



The purpose of this section is to summarize research that relates to the professional development of faculty and administrators to ensure that students with disabilities have equal access to their courses. Selected research areas were developed through literature review and collaboration with various DO-IT project team members. The “Implications for Practice” section of each topic area shows how the specific body of research can be applied to create an effective professional development program.

The body of research shared in this section provides the foundation for the presentation content and delivery strategies included in other sections of this notebook. The suggestions in the sections entitled *Presentations* and *Presentation Tips* are also based on this body of knowledge. Professional development facilitators may find this foundation useful as they develop effective faculty and administrator training materials and programs.

Six subsections are organized around key questions that must be addressed in order to be fully informed when developing educational opportunities for postsecondary faculty and administrators. Subsection topics and questions are listed below.

## **Professional Development: Need, Content, and Methods**

- Why do faculty and administrators need professional development regarding teaching students with disabilities in their courses and programs?
- What do we know about the knowledge, experiences, and attitudes of faculty and administrators regarding students with disabilities? What do faculty and

administrators want and need to know about fully including students with disabilities in their classes? How do faculty and administrators want to gain this knowledge?

- What do students with disabilities think faculty members and administrators need to know about providing full academic access in their classes?

## **Adult Learning**

- What do we know about adult learning that can be applied to the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

## **Learning Styles**

- What do we know about learning styles that can guide the delivery and design of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

## **Types of Learning**

- What do we know about types of learning that can guide the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

## **Universal Design of Instruction**

- What do we know about universal design of instruction that can guide the design and delivery of professional development for faculty and administrators regarding the equal access of students with disabilities in their courses and programs?



### Systemic Change

- What do we know about systemic change that can guide the design and implementation of professional development for faculty and administrators regarding equal access for students with disabilities in their courses and programs?
- What do we know about sustaining faculty and administrator development activities for supporting students with disabilities?

In each topic area, research questions are followed by an overview of research as well as suggestions for preparing and delivering presentations to faculty and administrators. A concluding section, “Application of Research Findings,” summarizes how each research area can be applied to the delivery of professional development presentations for faculty and administrators. Note that research in several different areas supports some of the same recommendations, thereby reinforcing essential characteristics of successful professional development programs.



## Research Questions

- Why do faculty and administrators need professional development regarding teaching students with disabilities?
- What do we know about the knowledge, experiences, and attitudes of faculty and administrators regarding students with disabilities? What do faculty and administrators want and need to know about fully including students with disabilities in their classes? How do faculty and administrators want to gain this knowledge?
- What do students with disabilities think faculty members and administrators need to know about providing full academic access in their classes?

## Overview of Research

As a result of federal legislation, such as the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) and Section 504 of the Rehabilitation Act of 1973, young people with disabilities are being encouraged and better prepared to pursue higher education (Henderson, 2001; Horn & Berktold, 1999; National Council on Disability, 2000). The number of students with disabilities enrolled in higher education continues to grow. In 2006, the U.S. Department of Education reported that approximately 11% of people in postsecondary programs report a disability (2006).

Despite their increasing percentage of college enrollment, students with disabilities are less successful in postsecondary education when compared to their non-disabled peers. A recent survey found that only 12.5% of working-age adults with disabilities had earned a bachelor's degree

or higher, compared to 30.8% of their non-disabled peers (Erickson & Lee, 2008). These figures are of concern, since a postsecondary education is positively correlated with increased vocational options, financial success, and a rewarding adult life. In fact, for people with disabilities, there is a stronger positive correlation between level of education and rate of employment than there is for the general population (Stodden, 1998; Stodden & Dowrick, 1999).

## People with Disabilities and Employment

A significant gap in earnings is apparent between those with disabilities and those without. In a recent survey (Erickson & Lee, 2008) the median annual household income of people with disabilities in the U.S. was \$38,400 in 2007, compared to \$61,000 in households comprised of people without disabilities. Additionally, it was found that only 36.9% of people with disabilities were employed, while 79.7% of people without disabilities had jobs. The poor employment figures for people with disabilities coupled with the positive impact of postsecondary education make increasing their postsecondary success an important goal (National Council on Disability, 2000; Phelps & Hanley-Maxwell, 1997).

## Legal Issues

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination against individuals with disabilities in programs and services that receive federal funds. The Americans with Disabilities Act (ADA) of 1990 reinforces and extends the requirements of Section 504 to programs and services, regardless of whether or not they receive federal funds. These laws apply to postsecondary institutions. For qualified students who disclose their disabilities



and present appropriate documentation, postsecondary institutions must provide reasonable accommodations to ensure equal access to program offerings (Frank & Wade, 1993; Heyward, 1998; McCusker, 1995).

### **The Need For Professional Development**

Many factors impact the academic success of students with disabilities. They include physical access, campus support services, and faculty willingness to make accommodations.

Although students often report satisfaction with their accommodations, some students with disabilities have difficulty acquiring accommodations, some course content and activities are inaccessibly designed, and some faculty members project negative attitudes toward them (Burgstahler & Doe, 2006; Durre, Richardson, Smith, Shulman, & Steele, 2008; Hill, 1996). Prejudicial treatment, whether intentional or not, creates obstacles for students with disabilities in higher education that can be more disabling than the physical or cognitive impairments themselves (Fichten, 1995). Faculty members with more knowledge about and experience with students who have disabilities have more positive attitudes about them than those with less experience and knowledge (Fichten, Amsel, Bourdon, & Creti, 1988; Fonosch & Schwab, 1981; Yucker, 1994).

When considering accommodations for students with disabilities, postsecondary faculty are often concerned about maintaining academic integrity (Nelson, Dodd & Smith, 1990). Many support the integration of students with sensory and physical disabilities, but are less supportive

of integrating students with learning disabilities and psychiatric disabilities (Burgstahler & Doe, 2006; Leyser, 1989; Nelson, Dodd, & Smith, 1990). There are also certain accommodations that faculty members are less willing to provide, such as alternative assignments, copies of lecture notes, tape-recorded assignments, and proofreaders (Nelson, et al., 1990). Additionally, the willingness to provide accommodations varies by academic discipline. For example, education faculty have been found to be more willing to accommodate students than business faculty, and business faculty have been found to be more willing to provide accommodations than science faculty (Leyser, Vogel, Wyland & Brulle, 1998; Nelson, et al., 1990).

Some instructors feel uncomfortable talking to students with disabilities. Similarly, students with disabilities are sometimes reluctant to ask for accommodations. They express concern that instructors may have negative attitudes about them, and that they may not respect their privacy regarding their disabilities (Burgstahler & Doe, 2006; National Center on the Study of Postsecondary Educational Supports, 2000).

