that their introduction to the experience fulfills some intrinsic motivation or affective (personal) need?

- How many distinct learning experiences/activities can I legitimately manage given the time and the difficulty of the content?

- What are the key questions that underlie the discussion I hope to have with the students? What are the questions, problems, or difficulties that make the study of this content interesting and worthwhile?

**TO PONDER:**

*Without exception, outstanding teachers know their subjects extremely well... [They] have used their knowledge to develop techniques for grasping fundamental principles and organizing concepts that others can use to begin building their own understanding and abilities.*

■ Ken Bain. *What the Best College Teachers Do*
pg. 16

## PASTURES IN LESSON PLANNING

A helpful concept for lesson planning was developed by the faculty of the Harvard Business School to help discuss how much emphasis would be given to each part of a lesson. They refer to each part or chunk of a lesson plan as a pasture.

**Choosing and Fencing the pasture:** When we determine the elements for our class, we should consider the following: Is the pasture aligned with the learning objectives of the course? Are the focus and parameters of the dialogue defined? Do we have a clear fence?

*lesson planning is a matter of*

# DESIGNING
## THE STUDENT EXPERIENCE

**TO PONDER:**

*Lesson plans act as a concrete record of the class experience to which one can add notes, indicate what worked last time, and polish for the next time. This kind of record is necessary if an instructor hopes to develop professionally by reflecting on past performance.*

**Finding the gate:** Just as important as defining the fence, is the decision of approach. Finding the gate means determining what question we want to answer. What is the problem we wish to resolve?

**Grazing on what is green:** It is easy to over-discuss or over-graze a topic. We need not hear every student comment, call on every raised hand, or explore every detail of a subject.

**Allowing freedom within the boundaries:** It may be appropriate to provide students reasonable room to explore and deepen their understanding within the topic while structuring their experience within the pasture. Random wandering is no better for real engagement than is a lock-step march through new material. We can often provide students both structure and freedom.

**Bringing back the strays:** When people wander out of boundaries with tangential comments or questions, we need to guide them back with questions that redirect the conversation. For those who insist upon walking the fence-line, we remind them of the ideas or questions central to the inquiry.

**INSTRUCTIONAL PLAN**

| Date: | Class Title: | Instructor: | Room: |
|---|---|---|---|
| **Learning Outcomes:** | Students will understand: | | |
| | Students will value: | | |
| | Students will be able to: | | |
| **Content, Topic, Key Idea:** (emphasis on difficult ideas or threshold concepts) | | | |
| **Pre-Class Preparation:** | | Students Turn In: | Time Instructor Hands out: |

| Pastures - Transitions | Problem/Question | Learning Methods & Activities | Time | Materials Resources | Preparation Notes |
|---|---|---|---|---|---|
| Describe process and determine success criteria | | | | | |
| Pasture 1: | | | | | |
| | | | | | |
| Pasture 2: | | | | | |
| | | | | | |
| Pasture 3: | | | | | |
| | | | | | |
| Pasture 4: | | | | | |
| | | | | | |
| Pasture 5: | | | | | |
| | | | | | |
| **Summary:** Review the success criteria | | | | | |

# PASTURES
## *of 10-15 minutes provide*
## STRUCTURE AND MOMENTUM

**Moving on when the nourishment is exhausted:** At a given point, the learning value of an activity becomes greatly diminished. Recognizing this point of diminishing returns is similar to closing the gate behind us and moving on to the next pasture.

**Transitioning between pastures:** The relationship between the ideas in one pasture and the next is often just as important as the ideas themselves. These transitions often constitute liminal or threshold concepts in the discipline. We should sequence our pastures in a way that builds a logical momentum and connection between ideas.

In most cases, a sixty minute class will only accommodate four to six distinct activities or pastures. Any fewer than this and students lose interest. (The average attention span of an adult is normally only about ten to twelve minutes.) Any more than four to six activities and the depth of learning is lost in trying to manage the transitions between activities.

**YOUR THOUGHTS:**

*What are the questions that originally got you interested in your discipline? What are the questions about the field that interest you now? How could these questions be integrated into the classroom experience?*


*successful instructors engage in*

# DIALOGUE

## ABOUT THE LEARNING PROCESS

### PRINCIPLE III: Make the Process Visible

Most people spend little time thinking about grammar or sentence structure while they speak. They simply talk while using deeply entrenched language patterns in a relatively unconscious way. In a similar vein, most students spend little time thinking about learning while engaged in the experiences of education. They simply apply deeply entrenched learning behaviors in habitual ways.

