



An Anthropological Perspective: Foundational Strategies of Education

The 1700s was a remarkable century often referred to as the Age of Exploration. Explorers, scientists and scholars were busy discovering, naming and classifying information. While James Cook was discovering islands in the Pacific to better define the globe we live on, John Harrison was designing an accurate clock that would allow Cook to precisely establish location in terms of both latitude and longitude (Gasconigne 2007:71). Meanwhile Jean-Baptiste Lamarck was classifying species and exploring the inheritance of acquired characteristics, while James Hutton was laying down the foundational systems of geologic process (Hutton 1795). Pushing the technology boundaries Thomas Newcomen's "atmospheric" engine introduced practical steam power to industry (Preston 2012). The race to understand systems and then harness their power was a global phenomenon and touched every aspect of scholarly thought, including education. Science and exploration required literacy not just among the elite but across the merchant classes, as well. In his treatise on education, Sir William Curtis defined the foundational concepts of literacy as early as 1795. The florescence of schemas and defining systems in many ways powered the Industrial Revolution in the following century and laid the groundwork for understanding "universals" within earth's natural and cultural systems.

Within the first two decades of the 19th century, the three "R's — Reading, Writing and 'Rithmetic" established the baseline of 19th and early 20th century education for literacy. With the rise of the Industrial Revolution, basic literacies grew in importance. As Hutton and Darwin established the modern study of geology and biology, engineers articulated the universal principles of design or the steps to solving problems (Polya 1945). In general every time someone sets out to solve a problem they follow these steps:

1. identify issue or problem and brainstorm solution,
2. design and/or research solution
3. build solution,
4. evaluate solution,
5. modify solution for greatest success, and
6. share solution.

This has become known as the Design Cycle, a universal way that all humans go about solving problems. Together scholars, scientists, and engineers strived to set up hypothesis and systems that could be replicated, tested, and propagated. The results simulated everything from colonialism to manufacturing creating systems from scheduled transportation to synchronized factory production. All of which required basic literacies. As education moved from being a privilege of the few to a right of all youth, education as an industry explored how best to align teaching and content with the needs of manufacturing and business. Technology and Time provided educators and policy makers with the guidance to craft strategies that worked for broad audiences.

Normal Schools that trained high school graduates to be teachers began to flourish in the US after 1850. In 1867 Congress passed legislation establishing the Department of Education to collect statistics and disseminate information (Grant 1993). By 1892 the Committee of Ten defined the prerequisites for college in the US

"... [I]t is believed that the most effectual means of preventing [tyranny] would be, to illuminate, as far as practicable, the minds of the people at large, and more especially to give them knowledge of those facts, which history exhibiteth, that ... they may be enabled to know ..."
Thomas Jefferson's "Bill for the more general diffusion of knowledge"
(1779)



further institutionalizing the content to be taught in elementary and secondary schools (MacKenzie 1894). By 1917 the US public school system was in every state. The one room school house began to split as populations grew creating elementary schools and high schools with middle schools being the last to form. Whether a one room school house or multiple schools within a system, almost every town in America boasted a school. Schools like libraries were a symbol of community success. With the parallel growth of sports in the early 20th century the rise of community identifiers occurred. Schools took on mascots and school colors, which became in many places synonymous with the community.

The resulting school systems of the early 20th century reflect the persona and needs of the community. Since the overwhelming industry of the 1800s was agriculture, schools aligned themselves with a ten-month academic year reflective of the growing season. Yet, with the rise of manufacturing schools also aligned to the skills needed on the factory floor, basic literacies in math, language, and writing with a firm understanding of time. Thus with these two alignments established schools across the nation began turning out literate citizens who could go to work for any business or manufactory and had the time to also handle the harvest. With success, the strategies for instruction, the means of delivery, and the association of learning to real world issues became more codified. The textbook industry flourished, Normal Schools morphed into university programs and departments, rows of school desks became the image most associated with the classroom, the bell system defined the units of each school day, and a teacher standing at the front of class lecturing epitomized learning.