### **The Delivery of Professional Development**

Overall, despite ever-growing course loads, committee assignments, research responsibilities, and community work, professors are receptive to receiving training in teaching students with disabilities (Norman, Caseau, & Stefanich, 1998).



College administrators also acknowledge the need to provide training for faculty regarding the capabilities and unique needs of students with disabilities (Nelson, et al., 1990). Both faculty and students have expressed the need for faculty development so that instructors can better understand their legal obligation to provide academic accommodations, learn about typical accommodation strategies, improve communication skills, and become aware of available resources (Burgstahler & Doe, 2006; Leyser et al., 1998; Vogel, Leyser, Burgstahler, Sligar, & Zecker, 2006; Vogel, Leyser, Wyland, & Brulle, 1999). Faculty members and administrators report interest in multiple presentation delivery methods including short printed publications, online resources, and short presentations that include case studies or student panels (Burgstahler, 2007b; Burgstahler & Doe, 2006). Including disability-related content in training programs and orientations for teaching assistants (TAs) is also important, since many TAs have primary teaching responsibilities (Burgstahler & Jirikowic, 2002).

Training opportunities regarding accommodating students with learning and psychiatric disabilities are of particular interest to postsecondary faculty (Burgstahler & Doe, 2006; Cafferella & Zinn, 1999; Houck, Asselin, Troutman, & Arrington, 1992; Souma & Casey, 2008; Spencer & Romero, 2008; Vogel et al., 1999).

### **Implications for Practice**

Faculty members, teaching assistants, and administrators need information about legal issues, accommodation strategies, and resources for working with students who have disabilities. Training should be provided in multiple ways to address

differences in schedules, interests, knowledge, experience, and information needs. Short printed publications, Internet-based resources, and both short and extended presentations should be considered. Follow-up support to address specific needs should also be provided.

It is best to tailor professional development sessions to the needs of instructors in specific academic disciplines, giving examples of accommodations that are likely to be provided in each of those fields. Seek to educate instructors in academic disciplines that tend to be less willing to accommodate students with disabilities. Faculty members in academic areas where advancing technology increases opportunities for participation of students with disabilities should also be targeted for training in order to correct faulty assumptions about what students with disabilities can accomplish. For example, faculty members in information technology (IT) fields may not be aware of assistive technology (AT) that allows individuals with a wide range of disabilities to access computers. In addition, instructors of Internet-based learning courses may not be aware of the technical issues and legal obligations to design courses that are accessible to students with disabilities (Burgstahler, 2007a; Patrick, 1996).

Keep in mind that faculty members may feel uncomfortable when working with students who have disabilities. Their attitudes may be based on faulty assumptions and stereotypes. Use faculty training as an opportunity to allow instructors to openly discuss fears and concerns, to dismiss incorrect assumptions and stereotypes, and to provide accurate information. Model an attitude of respect for the rights



and responsibilities of the institution, students with disabilities, and instructors. Avoid generalizations about people with disabilities and highlight similarities instead of differences between students with and without disabilities. Emphasize that academic accommodations do not need to be elaborate; creativity and common sense can lead to practical solutions for access problems. Strategies that apply universal design to instruction should also be shared as they hold promise for increasing the learning of all students, including those with invisible disabilities, those who choose not to disclose their disabilities, and those who have other diverse characteristics with respect to language, culture, age, gender, and learning styles (Burgstahler, 2008b; Higbee, 2008; Rose, Harbour, Johnston, Daley, & Abarbanell, 2008; Scott & McGuire, 2008).

When delivering training to faculty and administrators, assume your audience has varying levels of experience, knowledge, and a wide range of interests represented. Some faculty and administrators are eager to learn about disability-related issues; others are interested in only the minimum amount of information they need to perform their jobs. Leave time to discuss issues of special interest to audience members.

Based on a review of research, DO-IT developed six models of professional development for faculty and administrators that may be adapted for a wide range of schedules and interests. The presentation models include a short overview, a comprehensive workshop, tailor-made workshops on specific topics, self-paced web instruction, and a distance learning course (Burgstahler, 2003). In addition to materials provided in this handbook, information

can be found at a comprehensive website entitled *The Faculty Room* website at <http://www.washington.edu/doi/Faculty/>.

### **Conclusion**

Professional development can help educators more fully include students with disabilities in their courses. Ultimately, increased knowledge and skills of faculty members and administrators regarding legal issues, accommodations, and resources can lead to more positive postsecondary and career outcomes for students with disabilities.

### **Research Question**

What do we know about adult learning that can be applied to the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?



## Overview of Research

Knowles (1980) used the term “andragogy” instead of “pedagogy” to clarify differences between the curriculum development needs of adults and those of children. He identified the need for adults to be motivated to learn, to be active in the learning process, and to have their past experiences respected in the learning environment (Millis & Cottell, 1998). Much of the current knowledge in this field is based on Knowles’ ideas.

## Transformative Learning

When adults participate in learning activities, they bring many years of experience with them. They view new material through the lens of this experience (Baird, Schneier, & Laird, 1983). As adults continue to acquire new knowledge and skills, they must integrate new learning with prior learning. When contradictions or dilemmas result, perceptions based on prior learning must be re-examined. Individuals can choose to reject the contradictory new information or revise their previous views. Transformative learning occurs when positive adjustments to prior learning is made (Pilling-Cormick, 1997; Cranton, 1996).

## Self-Directed Learning

Adults often prefer to engage in self-directed learning, where the learner has some control over setting priorities and choosing content, materials, and methods. Self-directed learning can provide a foundation for transformative learning. During the process, individuals use critical thinking to challenge previous assumptions.

The Self-Directed Learning Process Model (Pilling-Cormick, 1997) consists of three components: control factors, interactions

between educator and student, and influences on those interactions. Four factors affect the amount of control participants can exercise in the learning process: social constraints, environmental characteristics, learner characteristics, and educator characteristics. Environmental characteristics include both physical and affective components of teaching and learning situations (Heimlich & Norland, 1994).

In Pilling-Cormick’s model of transformative learning, both the adult learner and the educator influence each other’s interactions. Learners may modify the educator’s facilitation style. Similarly, a presenter who supports self-directedness influences participant perspectives about their own learning (Pilling-Cormick, 1997). An important part of this process, for both the presenter and the participants, is reflection. What do participants want to learn? How will they go about learning it? Why is it important to learn this in the first place? Reflection becomes critical when it leads to the questioning of the validity of the learning itself. The ways in which learners reflect vary depending on the nature of the subject matter and the facilitation strategies used.

