Converged Inquires on Strategic Change: Three Pathways to Student Success

Dr. Sheena Ghanbari, UC San Diego
Dr. Nahid Nariman, TIDES Education
Dr. Karina M. Viaud, UC San Diego

Abstract

Who is responsible for students' education? Though vast, this question helps to gain a greater understanding of the role of institutions, administrators, teachers, students, parents, and community members in educational research, policy, and practice. The papers discuss change in undergraduate programs, in an elementary school, and in a doctoral program by centralizing the practice of strategy to improve educational institutions and reveal pathways to student success.

Paper one explores how faculty founded programs that integrate the Arts with STEM and the plans they formulated to create one of the few STEAM programs in the U.S. Paper two discusses strategies teachers practiced to stimulate inquiry among low income English-learning students and how students perceived self-engagement in their learning. Paper three investigates first-generation doctoral students of color who became resilient as they encountered culturally challenging experiences and strategies they devised to persist in the program.

The authors will convey a cohesive symposium of how strategic changes in research, policy, and practice empower dialogues among three different platforms in education to propel our curiosity for a better school experience. Together we support the conference theme of deepening school change through the overarching theme of strategy. Each author will demonstrate this connection.
1. Strategic University Leadership to Pioneer Programs at the Intersections of the Arts and STEM

Innovation and complex bureaucratic structures are two dichotomous characteristics of university culture. Establishing a new program within a large educational institution is a formidable feat and presenting a new interdisciplinary program presents another layer of challenges. With the impetus for creativity in today’s exceedingly complex global economy, a parallel movement that marries the arts with science, technology, engineering, and math (STEM) disciplines has emerged as a means to foster creative problem solving (IBM, 2010; Maeda 2013).

Exploring the journey of founding faculty who have created university programs that deliberately integrate the Arts with STEM, this collective case study presents contrasting narratives of program establishment. The ArtScience program and the ArtTechnology program are undergraduate university programs at two distinct R1 Research institutions that predate the STEM to STEAM movement. The ArtScience program was founded by a professor in the sciences and a public artist who started teaching together in 1997 and officially established the program in 2006. The ArtTechnology program was founded in 2001 by an appointed provost who was a faculty member in the sciences with the assistance of a committee which included faculty from various disciplines.

The program founders were interviewed through the lens of Bolman and Deal’s (1997) four frames of organizational development: structural, human resource, political, and symbolic. Through in-depth interviews with questions from each of the four frames, findings reveal the journeys of highly strategic faculty leadership to create university programs that are on the forefront of bridging seemingly distinct disciplines. This paper explores the leadership journeys of these faculty and presents the practice and policy implications of establishing these unique interdisciplinary programs.

<table>
<thead>
<tr>
<th>Key Leadership Themes by Program</th>
<th>ArtScience</th>
<th>ArtTechnology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resourcefulness in the Structural Frame</td>
<td>Newness and Fluidity in the Structural Frame</td>
<td></td>
</tr>
<tr>
<td>Relationships of Power in the Political and Human Resource Frame</td>
<td>Establishing Community in the Political and Human Resource Frame</td>
<td></td>
</tr>
<tr>
<td>Hands-on Cross-Disciplinary Learning in the Symbolic Frame</td>
<td>Experiential Interdisciplinary Learning in the Symbolic Frame</td>
<td></td>
</tr>
</tbody>
</table>

The below chart shows themes that emerged from the ArtScience and ArtTechnology program.

The leadership of both the ArtScience and ArtTechnology programs conveyed
sophisticated decision-making processes to best position their programs. Through careful partnerships these leaders were able to create sustainable change within their institutions. Founding faculty ultimately created innovative programs that had little precedence, but have considerable student learning benefits.

The policy implications for the STEM to STEAM movement are more prevalent in recent years as reflected in the creation of the bipartisan congressional STEAM caucus in 2013 and the surge of programs that emphasize STEAM education (Bonamici & Schock, 2014; Sousa & Pilecki, 2013). The narratives from these educational pioneers have the potential to influence the practices of emerging university STEAM programs and encourage policies that actively integrate the arts in education. The paper will share specific strategies employed by program founders to ignite faculty leadership in creating new avenues for learning. These practices connect with the broader theme of the symposium to show how administrators, educators, and learners can impact systemic change.

