



Components of Authenticity: STUDENT-CENTERED LEARNING *K20 IDEALS*

The term “student-centered learning” is often used to describe a shift in teaching focus from the teacher to the student, emphasizing the student’s role in constructing their knowledge. Among the many aspects that shape student-centered learning, three key themes are student agency, scaffolded learning environments, and the cultural nature of learning.

Student Agency

Often used synonymously with student choice and voice, student agency refers to complex interactions between teachers and students in the classroom environment¹. These two-way interactions enable students to make choices in their learning that are informed by their beliefs, preferences, and learning needs². We can give students a voice in their own learning by creating an environment where students and teachers work collaboratively to co-construct new knowledge. This can be accomplished by combining students’ social, cultural, and personal knowledge with classroom experiences in order to create a common understanding that includes different perspectives³. In this learning environment, students receive support for self-regulation and self-reflection, which helps them create positive perceptions about their ability to take ownership of their learning⁴.

To develop student agency, the teacher must encourage, support, and empower their students as they work to become independent learners. As students set goals for themselves and make decisions based on those goals, it is the teacher’s role to ensure that the learning standards continue to be addressed⁵. This can happen when teachers provide a safe space for collaboration and discourse; honor students’ perspectives, values, and interests; provide opportunities for reflection; and let students make choices about all aspects of the learning process⁶. Examples of student choices include selecting a text (content), developing their own questions to drive and support inquiry (process), and choosing how they show mastery of learning (product).

Scaffolded Learning Environments

Scaffolding is the provision of guidance within the learning environment to help students participate

meaningfully at their own levels of skill, prior knowledge, and cultural experience⁷. It allows students to take increasing responsibility for their own learning as the teacher monitors their progress and adjusts the levels of needed support. These adjustments are made as students become familiar with the concepts related to a task and begin to use them on their own⁸.

Scaffolds can take many forms. At the start of a complex task, students may need support in the form of structures for activation of prior knowledge, task orientation, or organization of their approach to an activity. Examples include chunking the activity into smaller pieces, providing graphic organizers to establish current understanding or organize ideas, or providing guiding questions⁹. As students move toward higher-order aspects of the task, such as problem-solving, investigating, or collaborative reasoning, the support changes to give them more control over their learning¹⁰. Scaffolds might involve guiding students to: ask their own questions about issues or gaps in their understanding; identify problems and problem-solving steps; or collaborate to generate reasoned explanations or solutions¹¹. Students also increase their metacognitive regulation as they attempt to control and coordinate their own learning or the learning of a collaborative group¹².



The Cultural Nature of Learning

Culture is an important consideration in the design of student-centered learning environments. *How People Learn II: Learners, Contexts, and Cultures*¹³ defines culture as:

... the learned behavior of a group of people that generally reflects the tradition of that people and is socially transmitted from generation to generation through social learning; it is also shaped to fit circumstances and goals. (p. 22)

Students come to school with diverse knowledge and experiences. The environments in which they live, including home and school, form the basis for all of their knowledge and future understanding. This cultural knowledge affects how people make sense of the world around them and how they turn everyday experiences into meaningful events¹⁴. Studies show that students are better supported in taking control of their learning when teachers create an environment that recognizes cultural perspectives from outside the classroom¹⁵.

Culturally responsive teaching is a pedagogical approach that has been used to consider “cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for students”¹⁶. Strategies for culturally responsive teaching include:

- Getting to know students and learning about their backgrounds¹⁷.
- Teaching cultural diversity, even when the class is not diverse¹⁸.
- Encouraging appreciation for diversity while acknowledging inequity¹⁹.
- Teaching from an asset-based perspective (what does the student do well) rather than a deficit-based perspective (what is the student lacking) to shift focus to student strengths²⁰.
- Identifying and acknowledging our own personal biases to maintain high expectations while using student assets to promote student agency²¹.