One approach to teaching adults in a self-directed format is to address problems together in a collaborative manner, “in which no one need apologize for being uncertain about the material, because uncertainty is understood to be an element of all human knowing” (Roth, Cracolice, Goldstein, & Snyder, 2001, p. 51). In this type of learning environment, the presenter and the participants are open to ideas that will support learning from both mistakes and successes (Schön, 1987).



### Relevant Learning

Learning is greatest when it can be applied to situations of interest to the learner and when there is an immediate benefit. If adults see the relevance of the material presented to their own situations, their motivation to learn increases and the instructor will have a more attentive audience. Motivation to learn originates from the adult learner's expectations of the usefulness of the content (Svinicki, 1996). When adults are forced to learn against their own inclinations and desires, the resulting resentment may become a barrier to meaningful learning (Brookfield, 1993). To maximize learning, the instructor must convince the audience that the material presented is important and useful to them.

### Active Learning

Adults tend to prefer active learning where instructional experiences are related to their real-life situations (Mezirow, 1981). Retention of information for adult learners can be maximized through activity (Thomas, 1991).

Presentation strategies that can assist in communicating necessary information about academic accommodations and faculty concerns include offering faculty practical strategies and meaningful discussion about disability issues and topics.

### Implications for Practice

Some faculty members have had little or no contact with people who have disabilities. Others have taught students with disabilities in their classes. For some, accommodating students with disabilities is consistent with their sense of justice and pedagogical beliefs; for others, providing special accommodations to some students implies unfairness to others. Some faculty

members welcome new ideas; others reject change. Expect that your faculty audience will hold a range of such beliefs and attitudes.

When training is voluntary, you can assume that your audience is motivated. However, if your presentation is mandatory or a part of a program for a group gathered for another purpose, expect that some participants will be reluctant learners.

Consider the following suggestions as you prepare your presentation:

### Transformative Learning

Present clear, situation-relevant learning objectives. Avoid abstractions, rhetoric, and theory with little immediate application. Adult learners may be impatient with hearing general information and find little use for isolated facts. Include concrete examples of accommodations, legal requirements, and campus resources.

To promote transformative learning, consider sharing myths or misconceptions related to disabilities and refute them with factual information. For example:

- Students with learning disabilities have a lower than average IQ. (Actually, people with learning disabilities generally have an average or higher than average IQ (LD Online, n.d.).)
- All students with hearing impairments use sign-language interpreters. (Actually, the number of people with hearing impairments who use sign language is not known (Mitchell, Young, Bachelda, & Karchmer, 2006). However, in a small study, it was found that only 26% of people use sign language (Bain, Scott, & Steinberg, 2004).)



- Students who are deaf are good lip or speech readers. (Current research indicates that individuals have varying levels of accuracy in their speechreading abilities whether or not they are deaf (Bernstein, Auer, & Tucker, 2001).)
- People who use wheelchairs cannot drive automobiles. (Actually, hand controls and other assistive technology allow operation of vehicles without using standard foot pedals.)
- Providing academic accommodations is always difficult, time consuming, and expensive. (Actually, most accommodations are simple and inexpensive.)
- Students who are blind read Braille. (According to the National Federation of the Blind, only 10% of individuals who are blind read Braille (National Federation of the Blind, 2009).)
- People who are blind cannot use computers. (Actually, speech and Braille output and output systems provide blind computer users with full access to all content on a screen.)

Address each item in the list, correcting misconceptions and discussing experiences, resources, and procedures on your campus.

Respect audience members' expertise in their fields while at the same time, recognize that they may lack background and experience on the topic you are presenting. When asking and responding to questions in presentations, be careful not to make participants feel wrong or ignorant if they are poorly informed (McLagan, 1978).

Openly acknowledge the difficulties that change can create and the extra time that might be required to accommodate a specific student with a disability. Be sure to balance the description of challenges that result from fully including students with disabilities in classes and programs with the positive outcomes that result from doing so. With a straightforward approach, resistant or defensive audience members are more likely to trust you and the information you present.

### Relevant Learning

Make the content relevant to the work of the participants. Postsecondary educators have a wealth of knowledge and multiple responsibilities, all of which draw upon their time and energy. As with most adult learners, postsecondary educators are goal-oriented, generally appreciate outcomes more than process, have set habits and strong feelings, and have little time to waste.

When providing training for faculty and administrators, it is important to be sensitive to the different needs of participants. For example, faculty need information in order to provide academic accommodations in their specific classes. Administrators (e.g., departmental heads, deans) need information in order to make policy decisions. Some participants may have a personal interest in the subject matter or enjoy learning the information simply for the sake of knowledge; many will prefer to receive only information that is relevant to their position.

Tap into the positive motivations of the audience to help them want to learn. Consider why your audience is attending your presentation. If your presentation is part of a regularly scheduled faculty



meeting, a brief introduction delivered by the dean or chair of the department can help emphasize the importance of the material you will present. To determine audience interests, consider making brief phone calls or conducting a survey prior to a presentation to gain information or ask participants to share their interests at the beginning of the presentation. Use the life and work experiences of those in the session to develop examples and to answer questions.

### **Active Learning**

Audience participation can help keep your participants engaged as well as provide opportunities for you to reinforce key points. Ask your audience if they have taught students with disabilities, and encourage participants to share their experiences and concerns. Incorporate information the participants wish to learn into the training section. Allow participants to discuss examples and case studies to explore how the information presented can be applied. Videos or panels of students with disabilities can provide real-life examples to promote discussion; the visual images can help participants assimilate the content.

Approach each presentation with an attitude that everyone can contribute to the learning process. Develop an environment of trust and respect by ensuring the training is a safe place to discuss personal ideas without criticism. Invite faculty members who have worked with students who have disabilities to share their experiences and field questions from the audience. Let participants discuss challenges they currently face, or have faced in the past, and help lead them to solutions.

### **Conclusion**

Keep the key concepts of adult learning theory in mind as you prepare and present professional development programs for faculty members and administrators to make them more effective. Actively engage participants in the learning process, make the content relevant to their jobs, and work to transform inaccurate assumptions into accurate perceptions. Ultimately, increased skills of faculty and administrators can result in more positive academic and career outcomes for students with disabilities.



## Research Question

What do we know about learning styles that can guide the delivery and design of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?