Yet one of the principle differences between novices and experts in any field is that the experts are aware of and engage in critical examination of the processes they use to achieve their goals. Great students differ from simply good students not so much in terms of native ability, but in terms of the mastery of specific and conscious learning strategies. To help our students become expert learners, we need to help them see and evaluate their learning strategies. While this may seem obvious, it is an experience largely missing from many classroom settings.

Students often enter a class without a clear idea of what will happen that day, what they will be expected to do or learn, what the process will look like, or how they would recognize success if and when it happens. Without this clarity, students adopt a passive approach to learning and a definition of knowledge that emphasizes memorization.

What is lost in this is the learning that most of us want for our students and that they would want for themselves if they understood better. We want our students to understand, to struggle, to argue, to synthesize, to apply, to make mistakes, and then to improve. Most of all we hope they will engage in the process of learning. In order for that to happen, however, we need to regularly and explicitly help them see both the process we are envisioning for them (if it extends beyond listening and note taking) and the learning they will achieve (if it extends beyond remembering things).

Masterful teachers make learning visible in many different ways. One of the easiest is simply to take a few minutes at the beginning of each class to explain the structure of the lesson plan for the day. Some teachers make regular use of the board to list the learning activities for the day and about how much time will be spent with each activity. They discuss the reasons for each activity in terms of the larger goals of the course. They discuss expectations for student engagement in each activity and help students define what successful learning for each activity will look like. All of this only takes a few minutes, but the effect on student engagement and learning is significant.

From the student perspective, this work that we do as teachers to make the learning experience visible develops in them a capacity known as metacognition. Metacognition is simply the ability to think and reflect on one's own learning process. Through metacognition, students learn how to learn better. While metacognition involves more than just a single skill or practice, the average effect size on student achievement for metacognitive skills is .69, meaning that helping students see the learning process, their role in it, the expectations to which they will be held, and what success will look like, moves the average performance of students almost seven tenths of a standard deviation.

## PRINCIPLE IV: Create a Classroom Culture

**YOUR THOUGHTS:**

*What things do you already do to establish a classroom culture? What things could you do that would result in increased student learning?*

The classroom is a context where dozens of real-time decisions are made by the instructor and the students every few minutes. The discursive, adaptive nature of this environment precludes mere technique or methodology from ever being completely sufficient to ensure powerful learning. There is no magic formula to effective teaching because the context in which it happens is too fluid, too human, and too dependent on the individuals involved.

Rather than trying to manage all of those variables personally and in real-time, effective teachers rely on a classroom culture to influence and shape much of the learning and teaching dynamic. These instructors actively construct a social learning environment that, almost unnoticed, influences both the real-time decision-making of the instructor, and the behaviors of the students.

But culture is a hard thing to create and manage. It has a lot to do with expectations and patterns of behavior that are established among the group of students, so an appropriate culture needs to be established anew with each course and each group of students. How well an instructor prepares this cultural canvas will have a large impact on their results once they try to help students paint a learning experience.

**The Learning Model helps establish culture**

The University has worked to introduce students to the principles and practices described in the BYU-Idaho Learning Model (See Book 1). The shared language of this model helps establish a campus-wide culture around learning that can be leveraged in our classrooms. As we find it appropriate to do so, we can cultivate our classroom culture by referencing the language of the Learning Model.

**First impressions establish the culture**

First impressions are critical in establishing the culture. The first communication, the first request, our initial greeting, the way we introduce the class, the experience students have the first day, the way we react to the first student difficulty—all of these things are significant to establishing classroom culture. We will win or lose our students in the first week—sometimes even in the first few minutes—of the semester.

**Routine and social conventions establish the culture**

Teachers know this intuitively. The energy level which is established as normal and acceptable, the level of creative chaos over structured control, the role of humor or play, the level of acceptable language whether scholarly or discursive, the balance of socializing to on-task work, the level of appropriate self-disclosure, the pace of the discussion, where students sit, how class begins -- all these things are usually established in a classroom culture without explicit discussion. Together, however, they establish a social milieu which has a huge impact on learning. Engaging these issues directly and overtly can help establish the desired culture.