Conclusion

In a student-centered learning environment, students participate in guided learning opportunities where they make purposeful learning decisions that connect to their own experiences and understandings. This supports students in becoming active, independent learners while teachers serve

as facilitators throughout the process. Whether you are building student agency, scaffolding your learning environment, or considering how best to approach culturally responsive teaching in your classroom, emphasizing students’ roles in an authentic way is valuable to their overall success.

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Components of Authenticity: **CONSTRUCTION OF KNOWLEDGE** *K20 IDEALS*

The term “construction of knowledge” generally refers to the way people learn by actively connecting new knowledge with existing knowledge to construct deeper understanding¹. People use their existing knowledge and experiences to make sense of new information rather than passively absorbing it². Constructing new knowledge is also mediated within the social and cultural environments in which learning occurs³. Recent studies in cognitive psychology, brain research, and human development have supported these ideas by showing that learning involves complex interactions between learners and their social and physical environments, which result in structural changes to neural networks in the brain⁴.

Memory and Learning

Knowledge is stored in networks of neurons commonly referred to as long-term memory. Neural networks in long-term memory are continuously extended and reshaped as new information is received from the environment. The process of connecting new information with existing learning structures in long-term memory is referred to as working memory, and it occurs continually as input from our environment is received and manipulated in the brain⁵. The more that information is manipulated in working memory, the stronger the neural connections become⁶. Each individual’s educational background, cultural experiences, and beliefs are unique, so it follows that the meanings each person constructs through their classroom experiences also differ⁷. Such differences underscore the need for teachers to draw each student’s prior knowledge to the surface and help them connect it with new concepts to create a deeper understanding as they work toward addressing learning goals and objectives⁸.

Constructing knowledge in working memory is an elaborative process that involves manipulating chunks of information—such as facts, concepts, procedures, and events—from long-term memory and connecting them with new information to reconstruct

a more complex understanding that reflects the attributes of both prior and new knowledge. As learners generate their new understanding, they extend their knowledge by making logical connections between pieces of information that allow them to use higher-order reasoning to generalize, analyze, or solve problems⁹. This cognitive model for teaching practice implies that students should be provided with multiple opportunities to process information in different ways to strengthen their neural connections¹⁰.

Meaningful Learning

Early studies in cognitive psychology identified two levels of cognitive processing resulting in either shallow or deep processing¹¹. Shallow processing involves rote memorization, surface-level comprehension, and/or reinforcement through repetition, which results in short-term retention of information. Deep processing involves the creation of strong links to prior knowledge, use of higher levels of thinking from Bloom’s Taxonomy, and/or complex thinking, which results in long-term retention of information. Deep processing has been referred to as meaningful learning (or elaborated learning) and is associated with increased manipulation of information in working memory and longer



retention¹². Elaborative processing involves active (as opposed to passive) engagement with information in ways that allow learners to use information in working memory to promote lasting neural connections. Classroom strategies that promote active learning provide students with opportunities to activate prior knowledge, share and discuss ideas, organize knowledge, apply new learning, give and receive feedback, or use higher-order thinking to process information¹³.

Recent research has shown that, while deep processing has better learning outcomes in general, specific outcomes depend on the complexity and scaffolding of learning activities and the variability in learners' prior knowledge. Shallow and deep processing often occur within the same learning task, which can support or hinder the learner's progress depending on how the task is designed and structured¹⁴. The implication for classroom instruction is that teachers should provide diverse opportunities for students to engage in scaffolded activities that have been shown to support deeper processing and critical thinking, such as summarizing, drawing, developing explanations from evidence, conducting inquiry, problem-solving, constructing arguments, and metacognitive self-assessment¹⁵. When students begin a complex learning task, scaffolding may include strategies to reduce the task's complexity and cognitive load, such as graphic organizers or structured prompts. As the use of higher-order reasoning increases in the latter part of the learning process, teachers may use strategies that are less structured, such as guiding questions or purposeful discourse, to help students gain a deeper understanding of critical concepts or ideas, reflect on problem-solving steps, or consider new perspectives¹⁶.