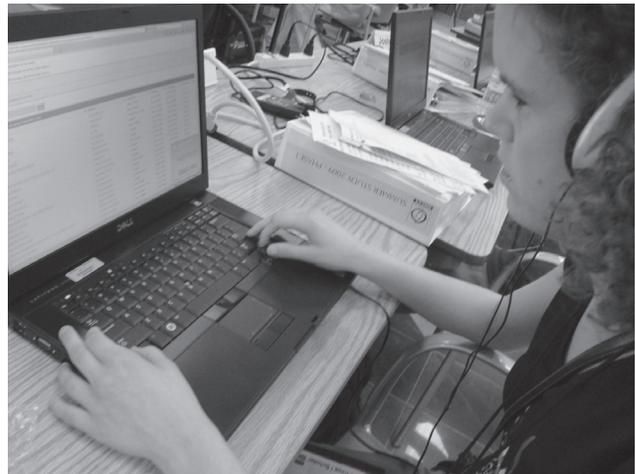
## Overview of Research

How learners learn is as important to consider as the content being taught. Learner-centered education strives to make both content and methods appropriate for the learner (Conti, 1998). Although learning is an individual event, it often occurs in a group setting (Felder, 1996). In any group, the presenter can assume that participants have a variety of learning styles. Addressing learning style issues in the delivery of instruction can maximize its effectiveness.

“Learning style” refers to how an individual responds to the learning environment (Claxton & Ralston, 1978; Wooldridge, 1995). Dunn and Griggs (2000) describe learning style as the way an individual begins to concentrate on, process, internalize, and remember new information and skills. They report that learning style is an individual’s reaction to several factors that include the following:

- the environment, such as room temperature or lighting;
- emotions, such as motivation and persistence;
- sociological factors, such as individual or group learning; and
- physiological factors, such as sensory preferences and variable energy levels.

In addition to the learning styles of students, it is important for presenters to be aware of their own learning preferences. An instructor’s style may influence the activities chosen within the learning environment. Students will respond based on their own personal preferences. A mismatch between the learning styles of students and their instructor can interfere with learning and raise the discomfort level of students. Alternatively, when the learning styles of students are similar to those of an instructor, they may exhibit greater achievement and personal satisfaction (Felder, 1996; University of Illinois at Urbana-Champaign Office, Division of Instructional Development, 1998).



## Sensory Preferences

Perhaps the most commonly used categories of learning styles are based on sensory preferences. Wooldridge (1995) describes learners with the following preferences.

## Auditory Preferences

This category describes those who learn best by listening to verbal instruction such as a lecture, discussion, or recording. Coker (1996) describes this person as “the listener,” preferring to rely on sounds to learn.



### Visual Preferences

These learners use vision for their primary perceptual preference and can remember most easily what they read or observe. They can close their eyes to recall what they have read or seen earlier. Ness (1995) includes a separate category of “written word” in which the person has a preference for learning by reading as opposed to actually seeing objects or participating in activities in order to learn.

### Tactile Preferences

Learners with tactile perceptual preferences often need to underline as they read, take notes when they listen, or keep their hands busy in other ways. Members of this group may never read the notes they write. Rather, the activity of writing is sufficient for the learning to occur (Ness, 1995).

### Kinesthetic Preferences

For these learners, whole body movement and real life experiences are often needed to absorb and retain the material to be learned. They learn best when they are totally involved in an activity.



### Experiential Learning

Another popular theoretical framework for learning styles is that of Kolb’s “Experiential Learning” (Claxon & Ralston, 1978; Svinicki & Dixon, 1987). This theory explains how a person develops observations and reflections from a concrete experience. Abstract concepts are then formed which guide new behavior. Within this model, four specific learning styles emerge:

#### Converger

These learners work best when there is a simple and correct answer to a problem. Their dominant learning abilities are abstract conceptualization and active experimentation. These individuals prefer dealing with things rather than people and tend to excel in the physical sciences and engineering.

#### Diverger

These individuals learn best through concrete experience and reflective observation. A strength is their imaginative ability. They tend to be people-oriented, react with emotions, and excel in humanities and the liberal arts.

#### Assimilator

The dominant learning orientations of these people are abstract conceptualization and reflective observation. Abstract conceptualization activities include listening to lectures, writing papers, building models, completing projects, and developing analogies. Reflective observation activities include the use of logs, journals, discussion, brainstorming, thought questions, and rhetorical questions. Assimilators like to organize diverse items into an integrated whole. They are often interested in math and science fields.



### Accommodator

Accommodators learn best through concrete experimentation. These activities include practicing in laboratories, collecting observations, reading primary text, participating in simulations and fieldwork, working problem sets, and studying examples and case studies. Accommodators like to have new experiences. They are intuitive and often use the trial-and-error strategy to solve problems. This type of learner often prefers technical or business fields.

### Implications for Practice

Successful presenters employ a variety of teaching strategies in response to the diverse set of learning styles found within most groups. They also consider diversity in age, experience, intellect, and background. This is particularly important when teaching new material. Successful instructional techniques include the following (Felder, 1996).

- Teach theory by providing phenomena and problems that relate to the theory.
- Balance conceptual information with concrete information.

- Use a variety of sketches, plots, schematics, computer graphics, and physical demonstrations in addition to oral and written explanations in lectures and handouts.
- Provide plenty of time for reflection and discussion. Provide time for learners to think about the material being presented and organize their thoughts.
- Promote active participation and respond to individual questions. Also encourage faculty participants to use a variety of teaching strategies with their own students in order to address the different learning styles in their classes (Goad, 1997).

### Sensory Preferences

Experiment with new techniques and strategies that may not be part of your own style. Some individuals learn better through listening, some through discussing, others through reading or watching, and still others through doing. Engage participants in a variety of learning activities that use multiple senses. Provide key information in multiple ways. Consider using videos, group discussions, mini-lectures, case studies, questions and answers, panels, and role-playing.

### Experiential Learning

Experiential learning can be used in your faculty training by developing activities based on the common learning styles of different faculty groups. For example, business instructors may prefer activities designed for the accommodator; history, political science, English, and psychology faculty may be more receptive to activities for the diverger; economics, mathematics, sociology, and science instructors may



## Building the Team

find activities for the assimilator to be more effective; and those in engineering may prefer activities associated with the converger.



### Conclusion

Create a learner-centered environment in training sessions for faculty and administrators. Expand your teaching style repertoire in order to accommodate all learners and encourage faculty to do the same to support the learning needs of their students. Use multiple instructional methods that engage different senses so that more learners, including those with disabilities, can learn effectively.



## Research Question

What do we know about types of learning that can guide the design and delivery of professional development for faculty and administrators regarding equal access of students with disabilities to courses and programs?



## Overview of Research

Learning has been categorized in many ways. Three are discussed below.

### Bloom's Taxonomy

Psychologist Benjamin Bloom developed a classification scheme for types of learning which includes three overlapping domains: cognitive, psychomotor, and affective. Skills in the cognitive domain, the one most relevant to faculty and administrator training (Lee, 1999), include:

- **knowledge** (remembering information);
- **comprehension** (explaining the meaning of information);
- **application** (using abstractions in concrete situations);
- **analysis** (breaking down a whole into component parts); and

- **synthesis** (putting parts together to form a new and integrated whole).