Although the textbook/lecture instructional strategy was by far the most popular, a number of competing instructional strategies developed in the earliest decades of the 20th century but for one reason or another they languished. Maria Montessori's Method schools flourished and then all but disappeared by the late 1920s and did not return to the US educational landscape until the 1960s (Kramer 1988). Mastery Learning was first broached in the 1920s but not until Benjamin Bloom in the late 1960s attached it to his taxonomy of educational objectives did the strategy get traction (Bloom 1981, 1956). educational delivery strategies with hands-on experience embedded into learning at the beginning of the 20th century slowly moved away from the apprenticeship model of hands-on experiential learning toward theory and memorization by the end of the century. The exception was in the trades, which became known simply as "shop" class or "home ec." Experiential learning drifted out of formal education into Vocational Technology or VoTech centers and labor union apprenticeship programs, leaving behind a predominant delivery system of lectures, labs, and worksheets. By the end of the century many urban schools had dropped lab classes in lieu of online virtual experiments.

By post World War II classrooms were so uniform across the US that education researchers began looking for differences and examining the cognitive variables and drivers behind learning. Researchers at Case Western Reserve University began identifying the differing strategies as "based" learning (Purser 2012). For example, medical classes were labeled "case-based" or "project-based". As the "based learning" school of thought became widespread the typology expanded from learning style to encompass learning spaces, "place-based" (Kolb & Kolb 2006). At the same time as the work was proceeding at Case Western, anthropologists like George Murdock were studying systems in terms of universal norms and particular attributes (Murdock 1945). For example, all cultures have a form of governance, a form of marriage and a system of kinship. These are the universals of culture. However, individual cultures have specific or particular ways of governing, of marriage rituals, and of kinship organization. Thus when looking at the detail each situation is unique but from a broader perspective all cultures are comprised of universal attributes. Universals and particulars also apply to actions or how we approach issues. Each issue or problem has specific variables arranged uniquely, but how we go about solving the problem, in general terms, is the same. Horst Rittel and Melvin Webber built on these strategies and culture theories when they



deconstructed the universals and particulars of “Wicked Problems” in social planning, ultimately identifying 10 components that every wicked problem possesses (Rittel & Webber 1973).

Looking at education for common denominators, we quickly discern that every school has an instructional strategy, whether it is textbook/lecture-based, problem-based, or inquiry-based. Every school is seated in a cultural context, whether it is place-based or religious-based. Finally, every classroom has a system of delivering content, whether it is lecture/worksheet-based or project-based. Thus the universals of schools include instructional, cultural, and delivery strategies. Yet, when you include all the variables of each school and classroom in terms of administrators, teachers, students, resources, and community — no two schools are identical. This is why educational models, which are based on a universal framework can be successfully propagated but not necessarily replicated because of the particulars that vary school to school and community to community.

The pervasive educational model of the 20th century, with its alignment to factory production and agriculture served the country well. The system produced a population with over 50% having completed the 8th grade by the beginning of World War II. A society with basic literacies and acclimation to manufacturing needs was well equipped to face the gargantuan tasks of building ships and airplanes in record times during World War II. Emboldened by the success of education’s impact on the war effort, government support and access to post-secondary programs further strengthened the US educational model in the 1950s and 60s growing the number of teenagers enrolled in high school from 83% to 90% and pushing the rate of high school graduation to over 50%. The GI Bill helped send many returning veterans to college stimulating all sorts of new industries including computerization, launching a whole new Age.