Conclusion

Construction of knowledge occurs when individuals connect new knowledge and concepts with what they already know from prior experience. Brain research shows this is the way people learn. The prior knowledge of each learner is shaped by their educational, social, and cultural experiences, both in and out of school. The teacher's responsibility is to help students make connections that result in meaningful learning by providing multiple opportunities for active learning and the use of higher-order thinking skills.

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Components of Authenticity: **INQUIRY-BASED LEARNING** *K20 IDEALS*

Inquiry-based learning is a process that engages students in exploration, questioning, investigation, and analysis. It emphasizes knowledge construction through active learning and problem-solving as students use meaningful questions and productive discourse.

While open inquiry gives students free rein to take any direction of their choosing, research shows most students require support with using inquiry-based learning to engage in integrated thinking processes and achieve deeper learning outcomes¹. Examples of authentic support include scaffolding strategies, formative feedback loops, and the use of questioning strategies to guide the learning process. In the guided inquiry process, the teacher acts as a facilitator, makes curriculum connections, provides the academic vocabulary for students to shape and communicate their understanding, and ensures that students do not develop misconceptions as they explore the content².

The Inquiry Approach

Lessons that use an inquiry-based learning approach resemble real life and elicit high cognitive learning outcomes³. The inquiry process involves higher-order thinking as students investigate and look for relationships between concepts. They use their findings to make claims that can be tested and supported with evidence. As a result, students develop complex understanding that contributes to deep learning⁴. The teacher's role in the inquiry process is to assist students in generating their own questions to investigate; to provide guiding questions for support; to set the environmental conditions for discourse; and to clarify vocabulary as it emerges⁵. When teachers act as coaches or facilitators, they can guide students to use an inquiry approach that helps them make personal connections with the curriculum. Consequently, students develop confidence in their ability to become knowledge-builders who have vital information to share with others⁶. Authentic, engaging inquiry tasks generally have personal meaning to students, can be applied to a

broad range of situations, and are guided by student-generated questions⁷.

Meaningful Questions

Meaningful questions can be used to frame a unit of study. These are often referred to as essential questions. McTighe and Wiggins⁸ note fundamental qualities for essential questions:

- require justification (not a single answer)
- are open-ended
- evoke the big picture
- point toward broadly transferable ideas
- provoke deeper thinking

Successful essential questions create more questions⁹ and are foundational to deep learning. They require higher-order thinking and motivate students to engage, explore, and apply concepts to real-world problems or to their own lives¹⁰. When students generate and then attempt to answer meaningful questions as they engage in inquiry, the thinking skills and processes they use contribute heavily to how authentic the learning experience feels to them¹¹. Questions also can be used to help students reflect on their own learning. Getting students to think about and apply ideas creatively starts with student-generated questions, which are the heart of student-centered, inquiry-based lesson design¹².

Productive Discourse

Research has shown that students' understanding of complex issues changes even as a conversation



is happening. When students discuss their learning, it is made visible to themselves, which aids the development of metacognitive skills. In addition, students can come to better understand what they know as they talk through it¹³. Windschitl et al.¹⁴ noted that participating in a conversation requires students to activate prior knowledge, process what others have said, think through possible and appropriate responses, make adjustments, and then say them out loud—all in real time.

Giving students time and space for conversations in the classroom yields many educational benefits for students and teachers. When student conversation is an integrated part of learning, students practice working with one another, being accountable to others, listening, sharing ideas in ways that others can understand, and working together to make decisions¹⁵. Discourse that is embedded into authentic learning experiences helps students access relevant, connected information and construct personal meaning. Encouraging students to share their own cultural experiences and learn from those of others creates a bridge between what students know and what they are learning in school¹⁶. Giving students a space to speak also provides teachers with insight into how students organize their thoughts, which can serve as formative assessment. Scaffolding discourse requires a high level of expertise and comfort with uncertainty on the part of the teacher¹⁷ but is ultimately worth the effort.