**Managing power inequality establishes the culture**

A classroom is not a gathering of equals. Students are well aware that the power in the classroom resides with the teacher. The instructor has the position, the expertise, and the discretion over grading. How we as instructors deal with the issues of power inequality in our classrooms has a big impact on the effectiveness of the culture we establish.

We cannot divest ourselves of our power as the instructor nor should we try. All students demand is fairness and understanding in the application of that power. They expect that the instructor will wield the power without ego involvement. The culture of the classroom will reflect how we handle this power issue. If they trust the use of power in the environment, they will open themselves to learning. If they mistrust it, they will strike a defensive posture towards their learning in order to protect themselves.

The amount of trust in the culture we establish in our classrooms has everything to do with the degree to which students will join the conversation and how much and how well they will learn.

**Open two-way communication establishes the culture**

Helping a student or a group of students through the process of learning necessitates, even demands that teaching be a conversation rather than a performance. Parker Palmer refers to this as teaching that is “engaging rather than engorging.”

Many effective instructors send personal emails to students within the first three weeks of the course commenting on their absence, their contributions in class, or a question they ask. This establishes early that we are aware of them and the quality of their work.

Effective communication also means off-loading correspondence that does not directly contribute to learning. Housekeeping communications can be done electronically. The email and the announcements function within I-Learn can keep our students up to date on the process of the course without using precious classroom time to review due dates, test dates, homework policy or the like.

More difficult than communicating with your students, however, is getting them to communicate with you and with each other. Their willingness to participate, to put themselves "out there," to engage in ideas at the risk of looking foolish, will depend a great deal on the culture that is established early in the course.

**CULTURE**
*is the most effective*
CLASSROOM MANAGEMENT

## PRINCIPLE V: Frequent Formative Feedback

Giving feedback to students or the "coaching of learning" is critical for effective instruction. Assessment data of various sorts needs to be formative — that is, presented for the purpose of improving future performance.

The most systematic study on feedback was published by Kluger and DeNisi in 1996. Their meta-analysis reviewed 131 studies which included over 12,000 subjects. They concluded that in general, feedback is more effective when it provides commentary on what has been done correctly rather than what has been done incorrectly. Feedback is also more effective when it is done in a low-risk environment.

**Educative feedback comes from the coach, not the umpire.** Knowing that he struck-out on the last three at-bats does little to help a baseball player improve his performance. Working with a batting coach, however, who can help him understand where he can improve over the mistakes of the past, is very useful. Educational literature makes this distinction by contrasting formative (coach) and summative (umpire) evaluation.

**Educative feedback looks forward.** While offering information and commentary on past performance, good formative feedback also offers a way forward and answers the question, "so what should the student do next?" In this way the line between giving feedback and offering further instruction becomes blurred and the feedback process becomes a natural and integral part of the learning and teaching process.

**Educative feedback measures against clear criteria and standards.** These standards are known to the students beforehand and act as a guide for performance as well as a rubric for evaluation and feedback

**Educative feedback takes the person into account, but is not personal.** Many instructors want to think that all commentary is only about the work (not the student), and that students should know this. It is the rare human, however, who can listen to feedback with no ego-involvement. Giving good feedback lies in the ability to present information about performance, while maintaining or even strengthening the student's personal identity and commitment to improve.

**YOUR THOUGHTS:**

*When is the first time during the semester that students generally get educative feedback from you? How does this feedback change their future work? Are there ways to strengthen the relationship between feedback and performance?*

**YOUR THOUGHTS:**

*Engagement is not an end unto itself, but a necessary component for deep learning. What are your strategies for eliciting regular and deep engagement from your students?*


## PRINCIPLE VI: Actively Engage the Students

Student learning is more directly an effect of what students do and think than of what we do and think as instructors. To be effective we therefore need to get the students actively and deeply engaged in the process of building their own understanding. Initially this means getting the students' attention and keeping it. Consciously attending to learning is not something that the brain does well. Cognitive scientist Daniel Willingham explains in his book *Why Students Don't Like School*:

> *Contrary to popular belief, the brain is not designed for thinking. It's designed to save you from having to think, because the brain is actually not very good at thinking. Thinking is slow and unreliable. Nevertheless, people enjoy mental work if it is successful.... People are naturally curious, but we are not naturally good thinkers; unless the cognitive conditions are right, we will avoid thinking.*

As teachers, we therefore need to be cognizant of the conditions that will prompt students to engage in the tiring and sometimes arduous task of learning, when relying on prior knowledge is so much more efficient (even if it is wrong).