For example, knowing that the ADA was passed in 1990 is knowledge. Explaining what the law means is comprehension. Application is illustrated when someone knows how the law applies to higher education. Analysis is required to discuss the details of specific legal applications. Finally, synthesis is needed to develop policies and procedures for a postsecondary institution in response to the ADA.

### Tennant's A.S.K.

Professor Mark Tennant (1995) categorized types of learning in a different way. The acronym A.S.K., developed by Tennant, represents the three types of learning that occur in training:

- A** represents "attitude," also known as affective learning. An example of this type of learning is a shift in attitude toward the academic abilities of students with disabilities.
- S** represents "skills," often called psychomotor or manual learning. Learning to operate adaptive technology is an example of the development of skills.
- K** represents "knowledge." Cognitive learning is the formal term used for mental skills such as recall of information. An example of knowledge is information on available resources related to disability issues.



### Gardner's Seven Knowledge Types

Howard Gardner (1983, 1999) developed a theory of multiple intelligences based upon research in the biological sciences, logistical analysis, and psychology. He breaks down knowledge into seven types:

1. **Logical-mathematical intelligence:** the ability to detect patterns, think logically, reason and analyze, and compute mathematical equations (e.g., chemists, economists, engineers).
2. **Linguistic intelligence:** the mastery of oral and written language in self-expression and memory (e.g., journalists, lawyers, politicians).
3. **Spatial intelligence:** the ability to recognize and manipulate patterns (large or small) in spatial relationships (e.g., architects, pilots, sculptors).
4. **Musical intelligence:** the ability to recognize and compose musical quality (pitches, tones), and content (rhythms, patterns) for production and performance (e.g., composers, conductors, musicians).
5. **Kinesthetic intelligence:** the ability to use the body, or parts of the body to create products or solve problems (e.g. athletes, dancers, surgeons).
6. **Interpersonal intelligence:** the ability to recognize another's intentions, and feelings (e.g., managers, sales people, social workers).
7. **Intrapersonal intelligence:** the ability to understand oneself and use the information to self-manage (e.g., entrepreneurs, psychologists).

Gardner's theory purports that people use these types of intelligence according to the type of learning that is necessary, their personal strengths and abilities, and the environment in which the learning takes place.

Since different teaching strategies are best applied to certain types of learning, using a wide variety of activities when teaching new material will maximize learning for everyone (Felder, 1996).



### Implications for Practice

Carefully consider the context of the participants in the audience of your presentation. What knowledge do they need to perform their job more effectively? What skills need to be developed? How can you help participants synthesize critical content in order to develop appropriate institutional policies? How can you help them develop strategies for accommodating specific students with disabilities in specific activities? How can you model and promote a positive attitude about disability-related accommodations?

Often, learning occurs during periods of confusion, frustration, and struggle. For this reason, risk-taking on the part of the



facilitator and the participants is necessary. Sharing personal experiences, posing questions, and presenting case studies can promote learning. In order to engage participants in critical thinking and facilitate problem-solving, consider the following suggestions (Brookfield, 1993):

- Value and respect participants through word and action.
- Listen attentively and provide support for efforts.
- Identify and challenge assumptions.
- Reflect back attitudes, rationalizations, and habitual behaviors.
- Imagine and explore alternatives.
- Practice reflective skepticism.
- Model critical thinking through clarity, consistency, openness, and accessibility.
- Teach theory by detailing phenomena and practical problems related to the theory.
- Balance conceptual with concrete information.
- Use a variety of sketches, plots, schematics, computer graphics, and physical demonstrations in addition to oral and written explanations in lectures and handouts.
- Provide time for participants to reflect upon the material being presented.
- Encourage active participation.

Vary your presentation methods and individualize your strategies. Address the three types of learning—attitude, skills, and knowledge. To address attitudes toward students with disabilities, consider having a panel of successful college students and graduates with disabilities share their experiences. To address skills, you could have participants role-play lectures using a sign-language interpreter while facing the audience.

Lastly, encourage use of different intelligences. Knowledge can be gained when information is given through multiple means including lectures, handouts, videos, analyzing case studies, sharing of personal experiences, and discussion. Logical-mathematical and linguistic intelligences are heavily used in traditional academic settings and responsible for high scores in academic achievement tests. It is reasonable to expect faculty and administrators to heavily rely upon these types of intelligence.





### **Conclusion**

Participants will use multiple types of learning processes during your presentation. When you use different modes of presentation (e.g., lecture, case study analysis, role playing, and discussion) and encourage active participation, you will more effectively facilitate optimal learning.



## Research Question

What do we know about universal design (UD) of instruction that can guide the design and delivery of professional development for faculty and administrators regarding the equal access of students with disabilities to their courses and programs?

## Overview of Research

Universal design is defined by the Center for Universal Design (CUD) at North Carolina State University as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design, 1997). The field of UD can provide a framework for developing instruction to maximize the learning of all students, including students with a variety of abilities and disabilities, cultures, learning styles, and ages (Bowe, 2000). Faculty members can apply this body of knowledge to create courses in which lectures, discussions, visual aids, videos, printed materials, information technology, science labs, and fieldwork are accessible to all students (Burgstahler, 2008b). Those presenting professional development

**Table 1.1 Applications of the Seven Principles of Universal Design of Instruction**

<i>UD Principle</i>	<i>Example of How UD Might Be Applied to Instruction</i>
<i>Equitable use.</i> The design is useful and marketable to people with diverse abilities.	A professor’s website is designed so that is accessible to everyone, including students who are blind and use text-to speech software.
<i>Flexibility in use.</i> The design accommodates a wide range of individual preferences and abilities.	A museum, visited as a field trip for a course, allows each student to choose to read or listen to a description of the contents of display cases.
<i>Simple and intuitive.</i> Use of the design is easy to understand regardless of the user’s experience, knowledge, language skills, or current concentration level.	Control buttons on science equipment are labeled with text and symbols that are simple and intuitive to understand.
<i>Perceptible information.</i> The design communicates necessary information effectively to the user regardless of ambient conditions or the user’s sensory abilities.	A video presentation projected in a course includes captions.
<i>Tolerance for error.</i> The design minimizes hazards and the adverse consequences of accidental or unintended actions.	Educational software provides guidance and/or background information when the student makes an inappropriate response.
<i>Low physical effort.</i> The design can be used efficiently and comfortably and with a minimum of fatigue.	Doors to a lecture hall open automatically for people with a wide variety of physical characteristics.
<i>Size and space for approach and use.</i> Appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user’s body size, posture, or mobility (The Center for Universal Design, 1997).	A flexible science lab work area has adequate workspace for students who are left- and right-handed and for those who need to work from a standing or seated position (Burgstahler, 2008b, p. 27).



