Culture and Context are Important

Paul Dumas

Science, mathematics, technology, culture and the Pacific context have been intertwined for thousands of years.

Each of the islands and societies in our region has a rich culture. These cultures include a long history of observing and developing understandings of relationships in the natural world, designing technologies to improve life, and inventing counting systems to meet needs. Healing, fishing, planning, preserving food, navigating, building, and numerous other activities reflect these links. They are valued and should be both honoured and built upon in the educational setting.

The Pacific context includes a unique environment as well as language and culture. Pacific islanders developed effective living strategies to suit a tropical environment which included small islands scattered across large expanses of ocean. Life on the islands throughout the region is very different from life in other parts of the world because of its unique context. Going fishing in California is a very different experience from going fishing in American Samoa. Activities of children in Minnesota do not include ocean activities, and young people in Kansas who help their parents with farm chores after school are doing something quite different from their peers in Pohnpei or Palau.

When developing the Pacific Standards for Excellence, the Mathematics and Science Leadership Team was concerned that existing mathematics and science education in the region often failed to address and build upon the rich diversity of island environments, cultures, values, resources and needs of the region's students. By defining mathematical and scientific literacy to include the ability to be concerned and responsible citizens of their communities, the region and the world, the team emphasised the importance of making strong connections between the content of mathematics and science and the cultures which surround students. Building these connections increases both the learning of mathematics and science and the ability to be responsible citizens.

Student understanding and learning is greatly enhanced when the classroom experiences are connected to everyday experiences outside school. Effective mathematics and science teachers acknowledge the rich mathematics, science and technology traditions of the cultures around them; understand the cultural backgrounds of their students; and develop, adapt and modify their instruction to build upon the Pacific context of their communities.

The process of enriching curriculum, instruction and assessment by honouring culture, language and context is challenging. First steps in this process might include:

- Understanding and appreciating the role of mathematics, science and technology in Pacific societies.
- Building instruction upon what your students know and are familiar with.
- Providing opportunities for students to discover examples of important mathematics, science and technology in their own cultures.
- Recognising that language can be a barrier to participation and taking steps to ensure that all students have access to the curriculum.
- Creating tasks in which students can see their own cultures, as well as important mathematics and science, in the assessment process.
- Arranging classroom situations so that all students are actively involved while honouring important cultural rules of interaction.
- Learning about the expertise and interests of family and community members who can contribute to mathematics and science learning both in and out of the school setting.

Mathematical and scientific literacy are important to each individual, to the society and to the

community's economic development. Your efforts and those of your fellow teachers, individually and collectively, to incorporate culture and context into the classroom environment are critical to achieving the vision that "all Pacific children will be scientifically and mathematically literate: knowledgeable, capable and caring."

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