Finding the right level of difficulty is the first step to engaging the students. If assignments are too hard, a student's tenuous curiosity is quickly exhausted. If too easy, the brain quickly becomes bored. Problems that are in the sweet spot, however, can grab a student and not let him or her go. Psychologist Mihály Csíkszentmihályi defines this sweet spot of engagement as the appropriate balance between the challenge and the skill a student possesses. Students engaged at the proper level experience what he calls "flow" or a whole-hearted active engagement typified by focus and enjoyment.

Psychologist Lev Vygotsky indicated that this area between what a student could do on their own (skill) and what was asked of them (challenge) could be enlarged with the right kind of support on the part of the teacher. This support he referred to as "scaffolding." In other words, to most effectively engage students, we need to find the natural balance between their skill and the challenge, and then ask just a bit more of them while providing structure and support (scaffolding) to help them stretch.

**YOUR THOUGHTS:**

*Beyond verbal explanation of materials, are there aspects of your classroom that act to scaffold student learning? What are they? What other scaffolding activities could you use?*

**YOUR THOUGHTS:**

*Isn't exceeding a student's cognitive bandwidth just an indication that they are not up to the requirements of the discipline? Is there another way of understanding this situation that would affect how I teach?*

Cognitive bandwidth is also a factor in student engagement. Notwithstanding the amount of information we feel we need to cover, the students, indeed all humans, have limitations to how much, how quickly, and for how long they can actively learn. If we work recognizing those limitations, we can expect increased student engagement in the classroom. If we exceed those limitations, we are no longer helping students learn, but merely exposing them to information that they will then need to learn on their own at a later time, at a slower pace, in smaller chunks, and without the benefit of our help. Regular change-up and brief periods of cognitive down time help immensely in this regard. This can be something as simple as a joke, a moment to stand and stretch, or a transition to a new activity every ten to twelve minutes.

Every teacher knows, of course, that their teaching persona plays a role in getting and keeping students engaged. Research is clear, however, that there is no "right" personality for effective teaching. The mixture of humor, self-disclosure, formality, storytelling, and other personality traits will change for each teacher, but there are some universal principles related to the teaching persona that increase student engagement.

How we as instructors talk, how we explain, how we paint pictures with words is a large variable in student engagement. Master teachers talk with their students, rather than at them. They use language that is evocative and a voice that varies in inflection and tone. They are interesting to listen to and easy on the ears. They talk through subjects rather than about them. They make eye contact and engage individuals within the group as well as the group as a whole. Many effective teachers tend to speak just slightly slower that the pace of regular conversation, giving students the chance to capture and think about what is being said.

Ken Bain, in his book *What the Best College Teachers Do*, writes;

> *Teaching is not acting, yet good teachers do expect to affect their audience when they talk: to capture their attention, to inspire, to provoke thoughts and questions.*


In terms of engaging our students, however, getting them to talk is even more important than how we talk. Since whole class discussion only allows one student to talk at a time, one of the best arguments for well-designed group experiences is that they allow many more students to talk, thus giving them the chance to process out loud and test their ideas and understanding against those of the other students.

Larry Michaelsen offers practical and concrete ways for engaging students using small discussion groups. While an entire classroom pedagogy has been developed by Michaelsen called Team-Based Learning, many of the principles that he advocates can be applied in isolation of his entire system of teaching.

Michaelsen has indicated that getting small discussion groups in the classroom to learn effectively relies on what he calls the "4 S's." They are:

1. Significant problem
2. Same problem
3. Specific choice
4. Simultaneous Report


*specific techniques have been developed to*

# ENGAGE
## AN ENTIRE CLASS

**Significant Problems:** Significant problems are problems that are significant to the students and their world. They are problems that will not be interpreted as busy work. While students will not always understand the importance of a problem immediately, they can often be brought to understand a problem as significant through examples or the enthusiasm that the teacher brings to it.