References


Maeda, J. (2013). STEM + Art = STEAM. *STEAM Journal*, 1(1)


2. Just One Slight Change: Deepening the Elementary Students Learning Through the Questioning Strategy

With globalization of the world economy, schools are under pressure to develop long-term competencies in students to ensure their future success. Students who demonstrate problem solving, critical thinking competencies, and the ability to work collaboratively and cooperatively possess skills employees seek (Hart Research Associates, 2013; Watanabe Crockett, 2016). Traditional approaches to learning (Dumont, Istance & Benavides, 2010; Hargreaves & Shirley, 2009), often fail to foster 21st century competencies such as critical thinking, innovation, problem solving and teamwork (Partnership for 21st Century Skills, 2009; Wagner, 2007). In the Interstate Teacher Assessment and Support Consortium (InTASC) Standards, the Council of Chief State School Officers (2011) of the U.S. also encourage teachers to teach students questioning strategies to create critical thinkers who can problem-solve authentic real-world problems. Students’ questioning as a best practice can play a crucial role in their thinking and learning (Flanders, 1970; Hattie, 2009; Marzano & Heflebower, 2012; Rothstein & Santana, 2011), but a review of the literature revealed limited research on student-generated questions. The primary goal of this mixed-methods study was to explore how students become more engrossed in their learning as elementary school teachers (K-5) engaged them in asking their questions. The questions considered throughout this study were:

1. How do teachers stimulate inquiry and enable students to generate their own questions?

2. In what ways do student perceive they were engaged in generating their own questions?

This case study collected data from a K-5 U.S. elementary school serving Latino heritage students; 93% qualify for free-lunch and 82% were English language learners. The participants included 19 teachers for 350 K-5 students. Data was collected from focus groups, interviews with teachers; repetitive focus group interviews with 48 selected students; fifty hours of K-5 classrooms observations; student journals with student questions; documents from teacher team planning; teacher surveys, and students’ pre-post science assessment.

Educational reforms are not new to the United States. Nevertheless, the latest educational reforms, Common Core K-12 State Standards (CCSS), and the Next Generation Science Standards (NGSS) created a movement by demanding transformation of educational settings to prepare students for today’s challenges. Engaging students in solving relevant real-world problems is an important part of NGSS, and this study demonstrates that when students are generating their own questions, they are more engaged in their learning.

Data suggested that the Inquiry Prompt Questioning Strategy helped teachers uncover students’ prior knowledge; helped students to generate questions and engaged them
more deeply in the inquiry process by involving them actively in learning and knowledge sharing. The results of this study, although limited, are the initial steps towards impacting the process of learning from elementary school to higher education. The Inquiry Prompt Questioning Strategy will be shared to provoke new effective implementation for learning. The connection of this strategy to the symposium broader theme is to demonstrate to educators the impact that one slight change can have on students’ learning.

References


Hart Research Associates (2013). It takes more than a major: Employer priorities for college learning and student success. An online survey among employers conducted on behalf of the Association of American Colleges and Universities.


3. First-Generation Doctoral Students of Color Strategize to Navigate the Dominant Culture of the Education Program

The Survey of Earned Doctorates reported that parents of Black, Hispanic, and other racial doctorate recipients were less likely to have exceeded an education beyond high school and were less likely than parents of white, Asian, and multiracial doctorate recipients to have attained a baccalaureate or advanced degree (NSF, 2011). Doctorate recipients from families in which neither parent has earned more than a high school degree is declining, and the proportion of families in which at least one parent has earned a bachelor’s degree or higher continues to climb, rising from 55% of doctorate recipients in 1994 to 69% in 2014 (NSF, December 2015). In other words, parents of recent doctorate recipients are better educated than parents of earlier cohorts of doctorate recipients. But, the issue remains that first-generation students of color [identified as underrepresented students] who pursue a doctorate take longer than other doctorate recipients to complete the degree in every broad field of study (NSF, December 2015).

Today, we continue to discuss inequities and achievement disparities in education among underrepresented doctoral students. Underrepresented students who pursue the terminal degree from predominantly white institutions encounter interactions of not belonging as a result of culturally disconnected experiences from which strategies emerge to navigate the dominant environment. Emergent strategies stem from the underrepresented student becoming resilient. Resilience is found in the concentric relationship of the environment, personal and family support that buffer adverse situations in a person’s life (Benard, 2003; Brown, D'Emidio-Caston, & Benard, 2001; Ungar, 2008). The author collected data over a period of three months through two separate interviews and collection of journal entries with evidence of social injustices experienced by four first-generation doctoral students of color.

From the research reported in this paper, narratives of these first-generation doctoral students of color, the first in their immediate family unit with an earned undergraduate degree, bring insight into their persistence in the program. They became resilient, and described strategies as means to respond to the program culture. The overarching theme is that they reshaped their self to the program culture and in turn also created meaning of their self as doctoral students of color.

This paper presents implications for administrators to (re)consider the concept of critical resilience. Critical Resilience is not only the relationship of the environment, personal and family support coming together to buffer adverse situations of underrepresented students, but considers the complexity and cultural values of this person's life (Campa, 2010) when faced with adversities in a dominant environment. We can’t believe that underrepresented students “somehow make it” at any level in higher education by luck without bearing in mind the inaction of social injustices that occur in an educational environment (Campa, 2010; Ceja 2004), because when we do, we act as inhibitors to the success of these students and to the improvement of schools. This paper contributes to the symposium as a call-out to administrators to exercise thoughtful leadership practices informed by research and challenged by policy which will be
discussed in the symposium.

References