Conclusion

Inquiry-based learning is an active process guided by meaningful questions. Students work to answer questions through research, analysis, and collaborative discourse. They make sense of information and ideas that enable them to synthesize knowledge, deepen understanding, and share their learning with others. Teachers are responsible for guiding the inquiry process. This includes supporting students in asking good questions, finding relevant information, and reflecting on their conclusions.

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Components of Authenticity: REAL-WORLD CONNECTIONS *K20 IDEALS*

Teachers can help students to be more engaged in the classroom by guiding them to make real-world connections. Helping students connect new information to their own experiences and find personal significance in their learning produces more authentic and effective learning experiences. When learning is connected to the real world, students can see how their learning might be applicable in the future and are motivated to apply their knowledge in meaningful ways in the present¹. Authentic practices create a school setting that is integrated with the real world, which makes it easier for learners to transfer skills when they enter the workforce². As needs change in society and in the world of work, research continues to shape how we define and implement authentic learning. Through the use of authentic tasks, tools, and audiences and the integration of cultural connections, teachers can make learning more engaging and relevant to their students.

Authentic Tasks

For a learning task to be authentic, projects and problems should contain a level of realism to the professional world that is developmentally appropriate for the learners³. The thinking processes involved in a learning activity affect its perceived relevance to the real world. For example, even if a science experiment in class looks nothing like it would in the real world, the questions that students generate to make observations about what is going on should simulate real scientific thinking. Real-world relevance is the extent to which lessons are embedded in meaningful contexts, are connected to real-world issues, or ask students to create a product with significance in its own right. Another important aspect of authentic activity design is that assessment of learning should be embedded into the learning task rather than being separate⁴. Authentic formative assessment tasks are designed to engage students realistically within the activity, which promotes deeper learning.

Authentic Tools

One way that real-world connections in learning drive student motivation is through providing opportunities for students to imagine themselves trying different future paths, which helps them develop aspirations about what they would like to do after completing school⁵. When students use the tools of the professional world for their learning (e.g., software, lab equipment, databases, mathematical formulas, art supplies, or primary information sources), a level of realism is embedded into the learning that comes from interaction with those tools. As a result, their motivation to learn increases⁶. Even if the learning task isn't "realistic" to the professional world, students who get to practice with tools they might use in a profession will feel as though they are trying out the profession while gaining applicable skills. This creates a sense of connection and relevance.

Authentic Audiences

When students perceive that what they are learning holds value to a real audience—especially if it holds value within the cultures or communities they are part of—this connection will increase the depth of their motivation and engagement in learning⁷. Giving students the opportunity to show their learning by creating products significant to an audience outside the school engages them in higher-order thinking and complex problem-solving skills. Simultaneously, this connection leverages cognitive-social learning factors



that promote student motivation⁸. When students work together to solve open-ended problems and create products, they are not only practicing social learning tasks that hold value in the world of work, but also beginning to develop their identities as future professionals⁹. With this in mind, building a classroom and school community of collaboration, peer support, and shared learning can be a way to generate authentic learning and real-world significance.

Cultural and Community Connections

Integrating students' cultural frameworks (customs, family traditions, symbols, myths, etc.) into the design of learning experiences leverages a deep well of prior knowledge, motivation, and relevance. When there is a discrepancy between students' home cultures and the school culture, students are at an academic disadvantage¹⁰. Building real-world connections that are culturally relevant to students into the learning experience is one way to counter this effect¹¹.

Teachers can leverage culture and community toward building real-world connections by providing choices that enable students to use cultural strengths to demonstrate their learning¹². These choices might relate to students' audiences, the products they generate, or the tools they use.

Conclusion

Real-world connections establish the relevance of a learning experience for students by weaving their personal, community, and cultural backgrounds into the lesson. Through encouraging students to create products that serve a real audience and providing students with authentic, developmentally appropriate tasks and tools that mirror the world of work, teachers can create more engaging, effective learning experiences. Real-world connections also promote student-centered learning and agency because relevance can be tied to what students find interesting and compatible with their values, their sense of who they are, and where they want to be in the world¹³.

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