Wiggins and McTighe offered a framework for helping teachers identify significant problems. In their classic book, *Understanding by Design,* they suggest that curriculum priorities be arranged as a set of concentric circles. In the outermost circle are those things that are worth being familiar with. In the next circle are those things that are important to know and do; while at the center of the curriculum plan are those things that represent "Enduring Understandings."

To find the truly significant problems that will engage students, Wiggins and McTighe suggest looking for big ideas that have value beyond the classroom. Such problems often are those that exist at the very heart of

the discipline or that are not immediately obvious without some work at overcoming the intuitive but incorrect answer.

**Same Problems:** In addition to finding significant problems to engage student attention in small groups, Michaelsen recommends giving each group the same problem to work on. That way there is the possibility for discussion and exploration once the conversation reverts to the entire class, and students know that the results of their small group discussions will be compared and contrasted to the thinking of other groups.

**Specific Choice:** In finding problems that engage students for small group discussion, Michaelsen recommends giving students a series of specific possible answers. This is not to say that the problems are simple issues that can be answered with factual statements like a multiple choice test question. Rather, the options should be ambiguous and multifaceted, encouraging discussion and debate in their groups as they seek to find the best answer among the options offered and articulate the reasoning behind their choice.

**Simultaneous Report:** Lastly, Michaelsen recommends finding ways to have each group report the results of their discussion simultaneously. This can be done using voting cards that are held up by a group representative indicating the group's consensus. The purpose of the simultaneous reporting is first to get groups to "own" their thinking and their answers. The simultaneous reporting also allows the teacher to shape the ensuing discussion by asking groups with different answers to explain their reasoning to students who chose differently.

To achieve the four S's in a classroom environment, Michaelsen recommends the use of response cards. Each team is given a set of cards with the letters A through E printed on them. A scenario is then explained and possible responses posted on the board (or in a power point). The teams discuss and eventually come to a consensus on the best available answer. On a cue from the instructor, the teams simultaneously raise the card indicating their choice. A full-class discussion then ensues where the teams are required to defend and discuss their choices.

**TO PONDER:**

*Expert teachers are not wedded to specific teaching strategies – rather, they regularly focus on evaluating the effects they have on students, and adjust teaching methods accordingly.*

John Hattie

## PRINCIPLE VII: Know Your Impact

Researchers have spent years putting microphones on students and monitoring their actions in the classroom with cameras. In doing so, they have documented the three worlds inhabited by the student in the classroom. First, there is the public world of teacher-led discussion and work tasks. Next, there is the private-social world of informal peer interaction. Lastly, there is the private world of self-talk and thinking.

The results of this research are that even trained classroom observers miss over 40% of what goes on among students. Instructors, who are multitasking teaching and observing students, know depressingly little about what is actually going on as it relates to student learning. Indeed, up to a quarter of everything students learn in a traditional classroom depends critically on either their private-social world or their self-designed tasks and use of resources, neither of which are accessible to teacher observation. The difference between 75% and 100% mastery of a subject depends on things that even observant teachers rarely identify.

This research highlights the need for instructors to consciously seek feedback about the students' learning experiences. A recent summary of meta-analyses of learning and teaching research concluded that a teacher *receiving feedback from students* about the student experience and then acting upon it actually has a more powerful effect on student achievement than does performance feedback from the instructor to the students - although both were important.

Hence principle number seven. Effective teachers find ways to elicit regular feedback and gather data about how their instructional efforts are working. They make time to take the classroom pulse more formally and effectively than just asking, "Everybody with me?" Some use pre- and post-tests, some use surveys, daily reflections, student learning journals, or clickers. Some implement one or more Classroom Assessment Techniques (see Thomas Angelo's book by the same name) which are simple, non-graded activities designed to generate feedback on the learning-teaching process. However they do it, effective instructors recognized the need to not simply rely on perceptions of student engagement or a good feeling during discussion as reliable insight into the student experience.

Such, in fact, is often misleading data. Instructors who are explaining things that they understand are treading well-worn neural circuitry in their brains and trigger the corresponding dopamine reward circuits. It is therefore not only possible, but common for instructors to finish teaching feeling excited, energized, and engaged by the experience and then make the false assumption that such a response can be taken as evidence of student learning. The truly effective instructor will seek out data about student learning from much more reliable and valid sources than a "gut check."