**Table 1.2 DO-IT Universal Design of Instruction Guidelines and Examples**

<i>UDI Guideline</i>	<i>Examples of UDI Practice</i>
<i>Class climate.</i> Adopt practices that reflect high values with respect to both diversity and inclusiveness.	<i>Avoid stereotyping.</i> Offer instruction and support based on student performance and requests, not simply on assumptions that members of certain groups (e.g., students with certain types of disabilities or from a specific racial/ethnic group) will automatically do well or poorly or require certain types of assistance.
<i>Interaction.</i> Encourage regular and effective interactions between students and the instructor and ensure that communication methods are accessible to all participants.	<i>Promote effective communication.</i> Employ interactive teaching techniques. Face the class, speak clearly, use a microphone if your voice does not project adequately for all students, and make eye contact with students. Consider requiring a meeting with each student. Supplement in-person contact with online communication. Use straightforward language; avoid unnecessary jargon and complexity; and use student names in electronic, written, and in-person communications.
<i>Physical environments/products.</i> Ensure that facilities, activities, materials, and equipment are physically accessible and usable by all students, and that all potential student characteristics are addressed in safety considerations.	<i>Arrange instructional spaces to maximize inclusion and comfort.</i> Arrange seating and encourage participation, giving each student a clear line of sight to the instructor and visual aids and allowing room for wheelchairs, personal assistants, sign language interpreters, captionists, and assistive technology. Minimize distractions for students with a range of attention abilities (e.g., put small groups in quiet work areas). Work within constraints to make the environment as inclusive as possible. Encourage administrators to apply UD principles in facility design and renovation.
<i>Delivery methods.</i> Use multiple, accessible instructional methods that are accessible to all learners.	<i>Provide cognitive supports.</i> Summarize major points, give background/contextual information, deliver effective prompting, provide scaffolding tools (e.g., outlines, class notes, summaries, study guides, and copies of projected materials with room for notes), and other cognitive supports. Deliver these materials in printed form and in a text-based electronic format. Provide opportunities for gaining further background information, vocabulary, and different levels of practice with variable levels of support. Encourage and support students to develop their own scaffolding materials.



**Table 1.2 (cont.) DO-IT Universal Design of Instruction Guidelines and Examples**

<i>UDI Guideline</i>	<i>Examples of UDI Practice</i>
<i>Information resources/technology.</i> Ensure that course materials, notes, and other information resources are engaging, flexible, and accessible for all students.	<i>Select materials early.</i> Choose printed materials and prepare a syllabus early to allow students the option of beginning to read materials and work on assignments before the course begins. Allow adequate time to arrange for alternate formats, such as books in audio format or in Braille (which, for textbooks, can take longer than a month).
<i>Feedback.</i> Provide specific feedback on a regular basis.	<i>Provide regular feedback and corrective opportunities.</i> Allow students to turn in parts of large projects for feedback before the final project is due. Give students resubmission options to correct errors in assignments and exams. Arrange for peer feedback when appropriate.
<i>Assessment.</i> Regularly assess student progress using multiple, accessible methods and tools, and adjust instruction accordingly.	<i>Set clear expectations.</i> Keep academic standards consistent for all students, including those who require accommodations. Provide a syllabus with clear statements of course expectations, assignment descriptions, deadlines, and expectations, as well as assessment methods and dates. Include a straightforward grading rubric.
<i>Accommodation.</i> Plan for accommodations for students whose needs are not met by the instructional design.	<i>Know how to arrange for accommodations.</i> Know campus protocols for getting materials in alternate formats, rescheduling classroom locations, and arranging for other accommodations for students with disabilities. Make sure that assistive technology can be made available in a computer or science lab in a timely manner. Ensure that the course experience is equivalent for students with accommodations and those without (Burgstahler, 2008b, p. 34).



programs can apply UD principles to their teaching to maximize the learning of participants and to model universal design principles that participants can apply in their own instruction.

The UD principles developed by the CUD provide guidance in the design of products and environments (Connell, Jones, Mace, Mueller, Mullick, Ostroff, et. al., 1997). Each UD principle listed is followed by an example of its application to instruction (Table 1.1) (Burgstahler, 2008b, p. 27).

When UD principles are applied to teaching, an inclusive and equitable learning environment is created. UD design concepts can be used to aid in selecting and developing curricula, choosing and implementing teaching methods, and developing assessments. UD of instruction can increase content accessibility for most students and minimize the need for specific accommodations (Burgstahler, 2008b; Durre, Richardson, Smith, Shulman, & Steele, 2008; Higbee, 2008; Scott & McGuire, 2008; Thurlow, Johnstone, & Ketterlin-Geller, 2008).

Of particular application to technology-based learning environments, the term universal design for learning (UDL) has been used to describe a research-based instructional framework using technology to maximize the learning of all students (Rose & Meyer, 2002; Rose, Harbour, Johnston, Daley, & Abarbanell, 2008). The three principles of UDL are multiple means of representation, expression, and engagement.

### Implications for Practice

Universal design principles can apply directly to lectures, classroom discussions, group work, handouts, web-based

instruction, labs, fieldwork, and other academic activities. Consider the examples in Table 1.2 that faculty may apply to curricula (Burgstahler, 2008b, p. 34).

When creating a presentation for faculty and administrators, UD principles can be employed to make it an inclusive learning environment. Make the content simple, easy to understand, and easy to apply. Participants in your presentation should leave with a clear idea of what they need to do and where they can go for help. Make your presentation flexible; be willing to adjust to the needs and interests of your participants. Customize your training options for specific audiences. Provide alternatives such as short and long presentations, interactive Internet-based instruction, printed materials, and web-based resources.

Use videos with captioning. Demonstrate how visual presentation content can be described so it is accessible to people who cannot see. Show alternative ways to operate a computer or access a website (e.g., speech input, speech output, alternative input devices).

### Conclusion

Applying UD principles in your presentation not only meets the accessibility needs of those attending, but also models for postsecondary faculty how accessible teaching can be delivered. UD of instruction maximizes the learning of all students and minimizes the need to provide individual accommodations for students with disabilities.



## Research Questions

- What do we know about systemic change that can guide the design and implementation of professional development for faculty and administrators regarding the equal access for students with disabilities in their courses and programs?
- What do we know about sustaining faculty and administrator development activities for supporting students with disabilities?

## Overview of Research

It has been said that you cannot change one thing without changing the whole thing (Price Waterhouse Change Integration Team, 1995). If you redesign processes or change requirements on a college campus, you can expect that you will also need to change job descriptions, systems, and technologies and then train people to support them.

