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An inquiry based instructional planning model that accommodates student diversity

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AN INQUIRY BASED INSTRUCTIONAL PLANNING MODEL THAT ACCOMMODATES STUDENT DIVERSITY

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Abstract

The students in today's public school classrooms represent great diversity and the struggle of teachers to teach all their students well. This paper describes an inquiry based instructional planning model that reflects lessons from the literature on effective teaching for diverse classrooms. An example of a high school lesson exemplifies the model. The model includes a framework for planning supports for students with extraordinary learning challenges.

INTRODUCTION

Today's public school classroom includes students from diverse cultural, linguistic, family, and achievement backgrounds. A class of 30 students might include: a) four who have educational disabilities, b) three who experience the risk factor of poverty, c) two who are second language learners, and, d) several more who are struggling with emotional difficulties. Teachers searching for guidance within the professional literature for how to accommodate this diversity find no shortage of recommended pedagogies and instructional planning models, including: a) multiple intelligences (Armstrong, 2000; Gardner, 1983); b) cooperative learning (Johnson & Johnson, 1984); c) differentiated instruction (Tomlinson, 1999); d) problem-based learning (DeLisle, 1997); e) multi-level instruction (Collicott, 1991); f) reading and writing process (Graves, 1983); g) Understanding by Design (McTighe & Wiggins, 1998); and h) commercially available curricula. However, even the experienced teacher finds it difficult to incorporate into her practice the best of what's known about effective instruction for all students.

The purpose of this paper is to describe an inquiry based instructional planning model that is anchored in the values of inclusive classroom community and is supported by a solid research base. First, a lesson is described that is taught by a teacher who is successful in creating an inclusive community of learners. A model of instructional planning is then described, using the sample lesson as a case study in the model's implementation. The paper concludes with a brief discussion about creating a school culture that supports the curricular and instructional reform necessary for teaching all students well in inclusive classrooms.

THE STORY OF THE STICK

Ms. Navarro walks into her science class carrying five partially decomposed tree branch pieces (Jorgensen, 1998). As the students enter the room, she greets each warmly. Several approach her and ask questions like "What are we going to do today?" "Do you have our grades from the last test?" "Did you see the soccer game last night on television?"

When all the students are seated, she picks up one of the tree branch segments and asks, "So, what do you think we are going to do with these today?"

The students laugh and offer several joking answers and comments such as "We're going to have a relay race!" "We are going to build something." "Those are really

disgusting!"

With a smile on her face, Ms. Navarro shakes her head at each of these answers and then says, "Actually, we are going to use these sticks to help us answer the question 'Are the New Hampshire (U.S.) forests healthy?'" The students have puzzled looks on their faces, but Ms. Navarro continues, "So, do you have an answer to that question? *Are* the New Hampshire forests healthy?"

One student raises his hand and says, "Yeah, I think they are. There are lots of birds and moose and other animals living there."

Another student offers, "They must be because I go snowmobiling in the winter and see lots of deer tracks."

Another student counters, "Yeah, but what about acid rain? I think that we get a lot of smog from power plants in the Midwest that drifts into our forests and destroys the trees."

Ms. Navarro continues, "I'm actually not sure about the answer either, but over the course of the next four weeks we are going to investigate the health of the New Hampshire forests. We are going to be studying this unit, in part, because Senator Sheila McLoughlin has introduced a bill in the New Hampshire State Senate that would strengthen an existing law that prohibits development of land that lies within the borders of the New Hampshire National Forest, right here in our backyard. She is facing strong opposition, however, from the timber industry that wants to loosen those restrictions so they can cut down more trees. Many of you have jobs at the lake or ski resorts that are dependent on the preservation of our natural resources, but some of your parents work for the timber industry. Clearly, it's an issue that affects us all. And in order to address this issue well, you'll need to learn some science! Senator McLoughlin has agreed to review our final projects for this unit and possibly use them as resources during her committee's deliberations on the bill. I think that we are going to be able to go to the capital and observe the legislative hearings that are scheduled for the week before our spring break."