John Hattie, a researcher who has compiled the largest ever collection of evidence based research on student achievement says it this way:

> *My role, as a teacher, is to evaluate the effect I have on my students.*

AT BYU-Idaho, we also seek the guidance of the Spirit and the gift of discernment in understanding our impact. We do this, however, in addition to collecting data.

FEEDBACK FROM STUDENTS

## IS MORE POWERFUL

*than feedback to students, although both are important*

## OTHER RESEARCH-BASED PRINCIPLES

*What the Best College Teachers Do.* Ken Bain (2004)

1. Outstanding Teachers Know their Subjects Well
2. Outstanding Teachers are Scholarly Teachers
3. The Best Teachers Expect "More"
4. The Best Teachers Create a "Natural, Critical Learning Environment"
5. Highly Effective Teachers have a Strong Trust in Students
6. Outstanding Teachers have a Strategy to Assess their Efforts and Make Changes

*Seven Principles for Good Practice in Undergraduate Education.* Chickering and Gamson (1987)

1. Encourages Contact Between Students and Faculty
2. Develops Reciprocity and Cooperation Among Students
3. Encourages Active Learning
4. Gives Prompt Feedback
5. Emphasizes Time on Task
6. Communicates High Expectations
7. Respects Diverse Talents and Ways of Learning

*Applying the Science of Learning to the Art of Teaching.* Diane Halpern and Clayton Stephenson (2011)

1. Clarify objectives
2. Have students generate responses
3. Distribute learning over time
4. Vary learning activities
5. Use dual-coding (e.g., visual and verbal)
6. Provide feedback that informs
7. Challenge learners' epistemology

*Which Strategies Best Enhance Teaching and Learning in Higher Education.* John Hattie (2011) The best teachers...

1. Communicate clear learning intentions and criteria for success
2. Use multiple teaching strategies that emphasize student perspectives in learning
3. Seek feedback regarding the effectiveness of their teaching and provide feedback to students regarding the effectiveness of their learning

## SUMMARY

In addition to these principles derived from scholarly research, it is worth reiterating the principles articulated by the BYU-Idaho Learning Model as defining the educational endeavors on our campus. These principles do not compete with those derived from research, but compliment and complete scholarly insight with additional truth available to us as members of the Church. These principles have been discussed at some length in both Book One and Book Two of this series.

1. Exercise faith in the Lord Jesus Christ as a principle of action and power.
2. Understand that true teaching is done by and with the Holy Ghost
3. Lay hold upon the word of God - as found in the Holy Scriptures and in the words of the prophets - in all disciplines.
4. Act for themselves and accept responsibility for learning and teaching
5. Love, serve and teach one another.

Principles, by definition — whether research or gospel derived — do not carry with them instructions for implementation. They are not formulas or recipes. Yet there are several things that help us so that learning to implement the principle is not completely a process of trial and error.

The first is individual and hopefully inspired judgement or wisdom. We look at a situation and do our best to find wise ways to implement the principle. We rely on the Holy Ghost to guide us as we attempt the real-time, concrete application of the truth captured in principle form.

The next way is that we rely on processes rooted in the principles. We copy good patterns we have seen. We practice and polish techniques that have proven fruitful in the past. We have a plan that we can modify and improvise upon as we work, but we start with the plan. Once we become skilled at connecting principles to individual learning situations, our reliance on processes becomes automatic.

Inspiration, judgement and processes help us bridge the gap from principle to practice and develop the automaticity of the expert teacher.

BYU IDAHO

The list of principles discussed here is more than a collection of truisms about teaching. It describes those aspects of instruction that appear regularly among the most effective teachers, independent of their personality, their preferred pedagogy, or their discipline.

Applying these principles in our unique instructional situations requires what William James referred to as, “an intermediate inventive mind.” In other words, excellent instruction will never be reduced to a paint-by-numbers pedagogy. The person of the teacher will always be required as one who knows the material, who knows the students, who knows the principles by which students best learn, and who knows how to apply and adapt powerful principles of teaching in real-time contexts.

1. Focus on Student Learning
2. Lesson Planning
3. Make the Process Visible
4. Create a Classroom Culture
5. Frequent, Formative Feedback
6. Actively Engage Students
7. Know Your Impact

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