The participation of students with diverse abilities and disabilities in colleges and universities has inspired institutions to change some of their traditional structures and procedures. Postsecondary institutional experiences in promoting diversity related to gender, ethnicity, race, and socioeconomic status have taught us that change does not occur quickly or without conflict. Creating a more inclusive environment for students with disabilities often requires system-wide, sustainable change. Successful change efforts are more often gradual than radical.

Although there is typically resistance to change, change is central to college and university cultures (Andresen, 1991). New laws, demographics, technologies, and educational theories and goals are part of their realities (Englert & Tarrant, 1995).

Competing theories about systemic change abound. However, success in implementing change is often more related to a specific context than to a general theory (Wilson, 1992). “The argument has been largely against skill-based approaches, ready-made models of good organizational practice, and reliance upon analyzing change as primarily the outcome-oriented pursuit of great and charismatic individuals. The arguments have, rather, favored the potency of organizational structures, of economic determinism, and of institutionalization within which the manager must operate” (Wilson, 1992, p. 122).

Change can be viewed from three perspectives: the reason for change, the process of change, and the content of change (Levy & Merry, 1986). First we will consider the reasons for change and then the process of change.

## External and Internal Forces

Postsecondary institutions experience pressure to change from both external and internal sources (Yee & Los Angeles ERIC Clearinghouse for Community Colleges, 1998). As change in the external environment accelerates, institutions must respond to these changes in order to thrive (Kozieracki, 1998). For example, one of the external factors promoting change is the worldwide transformation of the economy from a production-based system to a knowledge- and information-based system. The development of new technologies has caused faculty to re-examine the content and delivery of instruction (Travis, 1995). The incorporation of new computer electronic and information technologies over recent years provides an example of how rapidly new products and behaviors can be



assimilated into campus life. Not long ago, cell phones, fax machines, and email were considered futuristic. Today they are a part of everyday life.

Technology creates opportunities for students with disabilities to access education in innovative ways. For example, students who are blind and use speech output systems can participate in online education courses as long as these courses are designed so that they are accessible. Online courses may also provide access to students who cannot take courses because of schedule conflicts or geographic location.

Terry O'Banion (1997), president emeritus and senior fellow of the League for Innovation in the Community College, proposed that an improved "learning college" may build its foundation on technology because technology is "ism-free" (e.g., racism, sexism, ageism). Some faculty members welcome these changes; some resist. Nevertheless, technology plays a significant role in systemic change.



Legislative and funding issues can also force institutions to change. For example, Section 504 of the Rehabilitation Act, the ADA, and state legislation require that institutions provide reasonable accommodations for qualified students with disabilities in programs and services. Due in part to such legislation, increasing numbers of students with disabilities are gaining access to programs, placing further pressure on institutions to become more inclusive.

Differences in the economy, government relations, and the demographics of the student body (e.g., more immigrants, high school dropouts, returning and displaced workers, welfare participants, and workers in need of skill upgrading) require responses from postsecondary institutions (Levin, 1998). Today's student body is diverse with respect to age, gender, ethnic and racial background, disability, and part-time student status (Yee & Los Angeles ERIC Clearinghouse for Community Colleges, 1998). Changing populations call for increased multicultural awareness (Harris & Kayes, 1995; Rendón & Hope, 1996). Stereotyping, social isolation, and alienation are experienced by women, students with disabilities, and adult learners as well as by students of ethnic diversity (Smith, 1989). Over 11% of people in postsecondary programs have an identified disability (U.S. Department of Education, 2006). The cumulative result is a demand for institutions to create more inclusive learning environments that are socially and culturally responsive. The way "tech-prep" and school-to-work movements have stimulated faculty to collaborate with high school staff and to incorporate more career-related skill-building into the curricula provides an example of how systemic change can occur as a result of external forces (Latham, 1995).



Forces internal to the institution can also promote or inhibit change. Academic values and attitudes about diversity can motivate faculty members and administrators to advocate for educational equity. Seeing students with disabilities as a minority group with civil rights to education instead of as a needy population deserving of charity has dramatically changed the service provision for students with disabilities in recent years (Oliver & Barnes, 1998; Shapiro, 1993). Diverse perspectives within organizations promotes sensitivity to pluralism.

### Process of Change

A growing body of research reflects the importance of student involvement in an institution's change process. Over an extended period of time, students can help identify and prioritize problems and suggest potential solutions.

Frank and Rocks' (1996) model for effective transition and change involves conceptualization of the change parts, active reflection, and commitment. It requires engagement of leadership personnel and management of the systems undergoing change.

Institutions that are successful in integrating diverse groups of students tend to

- focus on student success and provide tools for success,
- enhance coordination and articulation with other educational levels,
- dedicate resources to fostering acceptance,
- have access to good information on the institution and students, and
- have leaders in the faculty and administration who provide direction for these efforts.

Some postsecondary educators have responded to student diversity by modifying the organizational culture, infusing multicultural education into the curriculum, reflecting a diversity in values and norms in organizational policies and practices, and creating campus-wide action committees (Guy, Reiff, & Oliver, 1998; Harris & Kayes, 1995; Levy & Merry, 1986).

However, a fundamental and continuing conflict exists between diversity and quality in postsecondary education. Faculty may need to reform their understanding of academic quality and then modify standards, performance criteria, and assessment tools (Smith, 1989). Infusing multicultural education at an organizational level requires simultaneous changes in the organization's values and culture (Guy, et al., 1998). Strategies include the following:

- Build a powerful case for change. Assume that people are not prepared for change and convince them, using consensus building and education, that change is both appropriate and needed. Practical and immediate action steps are most helpful to share in training sessions.
- Let the customer drive change. In postsecondary institutions, customers include both the students with disabilities attending programs and the faculty and staff delivering and supporting them.



Keep in mind that faculty members may be more open to new ideas when they are actively involved in the process (Kuveke, 1996). College faculty and staff at one school, which had clear and open communication as the basis of its change process, effectively implemented change. “Inherent was a mutual respect for the other’s background and talents, plus a genuine perception of their equality” (Hord, 1986, p. 22).

Faculty and administrators can benefit from keeping four questions in mind when starting change efforts (Bruce & Wyman, 1998):

- Who are the people involved in the change?
- What are the organization’s abilities and resources?
- What is the climate for change?
- What are the mandates/ objectives of the organization?

In order for systemic change to take place, there must be adequate motivation from the institution as well as a supportive social and cultural climate. Although faculty may be motivated to learn new skills and knowledge that will enhance student learning, a competing motivation may be to maintain their existing standards and methods of teaching. They need practical examples of the benefits of change. Sometimes it is effective to apply the power of peer example by sharing the experiences of other faculty (Svinicki, 1996).