Students pepper Ms. Navarro with questions about what she has just told them, but she puts up her hand and says, "I know you have lots of questions and I'll give you more details tomorrow, but for today, let's go back to these sticks. What could they have to do with the health of the New Hampshire forest? I found them on the ground when I was hiking this weekend near my house."

The students are silent, so she continues, "I think that learning a little more about these decomposed branches may tell us something about the health of the trees that they fell from, and about the health of the New Hampshire forests as a whole. Do you buy that?" Again, the students are quiet so she asks another question. "Can you think of any other situation in science where you study part of something in order to understand the whole thing?"

A student raises his hand and offers, "How about cells? We study cells to understand whole organisms."

Another student contributes, "What about organs? You study organs of the body in order to learn about a whole person."

And a third jumps in, "Maybe planets? We study about individual planets or solar systems in order to understand something about the whole universe?"

"You've got it!" exclaims Ms. Navarro. "If we learn all that we can about these sticks, maybe we will get some insight into the health of the trees that they fell from. OK.

Let's start simply by describing the stick. Get into groups of four, take a stick to your table, and start making a list of words or phrases that describe this stick. I'll give you about 10 minutes. Someone should write down your group's answers. Everyone needs to be involved. Go!"

When the students begin working, Ms. Navarro notices that some groups get right to work, and the conversation flows freely. Other groups take longer to get going, their voices are quieter, and the ideas come more slowly. After about five minutes, however, each group seems to have found its rhythm. There's lots of laughter and the room is buzzing with conversation. A student with significant physical disabilities is a member of one group. He uses an augmentative communication device to offer his answers during this activity. Programmed into his device are words and phrases representing possible descriptions of the stick such as long, brown, rotten, flaky, insect infested, etc. When he touches one of the picture/word icons on the device, a computer-generated voice speaks his answer.

After about 10 minutes, Ms. Navarro invites the students to share their descriptions. She writes each description on an overhead transparency, grouping them in the following categories: a) physical properties, b) sensory properties, c) potential uses, and d) a "looks like" category. She acknowledges every answer enthusiastically.

When one student says, "It's really stinky!" prompting snickers from the class, she says, "That's just what I am looking for: going beyond what the stick looks like to describe its other properties. Lots of important scientific discoveries have been made because someone was thinking 'outside the box.'"

Then Ms. Navarro says "OK. We have a great list of descriptors. Now, here's your next question. I want you to tell 'the story of the stick.' I am going to give you about 15 minutes, and in your groups I want you to come up with a story about how this stick got to be the way that it is. Now remember, you are not writing a fairy tale; your story must present a logical explanation for the stick's characteristics. Bonus points for groups that are creative in their use of visuals, music, or different story telling methods. Remember that you have a very diverse audience in this class. At the end of the period, each group will present their story to the class. The most important rule? Everyone must participate in some way. Go!" The group presentations included narratives, raps, and skits, and each performance receives a round of applause.

In the days and weeks following this kick-off activity, Ms. Navarro conducted classroom lessons that bridged the students' fanciful hypotheses about "the story of the stick" to information about the New Hampshire National Forest ecosystem. The students explored what is meant by the term "healthy ecosystem," researched what is already known about the New Hampshire National Forests, and learned about the process of getting a bill passed by the New Hampshire Legislature. Her instructional methods included whole class lecture, Socratic dialogues (Reid, 2004), individual library or Internet research, small group discussions, guest presentations, and hands-on activities like having students build tabletop models of the New Hampshire National Forest ecosystem. Student groups were assigned to create an oral presentation and briefing paper that answered the question of "Are the New Hampshire forests healthy?" and expressed an opinion about the proposed legislation.

On the day that they presented their projects, Senator McLoughlin visited the class and provided feedback to the students based on an evaluation rubric that included: a)

factual accuracy, b) effectiveness of their presentation, and c) logic of their argument. Each student evaluated his or her contribution to the group project and Ms. Navarro evaluated each student and each group.

