Content Knowledge and Process Skills (Revised)

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There are four resources considered in this summary. The first is the Secretary’s Commission on Achieving Necessary Skills (SCANS) Report for America (1991) called, “What Work Requires of Schools”. Second is the “Standards for Success: What It Takes for Students to Succeed in America’s Research Universities” (2003). This is from the *Understanding University Success* project, by David T. Conley, Director of the Center for Educational Policy Research and Associate Professor at the University of Oregon. Third is a website called “The Partnership for 21st Century Skills” (2007) and fourth is from the Math & Science Collaborative, Life Science Institute called, “Indicators of Development of Process Skills” (2001).

The purpose of each is to outline the skills students need to be successful in their future world as college students and career holders. They all indicate that students need to use the information they absorb, work with it in many ways to master key concepts, and integrate it into future learning opportunities. They emphasize that content knowledge and thinking skills must be integrated in early school experiences, in order to ensure success in higher learning and in careers.

The *SCANS Report* displays a “Workplace Know-How” list of competencies, skills and personal qualities necessary to do well on the job. First, employees must know how to use the following productively: ***resources, interpersonal skills, information,*** and ***systems and technology***. These are the basis for the foundational skills of ***basic skills*** (reading, writing, arithmetic, mathematics, speaking and listening), ***thinking skills*** (creative thinking, decision-making, problem solving, using the mind’s eye, metacognition and reasoning), and ***personal qualities*** (responsibility, self-esteem, sociability, self-management, and integrity). (SCANS, 1991)

The *Understanding University Success* presentation outlines the skills of ***content knowledge,*** such as English (reading and comprehension, writing, research skills, and critical thinking skills), Math (computation, algebra, trigonometry, geometry, math reasoning, and statistics), Natural Sciences, Social Sciences, Second Languages and the Arts. It also outlines ***Habits of Mind*** such as inquisitiveness, risk-taking, accepting feedback, learning from mistakes, critical and analytical thinking, drawing of inferences, reaching conclusions, and supporting opinions with logical arguments. (Conley, 2003)

On the *Partnership for 21st Century Skills* web site it emphasizes the need for students to “pay attention to developing adequate life and career skills”. It outlines ***Life and Career Skills***: flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility. Next it lists ***Leaning and Innovation Skills***: creativity and innovation, critical thinking and problem solving, and communication/collaboration. Then, ***Information, Media and Technology Skills*** are listed: information literacy, media literacy, and ITC (information, communications and technology) literacy. Finally, it names the ***Core Subjects and 21st Century Themes*** as: core subjects, global awareness, financial/economic/business/entrepreneurial literacy, civic literacy, health literacy and environmental literacy. These are the essential learning skills they detail for the 21st century learner. (Route 21, 2007)

The *Indicators of Development of Process Skills* gives information about how to identify process skills in a student and their development towards these skills. They discuss observing student actions, noting the types of questions students are asking, and what they do with their questions. They suggest looking at how students plan and investigate, how they formulate their explanations, how they make predictions, how they analyze data, and how they communicate. Under each of these considerations, there is a list of questions for teachers to use, to guide them in their understanding of where students are in the development of these process skills. The main goal is to help teachers determine what to teach their students next.

The practice of using these process skills, to guide instruction, incorporates more than just the understanding of content as with traditional teaching practices. Instead, it determines how students use the content knowledge to connect it to their real world and to use it to help them with new learning. It is a practice that teaches students how to engage with content as they will need to in their college studies, in real-life problem solving situations and to be successful in their future careers.

The process skills are best taught with content knowledge, not separately. As students are learning particular content concepts, they will benefit from incorporating the methods of processing the information. This is a practice that successful higher-learners and professionals use in their work place. The skills of processing become second nature to students who develop them in their early years of leaning. The development of these skills allows for immediate understanding of how to take on a challenge and produce an outcome that meets the expectations of the task.

The process skills are the most essential learning before graduating from high school. They are more important than the content knowledge because they are skills that lead the learner to learn content knowledge effectively. There is an infinite amount of content knowledge, and much of it is evolutionary in nature. It is essential that higher-level students and professionals continue to seek out new content knowledge and update their understanding of previously learned content. They will be able to do this if they have developed and mastered the use of process skills.

All of the skills outlined in these resources are important to ensure future success for students. As stated, the process skills aid in the mastery of content knowledge and similarly personal skills aid in the development of the process skills. That is why the most important knowledge a student needs is personal skills, also referred to as “adequate life and career skills”. (Route 21, 2007). These are similar to the Habits of Mind that Conley lists as well. These are the most important because they are universally needed in all work places, in home life, in personal relationships, in college classes, and in any setting where there is interaction with others and an expectation of producing an outcome.

In my second grade classroom, I encourage my students to develop their personal skills by seizing opportunities to do so. There are ample instances where I can teach my students how to work well together. When I give them learning tasks where they are working in small groups, we discuss afterwards how it went. They share who was fooling around, who wasn’t participating or helping and they are able to tell the person how their behavior or lack of effort affected the learning for all. We do the same when there is an argument or a behavior issue. When I witness a student giving up, or being satisfied with not getting an answer I challenge them to keep looking for an answer. I will suggest resources for them to use, such as books, web sites or another person in the building who might be able to help them. In every content area we all share connections that the content has to our own life or to other topics we have studied. The students will refer to field trips we have gone on, literature books we have read or videos we have seen that connect to a current topic. I might say something like, “This reminds me of something we learned not long ago. Does anyone remember something that connects to this topic?” It is really important for students to learn, at a young age, to be responsible for their learning and to value it. That also includes allowing other classmates to have the same opportunities to share, to be respected and to be listened to.

Personal skills are items such as taking on different roles when needed, being able to produce an outcome even when directions are unclear or directives change, communicating effectively, maintaining a positive attitude, accepting and working with diverse opinions, setting and managing goals, independently completing tasks, driving oneself to be a continuous learner, productively interacting with others while respecting diversity, producing quality results and being responsible to help, lead and work with others. (Route21, 2007) These personal skills are used, in varying developmental degrees, by people of all ages. They are used while learning any content knowledge, thinking skill or process skill. These personal skills are life-long skills that are the basis for success in all other skill acquisition.

These resources outlined many types of learning skills. The most important connection is that students must practice the same deep learning skills involved in inquiry-based learning: ***asking, investigating, creating, discussing and reflecting.***

References

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