Supporting the process of change involves providing student and staff development opportunities and ensuring that policies support access to all postsecondary education programs and coursework for all qualified students. The content of professional development should include examples of academic accommodations for students with disabilities, legal issues, and campus resources. Emphasis should be placed on the importance of student involvement in the process and the relationship between the student and his or her instructors (Levy & Merry, 1986).

Change efforts should be multi-dimensional and system-wide. Transformation of the institution into a system that supports diversity means addressing a number of issues including faculty and staff diversity; institutional mission and values; diversity education; the quality of interaction between students, faculty, and the administration; and the perceived conflict between quality and diversity (Townsend & Twombly, 1998). Institutional changes should be reflected in policies, procedures, and job assignments to ensure that if one person leaves a position, the program of change will not collapse.

### **Promoters and Inhibitors of Change**

Specific conditions on a postsecondary campus can serve to promote or inhibit change toward a more inclusive environment for students with disabilities. Factors include those related to

- legislation
- awareness
- attitudes
- diversity efforts



- change
- cost
- market forces  
(Burgstahler, 2008a)

General project management principles can be applied in systematically employing practices to increase the academic success of students with disabilities (Jenner, 2008). Collaborative relationships among all stakeholder groups are keys to success (Finn, Getzel, Asselin, & Reilly, 2008). Besides the institution itself, industry, professional organizations, researchers, consumers, and government can each play a role in promoting UD on a college or university campus. The ultimate goal is to make educational offerings welcoming, accessible, and usable for all students.

### Implications for Practice

To make improvements in teaching students with disabilities on a postsecondary campus, provide faculty and administrator professional development, ensure that students are aware of resources, and develop adequate systems for students with disabilities and staff to access resources. The content of professional development should include information about accommodations, rights and responsibilities, and campus resources.

When implementing systemic change, make efforts to consider the capabilities and limits of the institution and educators. Encourage gradual, sustained changes that involve all parties and resources in the change process. For instance, annual departmental mini-in-services, new faculty and TA orientations, and mailings regarding universal design of instruction and accommodations for

students with disabilities will support systemic change more so than a large, one-time event.

Give students and faculty members an active role in designing and implementing changes, since they have vested interests in the outcomes. Encourage reflective and solution-oriented communication. Solicit collaborative input from all stakeholders regarding materials, decisions, and publicity. Lasting improvements are more likely to occur when those who have a stake in the change are instrumental in making the changes.



### Conclusion

In postsecondary institutions, long-lasting positive changes require systemic (institutional) change rather than isolated actions of individuals. Collaborative efforts of faculty, administrators, staff, and students should work toward the goal of educational equity.



## Building the Team

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A literature review was conducted to guide the selection of content and presentation modes for professional development for postsecondary faculty and administrators. The following paragraphs describe how research and theory can be applied as you implement a training program on your campus.

## **Professional Development: Need, Content, and Methods**

People with disabilities are less successful in college and careers than their non-disabled peers. Faculty members play a key role in the success of all of their students yet have little knowledge regarding the inclusion of students with disabilities in their courses. They need to know more about legal issues, accommodation strategies, and resources. They have a special interest in learning to work with students who have learning and psychiatric disabilities. Their demanding schedules and diversity in interests and needs for information suggest that multiple modes of delivery should be offered, including short on-site presentations, programs tailored to specific audiences, short publications, and web-based resources.

## **Adult Learning**

Faculty and administrators have a wealth of knowledge and experiences in their fields, but they may have little knowledge about the academic needs of students with disabilities. Additionally, they may have misconceptions about the students' abilities. Approaches that can maximize faculty and administrators' motivation to learn and the likelihood that learning will be retained, include inviting them to share their experiences, to participate in learning activities, to self-direct their learning, and to discuss relevant cases.

## **Learning Styles**

Most individuals have preferred styles of learning that relate to how they receive, process, and integrate information. Some individuals learn better through listening, some through reading or watching, and still others by doing. A commonly used classification of learning styles is auditory, visual, tactile, and kinesthetic. Styles of learning may also be characterized by how individuals best learn from experiences—they're either convergers, divergers, assimilators, or accommodators. In order to support all learning styles, presenters must use a variety of teaching strategies, verbal discussion, visuals, demonstration, and active experiences. Incorporating case studies and practical real-life situations for problem-solving can address all learning styles and promote optimal learning.

## **Types of Learning**

Domains of learning include cognitive, psychomotor, and affective. In the cognitive domain, skills include knowledge, comprehension, application, analysis, and synthesis of information. Learning may also be viewed within the categories of knowledge and skill. Types of intelligence can be classified as logical-mathematical, linguistic, spatial, musical, kinesthetic, interpersonal, and intrapersonal. Since different teaching techniques are best used for different types of learning, analyze the learning that you want to occur and select an appropriate strategy to engage all learners. Consider the participants' existing attitudes, knowledge, and skills, and how they can best acquire the knowledge and skill to do their job more effectively. Vary presentation methods and individualize strategies to meet a variety of learning needs.



### **Universal Design of Instruction**

Consider the wide variety of characteristics of presentation participants. They may vary in race, ethnicity, gender, socio-economic status, academic specialty, native language, and abilities and disabilities. To maximize the learning of all participants, respect diversity; ensure physical access for all people; and use a variety of delivery methods, such as lecture, small and large group discussion, case study, hands-on activities, web-based interaction, labs, and fieldwork; provide full access to information by using captioned videos, printed materials in electronic format, and accessible online information; offer effective and prompt feedback; and allow multiple means for participants to demonstrate competency. Modeling UD approaches as you train faculty and administrators will encourage them to incorporate this approach in their own teaching. Universal design of instruction maximizes the learning of all students, and reduces the need for individual accommodations.

### **Systemic Change**

Both internal and external forces may pressure postsecondary institutions to be more inclusive of students with disabilities. External forces of change include a global, technological, and information-based economy; legislation; and societal pressure toward a pluralistic society with equity for underrepresented groups. Internal forces include pressure from students with diverse characteristics (e.g., age, gender, ethnicity, culture, disability, part-time status) and faculty who seek a more inclusive environment. Systemic change occurs when change is transformational and long lasting. This type of change occurs not with one, or even a few individuals, but reflects the entire organization or system.

Transformational change is more likely to occur when a powerful case is made for change, there is high-level support, and all stakeholders are involved in the decision-making process. To create a campus environment that provides equal educational opportunities for all students, including those with disabilities, it is important that administrators develop policies and procedures in collaboration with faculty, student service providers, and students with disabilities.