Just before vacation, the students travelled to the New Hampshire state capital to attend hearings on the bill and observed that the Senator had used some of the charts and graphs produced by the students. They later learned that the bill sponsored by Senator McLoughlin passed.

AN INQUIRY BASED INSTRUCTIONAL PLANNING MODEL

Ms. Navarro's teaching was characterized by beliefs such as: a) all students can learn well; b) a caring classroom is a necessary foundation for learning; c) diversity within the classroom is an asset not a liability; d) students learn best when studying topics that have personal meaning; e) learning is an interactive process between the teacher and the students and relies on students making personal meaning of information filtered through their values, past experiences, and new information; f) students do their best work when it is publicly shared; and, g) students often show what they know in unique ways that are not easily captured by traditional paper and pencil assessments (Onosko & Jorgensen, 1998). Ms. Navarro operationalized her beliefs with the skill of a master teacher who knows how to translate research into practice through daily lessons that are part of coherent units of study.

Ms. Navarro's planning process is reflected in Jorgensen's 1993 description of a backwards-planning approach to designing inclusive instruction that begins with an essential question and ends with a performance-based exhibition (Jorgensen, 1993). Onosko and Jorgensen (1998) elaborated on that approach, adding some overarching principles of instructional planning related to meeting the needs of an increasingly diverse student body. The eight elements of instructional planning proposed by Onosko and Jorgensen have since been reorganized by Jorgensen into a three-part model consisting of: a) guiding principles, b) instructional planning steps, and c) a framework for providing individualized supports for students with extraordinary learning challenges (Table 1).

There are four major differences in the current model compared to the 1998 version. First, several steps in the original model have been renamed as guiding principles. This was done to clearly differentiate between what teachers *do* while they are planning versus what they *think about* when planning. The second change is the addition of a step related to the identification of learning standards. Since 1998, the emphasis on learning standards and accountability has increased throughout the United States and worldwide, and teachers must design their instruction to respond to district, state, provincial, and sometimes national standards. And the third change in the model relates to raising expectations for students with significant disabilities. A principle has been added that asks teachers to hold high expectations for all learners, including those with labels of "mental retardation" or "cognitive disabilities." That principle is operationalized in the last change in Part III of the model that describes supports for students with those labels.

Using this instructional design model will answer these questions for teachers: a) what do I want students to know and be able to do by the time the unit is finished? b) what larger questions, issues, or problems does this unit relate to? c) how will I get students interested in this topic? d) how will I design learning activities that will support the unit's

priority learning goals? e) how will I know if students have achieved the learning goals? and, f) how can I support students with the most significant disabilities to be successful? This model's focus on all students, including those with labels of significant disabilities, is what sets it apart from other high quality instructional design processes (e.g., McTighe and Wiggins' Understanding by Design, 1998).

Part I: Guiding Principles

Part I of the model is comprised of a set of four guiding principles that inform planning, teaching, and assessment. These principles reflect what teachers think about when they design their instruction. The first principle is that teachers should have high expectations for all students, including those who have been given labels of "mental retardation" or "cognitive disabilities" which create the impression that they can't learn academic content. Recent research with students who carry the label of "mental retardation" has shown that when they are provided with the right supports (e.g., augmentative communication systems that allow them to communicate about academic subjects) and are held to high expectations, some have demonstrated unexpected literacy and knowledge, surpassing what their intelligence quotient (I.Q.) scores would indicate (Biklen & Duchon, 1994; Koppenhaver; Erickson, Harris, McLellan, Skotko, & Newton, 2001; Ryndak, Morrison, & Sommerstein, 1999). When examples exist that contradict an assumed truth (i.e., that students who score poorly on I.Q. tests can't learn academic content), we must reexamine the validity of that truth and make assumptions that will have the least dangerous consequences for our students should we ever be proven wrong again in the future (Donnellan, 1984).

