

Education: Building on Indigenous Knowledge

Indigenous Knowledge (IK) can act as a powerful tool in a learning environment to teach students. Conventional curricula and achievement tests in many countries, however, do not support students' learning based on their IK. Learning environments need to be adapted to help students build on their indigenous communities' knowledge and by recognizing students' culture and value systems. Educators can further this type of education by combining appropriate pedagogical techniques¹. What follows are various strategies that can help educators recognize IK that students bring with them to learning environments and use this as a stepping-stone to help them succeed academically. In addition, three educational programs that have successfully integrated IK into their projects are highlighted.

Prior Knowledge

Prior knowledge can be thought of as students' experiential knowledge. They are various forms of knowledge students gain from living and working in their communities and homes or from other local activities. Educational research has shown that teaching supported with prior knowledge increases students' ability to grasp material taught to them². In addition, when students find personal relevance in the material they are learning, they are more apt to retain information. Therefore, the first important pedagogical technique is recognition of students' prior knowledge, which can also be thought of as their IK.

Building on prior knowledge

Educators can avoid "cookbook approaches"³ in their teaching and allow students to "construct" their knowledge based on their prior knowledge⁴. For instance, educators can pose problems of relevance to the students, and value students' points of view, i.e. respect their culture, tradition, and identity students bring to the classroom.

Educators can also use students' prior knowledge as a foundation to build on and teach new concepts - this process is known as constructivist learning. This type of learning creates a "step-by-step" learning process allowing students to slowly learn knowledge of a concept accurately. This also avoids development of alternative conceptions, which often happens when students are expected to leap from no knowledge to a concept.

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Motivation

Helping students learn by building on their prior knowledge can also motivate students. Educators can modify teaching materials and strategies, and look at how tasks are presented, such as making material more personally relevant to students. Ultimately this will help students develop personal interest or motivation regarding the materials taught to them. This concept ties into how students can feel ownership of the information they learn and avoid the “banking concept” as discussed by Paulo Friere.

Ownership of Knowledge

Incorporating IK into an educational environment can also help students feel ownership of the knowledge they bring to learning environments. In *Pedagogy of the Oppressed* Paulo Friere suggest that allowing students or individuals to have ownership of their knowledge is equivalent to respecting their culture, tradition, and identity. He writes that educators can avoid teaching students as if they are “empty vessels [and] abandon the education goal of deposit-making.”⁵ When education is not taught merely as “banking” information, students have the opportunity to understand the relevance and meaning of the knowledge they are being taught.

The following chart shows how the three pedagogical techniques are linked:

Chart 1

MOTIVATION AND INTEREST: Students develop personal relevance to material taught, leading to personal motivation to learn



BUILDING BLOCKS: Instruction using prior knowledge



BASE: Prior Knowledge = Experiential Knowledge = Indigenous Knowledge

The number of programs that have successfully integrated communities’ IK into educational programs is increasing significantly. Three examples are offered here.

World Learning for International Development

World Learning for International Development (WLID) is a Non-Governmental Organization based in Washington, D.C., USA. Some of the activities in their organization include: (i) projects in multilateral education and training; (ii) improving the quality and equity of education programs; and (iii) social advocacy. One of their innovative education programs is Popular Participation in Curriculum and Instruction (PoPCI)¹, which focuses on integrating the IK of a local community into the formal school curriculum. The PoPCI model is based on observations on the Ethiopian school system regarding the low rate of successful students graduating from public primary schools. In response to high dropout rates among students, and parents taking their children out of school because they failed to see the relevance of the education presented to them, the PoPCI project added a twist to the conventional education system and re-exposed students to knowledge from their everyday surroundings.

The PoPCI initiative teams classroom teachers with “local experts” to create and deliver lessons for primary school students on relevant topics, or students’ IK, such as carpentry, pottery, traditional medicines and agriculture. For instance, PoPCI brought local blacksmiths, weavers, and other community resource members into the school. Typically, local occupations, such as the blacksmiths, are viewed in these communities as a “lower caste” profession. The introduction of PoPCI into the curriculum, however, allowed for blacksmiths to overcome this stigma and become part of the formal educational system. This effort brought back respect for these professions. Students saw both the teacher and local expert as an authority in instruction and an expert in their fields. This process allows students to value their community knowledge as equivalent to what is taught in school. Students also began to value local and modern sector occupation choices after their graduation. For a student to realize that he or she can learn from their community members through the formal school curriculum is the most valuable education.

Alaska Rural Systemic Initiative project

Another example is the Alaska Rural Systemic Initiative project (AKRSI)¹, funded by the United States National Science Foundation and sponsored by the Alaska Federation of Natives. AKRSI follows a similar template as PoPCI by incorporating Native Alaskans’ knowledge and culture into the conventional school curriculum. They do this in a number of ways. As an example, in science

classes, students learn about physical concepts of tension, force, and weight by studying the snowshoes that Native Alaskans wear. Lesson plans follow the United States national science standards and at the same time reinforce the culture of native students. Another example is the annual science fair. Students are required to produce science projects that include scientific concepts as well as an aspect of their culture. At these fairs, science teachers judge students on their science content knowledge and a native elder also judges their performance based on the cultural content. Children's science knowledge and their cultural knowledge are recognized and valued in this manner.

Respecting the culture and tradition that Native Alaskan students bring into the classroom is essential to motivate them to attend school and continue to achieve as students. However, motivation is only one aspect of student achievement. When students see their culture represented in the curriculum, they develop self-esteem knowing that they are also an integral part of their school and have the ability as well as the opportunity to study alongside other students. There are several programs like ARKSI throughout the US.

Global Fund for Children

Global Fund for Children (GFC)⁸ is an organization based in Washington, DC, USA. GFC provides small grants to education programs around the world and many of the programs recognize IK as a valuable component. For example, one of the projects it funds, through the Vikram Sheila Organization, educates students on mathematics and science concepts based on their agricultural work. In a village outside of Calcutta, India, students are taught basics in mathematics (such as addition and subtraction) by adding and subtracting crops, cattle, etc. on the farm. In addition, students are taught scientific concepts based on their agricultural work. Consequently, education is based on students' occupation and an indigenous context.

These projects demonstrate how students unfamiliar with content taught through the conventional curriculum can learn to appreciate it when connections are made to the knowledge they hold from their environment and communities. In addition, students are better able to understand and utilize their surrounding environment and natural resources to develop their community in a sustainable fashion.

Conclusion

IK needs to be addressed and integrated into educational programs since the reasons for the lack of education in rural areas go beyond access to schooling, affordability, and lack of resources. When prior knowledge or IK is integrated into the classroom settings or learning environments, students better connect to material taught and can become a major knowledge source for their community's sustainable development.

Footnotes:

¹ Defined as “the art, science, or profession of teaching.”
See Webster’s Dictionary (2004)

² See Jegede (1999) in Semali and Kincheloe (1999)

³ Learning standard methodological approaches

⁴ See *The Case for Constructivist Classrooms*, Brooks and Brooks (1993)

⁵ See *Pedagogy of the Oppressed*, Friere (1993)

⁶ Information on PoPCI is based on a presentation by Dr. Joshua Muskin, project director

⁷ See <http://www.ruraledu.org/projects/alaska.htm>

⁸ See www.globalfundforchildren.org, founded in 1994 by Maya Ajmera and modeled after the organization “Global Fund for Women.”