The florescence of students in schools also impacted the number of teachers and thus the ratio of teachers to students. In the 1920s the ratio of students to teachers hovered at around 35:1. By the 1960s it had dropped to around 25:1. Today ratio is around 17:1 (Sonnenberg 1993:28; NCES 2016). Today over 900,000 new teachers graduate from post-secondary institutions each year. With more people in the profession, educational research expanded and during the 1960s and early 1970s. As a result there was a rise in specialist teachers and more research around cognitive thinking and learning which set the pace for many post-secondary programs throughout the remainder of the 20th century. Montessori Method schools were reintroduced and Waldorf school emerged providing alternative instructional strategies along with Vocational Tech programs. Blocked scheduling and mastery experimentation also gained traction changing the look of the school day and delivery systems. Yet, even with these particular strategies emerging in the educational landscape, the predominant strategies remained teachers lecturing on instruction using textbooks and worksheets to deliver content. As the century progressed the reliance on memorization and written tests increased. With the rise of educational standards textbook publishers took on the task of aligning to textbook content and insuring that tests were standardized, thus reinforcing the value of this particular instructional strategy and delivery system.

*"By the year 2000:...
Every adult American
will be literate and will
possess the knowledge
and skills necessary to
compete in a global
economy and exercise
the rights and
responsibilities of
citizenship..."
The National Education
Goals, Goal #5 (1990)*

However, the world is changing rapidly. Digitization of information gave rise to the Age of Information by the end of the 20th century. Computers and the access they provide to vast amounts of information within a couple of “clicks” makes memorization all but obsolete, yet memorization is one of the hallmarks of textbook instructional strategies. Twenty-first century workforce needs are different from the societal and technological pressures that helped define the particulars of instruction and delivery at



the turn of the 20th century. New technologies and global economies exert different pressures on education. Agri-business has taken over the small farms and mechanized most of the planting and harvesting eliminating the large sectors of that labor force. Manufacturing has also changed dramatically. Robots now handle many of the tasks once done by humans and additive manufacturing is driven by computers. So, the jobs of today and tomorrow no longer require a ten-month school year, nor a bell system. But where do educators look to define what drivers and variables they should address as they craft the particulars of their instructional, cultural and delivery strategies?

If today's educators examine what 19th and early 20th century educators identified as two, distinctive drivers in industry, it is easier to identify specific particular methods of instruction and delivery for today's schools. Nineteenth and 20th century educators and policy makers sought educational models that would produce literate workers that could work in any business, anywhere and that the system would be organized in such a way as to support the seasonal needs of agriculture. The expectations of literacy have changed but not the underlying intent to produce workers who can work in any industry anywhere and be productive. The time requirements of education have also changed. Today's world runs 24/7 and access to information is also wide open. Yet, once again our expectations are that learning is responsive to access and the needs of global networks that are now interlinked.

Ken Robinson, Saguta Mitra, Salman Kahn, Sebastian Turbot, and Tiffany Schlain, leaders in educational research and thought, consistently point out to be responsive to today and tomorrows workforce needs the educational system must prepare literate students. They define literacy as design thinking, multi-disciplinary collaboration, communication, and creativity (Future Learning 2012 and The Adaptive Mind 2015). This approach focuses on the Habits of Mind or what it takes culturally to be successful. In short, cultural literacy for the 21st century. By supplanting "*Reading, Riting, and Rithamatic*" with these particular skills, each school can create a unique cultural strategy that orders the skills importance for success. With this type of literacy students can tackle any technological problem using the design thinking universal and the skills learned in project-based experiences.

Simultaneously, communities must examine the particulars of instruction and delivery so that they are aligned with how industries and networks function in the 21st century. As teachers shift to being guides in instruction and learning environments become portals of knowledge exploration that combine experience and authentic problem-solving, the particulars of instructional and delivery strategies will align with the cultural strategies defining literacy. The change in ordering the the particulars of how to guide learning and deliver instruction impacts the look of education but does not change the fact that all schools still work and balance all three universal strategies. As this shift in focus occurs it is important to study the hierarchy of order in the universals as well as the particulars of implementing the strategies. Striking a balance in one instance may not be the answer for all occurrences. Thus understanding the importance of the interactions of the universal strategies with the intra-action of the particulars for each strategy will provide policy makers and school administrators powerful tools to chart attainable pathways in this century's educational landscape.

"The educational system is not broken, just outmoded for the needs of today."
Saguta Mitra Future Learning 2012



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