The second principle is that all students, including those with identified disabilities, need to be able to access the knowledge and information on which instruction is based by having materials available in accessible formats (e.g., print materials, Braille, graphic organizers, interactive CD's, hands-on models, and video or audio formats) at appropriate reading levels. Making all text available in a digitized form facilitates its personalization through simple physical manipulation (changing size, font, color, or spacing); or more complex enhancement that scaffolds understanding such as graphics, definitions, examples, or comprehension prompts. Universal accessibility of learning materials "levels the playing field" for students with diverse learning styles and abilities (Rose & Meyer, 2002).

The third principle underlying the model suggests that teachers vary instructional formats frequently, taking into account students' different learning styles and the specific concepts that are being taught. Teachers need to use instructional strategies that involve students in constructing meaning (Brooks & Brooks, 1993). Use of constructivist strategies does not proscribe teacher-directed instructional methods, but careful thought must be given to choosing the best method for the desired learning outcome.

The fourth principle that underlies this instructional planning model is that assessment of student learning should be done through a variety of means, depending again on students' learning styles and on what new understandings or skills the teacher wants students to acquire. When learning objectives fall into the first levels of Bloom's Taxonomy (e.g., naming, describing, or classification), then assessment of learning can be done by having students match, recognize, list, describe, name, and define (Bloom, 1956). When the desired learning goals require students to analyze, synthesize, and evaluate, then

it follows that students should be asked to show that they can create, predict, design, justify, and prove.

Part II: Unit Planning Steps

Part II of the unit planning process is comprised of six steps. These are the steps that teachers follow when designing a unit, not the sequence in which it is taught. Tenth grade social studies teacher Cathy Fisher shared her view of the curriculum design process (Jorgensen, Mroczka, & Williams, 1999):

> When we sit down to talk about work that we are planning for kids, we have adopted a certain protocol for it, which centers around the essential questions that we are going to be using, and the exhibitions that we're going to be asking kids to do. And to me, it's imperative that the skills then that we work on, are the skills needed for the exhibition. And the content is almost on a need-to-know basis.

Step 1. Identify Learning Standards

The first step in the inquiry based instructional planning process is to identify the knowledge, dispositions, and skills that will be taught and evaluated during this unit. U.S. states, Canadian provinces, professional organizations (e.g., U.S. National Council of Teachers of Mathematics), and other countries have specified the learning standards that they want students to achieve at each grade level. Many schools engage in a curriculum mapping process where the standards to be taught for the year are organized into coherent units of study, organized under overarching themes, concepts, essential questions, or real-life problems.

Ms. Navarro consulted the New Hampshire State Curriculum Frameworks in Science and identified several standards that would be addressed in her New Hampshire forests unit. They included:

1. Design a controlled investigation that demonstrates the interdependence of plants and animals found within a specific New Hampshire ecosystem.
2. Select a science-related social problem and design a solution that reflects an understanding of basic science concepts and their application.
3. Formulate questions and use appropriate concepts to guide scientific investigations and to solve real world problems.
4. Explore nature with technology.
5. Manipulate data on a database.
6. Analyze data graphically with technological assistance.
7. Describe immediate and long-term consequences of various alternative solutions for science- and/or technology-related issues.
8. Defend a personal decision made on a science- and/or technology-related issue.
9. Illustrate through example that knowledge produced through science and technology changes the way members of society think.
10. Cite evidence that our fresh water supply is essential for life and also for most industrial processes.

Ms. Navarro has the New Hampshire Science Standards posted on her classroom walls and during this unit she affixed brightly colored arrows to each of the standards that would be addressed and frequently drew students' attention to them.

Step 2 Articulate an Essential Question or Real-Life Problem

Step 2 of the planning process involves articulating an essential question or a real-life problem that reflects the topic of the unit (Wiggins, 1989).

> Essential questions probe for deeper meaning and set the stage for further questioning, fostering the development of critical thinking skills and higher order capabilities such as problem solving and understanding complex systems. A good essential question is the principle component of designing inquiry-based learning. In general, the best essential questions center around major issues, problems, concerns, interests, or themes relevant to students' lives and to their communities. Good essential questions are open-ended, non-judgmental, meaningful, and purposeful with emotive force and intellectual bite, and invite an exploration of ideas. Good essential questions encourage collaboration amongst students, teachers, and the community, and integrate technology to support the learning process (MathStar, n.d.).

The power of using essential questions to guide instruction in an inclusive classroom is that they allow students to explore the "connections between their personal, individual, unique experience of the world and its exterior, objective, held-in-common dimensions" (Galileo Educational Network Association, n.d.). Good essential questions have relevance for all students regardless of their gender, culture, language, or ability.

For example, "Can you be free if you are not treated equally?" might underlie a unit in American History dealing with the Civil War, Civil Rights, or Women's Suffrage. "Could dinosaurs live in our world today?" could focus a third-grade unit on habitat. "If we can, should we?" could focus student attention to the topic of genetic engineering. "What is a good neighbour?" might frame social studies curriculum in the primary grades. "What is the cost of being a hero?" might focus a high school unit of study based on Tolkien's "Lord of the Rings" books (Galileo Educational Network Association, n.d.).

A unit of study can also be framed around a real-life problem that students will be required to solve as a final demonstration of their learning (DeLisle, 1997). An engaging problem for elementary students might be "How should the new playground be designed so that every child can play on every piece of equipment?" Solving that problem would require that students learn and apply math, artistic, and negotiation skills.

Students in middle school might wrestle with a problem like "Design a student judicial board for our school based on democratic principles" as part of a unit of study on government. High school Physics students might be challenged to "Create an energy efficient land-based vehicle using the materials provided."

Engaging students in the study of these problems and the crafting of reality-based solutions is another way to naturally enhance motivation to learn while addressing students' diverse learning styles. Ms Navarro was able to identify an issue and a related

question that had real meaning in the lives of her students because it affected things that they valued like money and the beautiful natural environment in which they lived.

Step 3. Design a Performance-Based Exhibition

Step 3 of the unit planning process is to design a performance-based exhibition that asks students to show their mastery of the learning standards of the unit. Instead of asking students to simply regurgitate information, good teachers ask students to show that they can approach novel problems using the knowledge and skills they have learned.

Chairman of the U.S. Coalition of Essential Schools, Ted Sizer, recalls "In its original form, the exhibition is the public expression by a student of real command over what she's learned. It began in the eighteenth century, as the exit demonstration in New England academies and in colleges like Harvard. The student was expected to perform, recite, dispute, and answer challenges in public session (Cushman, p. 101, 1990)."

Connected with the design of the final exhibition is the development of evaluation and grading criteria. At Central Park East, a break-the-mould school in New York City, students determine for each exhibition the level of competence they want to achieve: basic, proficient, or mastery (Cushman, 1990). Students who reach the mastery level might qualify for an honours designation on their report cards, addressing the concerns of people who think that heterogeneous grouping will lower the intellectual rigor within a course.

Writing a new recycling plan for a school, writing a persuasive essay, cooking a gourmet meal for eight teachers, developing a school policy on bullying, and working with the Parent Teacher Association to design and build a new playground are examples of final exhibitions based on high level learning standards.

Ms. Navarro identified a real opportunity for the students' work to be exhibited, the legislative deliberations on a proposed piece of environmental legislation. Even though it seems as if this opportunity was tailor-made for Ms. Navarro, every community offers opportunities for the alignment of academic curriculum with a real life issue.

Step 4. Design a "Grabber" or Kick-Off Activity

Step 4 in the unit planning process is designing a "grabber" or kick-off activity to replace the traditional first-day-of-the-unit review of the chapter. Madeline Hunter coined the term anticipatory set, that describes a short activity or prompt that focuses students' attention before the actual lesson begins (Hunter, 1994). An effective grabber or kick-off activity has the following characteristics: a) poses the essential question up front and asks students to give an opinion-based answer; b) uses an example or analogy that already has meaning in the students' lives; and c) engages the student's emotions, kinesthetic senses, or ethical beliefs. Students' personal engagement with the essential question and topic can then be nurtured into intellectual curiosity as the unit unfolds. Examples of grabbers include: a) listening to a guest speaker talk about living in a concentration camp (History), b) hiking out to a landfill to see the piles of garbage and smell the toxic fumes (Environmental Science), or c) exercising on a treadmill while breathing air that simulates the reduced airflow of an emphysema patient (Health Education).

Ms. Navarro knew that her students would respond well to a hands-on activity like "The Story of the Stick." She picked this activity because she knew it was one in which all

her students could participate, it didn't rely on prior knowledge, and it didn't require students with reading difficulties to use a non-preferred skill on the very first day of the unit.

Step 5. Plan Daily Lessons

By this point in the planning process, the teacher has answered four questions: (a) what is important for students to know by the end of the unit? (b) what larger issue or problem does this unit connect to? (c) how will I engage student interest in studying this topic? and (d) what will students need to do at the end of the unit to show that they have mastered the unit's learning objectives? Step 5 in the planning process directs teachers to plan daily lessons that provide opportunities for students to learn what they need to know in order to complete the final exhibition or solve the problem. The use of instructional strategies that incorporate multiple intelligences (Armstrong, 2000; Gardner, 1983) is a concrete way for teachers to integrate into daily lessons McTighe and Wiggins' six levels of understanding and effective instructional methods that have been shown to have large effect sizes in increasing student achievement (Marzano, 1998; McTighe & Wiggins, 1998).

Ms. Navarro might teach the following lessons in her Environmental Biology class:

1. Lecture to students about the steps in the scientific method and then have students draw a concept map that includes the steps in the process.
2. Conduct a Socratic dialogue to probe the dilemmas evident in the current legislative debate (i.e., preservation of forest versus cutting down the trees) and then have students interview an elder who remembers what the forests were like 50 years ago.
3. Access data through the Internet about a U.S. National Science Foundation forest study in Montana and ask students to develop a chart that depicts the similarities and differences between the Montana and New Hampshire forests.
4. Play a song written by a Native American depicting the loss of his culture's connection to the natural world and have students write a reflective journal entry.
5. Engage student teams on a debate where they take the roles of those in favour of protecting the forest and those in favour of reducing restrictions on lumbering.

Step 6. Design Formative Assessments

Finally, step 6 is the designing of formative assessments that are conducted throughout the unit for the purpose of informing the teacher about the effectiveness of his or her teaching and to communicate to students how well they are learning. These assessments can be traditional homework assignments, short quizzes, prompts requiring short essays, demonstrations, or presentations.

Ms. Navarro designed many systems for keeping track of students' growing knowledge and progress within this unit. Each small group was required to develop and maintain a planning sheet that recorded tasks to be accomplished, a timetable, and the student responsible. Each day Ms. Navarro went around the classroom towards the end of the period to check whether the students were meeting their timelines. At the end of each

week of the unit the students were given a short quiz consisting of vocabulary definitions, multiple choice, and short answer questions. Ms. Navarro didn't grade these assessments but rather used them to assess whether she needed to re-teach information or adjust her lesson plans to teach additional information or skills.

Part III: Individualized Supports for Students with Extraordinary Learning Challenges

When the U.S. Individuals with Disabilities Education Act (I.D.E.A.) was re-authorized by Congress in 1997, provisions were strengthened that require all students, including those with significant disabilities, to make progress within the general curriculum. These students might experience a label of "mental retardation," autism, multiple physical disabilities, deaf-blindness, or traumatic brain injury.

When teachers design instruction based on the principles and steps outlined in Part II of the planning process, the need to develop accommodations for many students is reduced. However, when there is a student in the class who experiences significant disabilities, there might be a need to plan and provide individualized supports for that student. This third part of the planning process does not contradict the notion that teachers should plan for all students "right from the start," but acknowledges that even the most universally designed instructional plan cannot anticipate the support needs of a particular student with significant disabilities whose learning and communication needs might be unique.

The framework and examples depicted in Table 2 can be used by general and special education teachers and others (i.e., members of student's Individualized Educational Program team such as the speech-language pathologist or occupational therapist) to plan for the implementation of those supports within an inclusive classroom. Supports are grouped in four categories: a) physical, emotional, and sensory; b) materials and technology; c) instruction; and d) standards and assessment. Readers who wish to learn more about planning supports for students with significant disabilities might read Beukelman and Mirenda (1998); Giangreco, Cloninger, and Iverson (2000); McSheehan, Sonnenmeier, and Jorgensen (2002); and, Onosko and Jorgensen (1998).

SUMMARY: CREATING AND SUSTAINING INSTRUCTIONAL REFORM

In a keynote address at the 1997 Equity and Excellence conference held in New Hampshire, founding Principal of Souhegan High School (Amherst, New Hampshire, United States), Dr. Robert Mackin, outlined six interconnected cultural beliefs that sustain a school's inclusive practice: a) a deeply felt conviction that all students can learn to use their minds well; b) a mission statement to which all staff subscribe; c) a commitment to continuous renewal of the school's deepest values by a conscious focus on the mission and its relationship to daily practice; d) a belief that within an environment of trust and respect most students will live up to high moral and behavioural expectations; e) a commitment to school as a democratic society in which students are asked to voice their ideas and beliefs in preparation for their participation as responsible citizens within their communities; and f) a belief that the creation of a democratic, inclusive school culture and climate is not only good for the development of students' characters, but of their intellects as well (Mackin,

1997).

These beliefs are consistent with those of the Whole Schooling Consortium and continuous school renewal based on these beliefs is essential if the goal of inclusive community is to be realized.

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Table 1
Instructional Planning Model

Part I: Guiding Principles
Principle 1: Have high expectations for all students
Principle 2: Make knowledge and materials accessible
Principle 3: Vary instructional formats frequently
Principle 4: Allow multiple way for students to show what they have learned

Part II: Planning Steps
Step 1: Identify learning standards
Step 2: Write an essential question or problem
Step 3: Design a performance-based exhibition
Step 4: Plan an opening "grabber" or kick-off activity
Step 5: Design interrelated daily lessons
Step 6: Design formative assessments

Part III: Individualized Supports for Students with Extraordinary Learning Challenges
Support 1: Physical, Sensory, and Emotional Support
Support 2: Modified Materials and/or Technology
Support 3: Personalized Instruction
Support 4: Personalized Learning Standards and Assessment

Table 2
Supports for Students with Extraordinary Learning Challenges

Category 1: Physical, Emotional, and Sensory Supports

1. Provide physical supports (e.g., push a student's wheelchair, provide support to a student's arm as she types, take notes for a student).
2. Provide emotional supports (e.g., express confidence in a student's capabilities, acknowledge a student's feelings, teach stress or anger management strategies).
3. Provide sensory supports (e.g., turn down the lights, provide soothing music through headphones, provide a different type of seat, adjust the student's schedule to provide for activity breaks).

Category 2: Modification of Materials or Provision of Technology

1. Change the format of materials (e.g., convert an assignment from essay to short answer).
2. Supplement the classroom materials (e.g., adding audio-visual media, models, or manipulatives).
3. Substitute different materials (e.g., synopsis of a book or content-related material at a different reading level).
4. Provide technology (e.g., an augmentative communication device, a computer for note-taking, or a switch to turn on a blender).
5. Enhance materials (e.g., digitize text to change size, color, spacing; add graphics; or add scaffolding).

Category 3: Personalized Instruction

1. Ask different questions based on Bloom's taxonomy or multiple intelligences.
2. Provide instructional scaffolding (e.g., background information, graphic organizers, metacognitive strategies).
3. Provide one-to-one tutorial.

Category 4: Personalize Learning Standards and Assessment

1. Allow student to do less work to demonstrate the same standard (e.g., fewer math problems, shorter essay).
2. Allow student to create a different product to demonstrate the same standard (e.g., a hands-on demonstration instead of a written essay if writing isn't the primary learning objective).
3. Adjust the standard of the within the same subject matter area based on the student's individualized educational plan.
4. Develop a personalized grading rubric or contract, based on the student's individualized educational plan (e.g., grade effort, progress, and other dispositions as well as acquisition of content knowledge and skills).