



Defining and Tracking Skills for Intentional Curriculum Design

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Several organizations have named complex skills sets, ranging from 21st Century Skills to Digital Citizenship to Global Competence to Design Thinking. Many educators and leaders study relevant documents to compare their own school's work against these expectations, or to better articulate goals and learning targets. While it is good to keep abreast of new work in the field, and even to unpack standards documents with staff, these activities are insufficient if the end goal is to effect changes in instructional practice. And unfortunately, many popular planning software programs aren't helpful in skills articulation within a course or year.

If you are interested in truly incorporating skills instruction, skills-rich experiences, and skills assessment into your curricula, there are some relatively easy and illuminating steps to take. These steps may be followed by an individual teacher, by a team of teachers or inquiry group, or across the whole school. Regardless of group size, the goal is to intentionally define, track and plan lessons, units and projects with these skills in mind. In this article I share with you the methods that EduChange has used to help teachers and instructional leaders articulate and track skills.

Aren't Skills for Remedial Students?

The label "skills" has a bad reputation in some circles, representing "basic" know-how required only in remedial settings. We invite you to broaden your understanding of skills, since those that universities, corporations, ministries of education and other organizations are naming are far from rote. These skills are complex and not easily mastered. For example, most educators realize that *collaboration* is actually a collection of different behavioral demonstrations that cumulatively make someone a good collaborator. When trying to teach or assess "collaboration," it quickly becomes apparent that we are dealing with a multi-faceted skills set. This is why creating a single row for "collaboration" on a rubric is often frustrating for students and teachers to use as a guideline.

Complex skills sets require multiple opportunities for practice because a) it takes a while to internalize how to perform the skills and feel comfortable doing so; b) sub-skills of the larger set may work in different combinations in different situations; and c) the same skills may vary slightly when applied to a given scenario. Teachers need to offer ample practice in order for students to become proficient; it is simply unfair to assess students who have not enjoyed sufficient practice.

First Steps: Disaggregating Skills from Content/Concepts

In order to design units and projects, some teachers go straight to the content (e.g., texts, topics, time periods) without a careful understanding of the particular skills they want students to use to learn the content. Many teachers review descriptions of skills and practices and respond by affirming, “Oh, I do that in my course.” This may be an accurate statement at a high level, but a more useful response involves a set of inquiries into the given curriculum. We guide teachers to engage in exactly these types of inquiries, which illuminate what “doing that” really looks like.

In order to proactively teach students a complex set of skills, it is helpful to *label and name all skills in content-agnostic ways*. It is absolutely true that skills and content are enmeshed inside a learning experience, but the intentional design of a learning experience requires that teachers know exactly how certain skills will be leveraged in the service of the content. Further, the need to practice complex skills over time requires that they apply to multiple topics and texts.

Another important tactic is to *list specific sub-skills within a larger skills set*. This allows teachers to select the most appropriate facets of a skills set to apply to a given learning experience. There isn’t time to teach, practice and assess the entire skills set in one experience, nor is that necessarily wise from a learning standpoint. Creating a taxonomy of sub-skills allows teachers the planning flexibility they need to teach skills effectively. Much like a takeout menu, teachers choose carefully from a single, comprehensive list based on the learning experience at hand.

Let’s take a closer look at collaboration as an example:

Table 1: Three Sub-Skills of Collaboration

<p><u>CONSIDERATION OF OTHERS</u></p> <ol style="list-style-type: none">1. Makes positive, encouraging remarks about group members and their ideas2. Gives recognition and credit to others for their ideas3. Acknowledges different perspectives and ways of working when making plans or delegating tasks
<p><u>PARTICIPATION AND CONTRIBUTIONS</u></p> <ol style="list-style-type: none">1. Participates in group discussion without prompting2. Does fair share of the work3. Completes work on time; meets deadlines4. Brings needed materials5. Able to be productive in given role(s)
<p><u>EVIDENCE OF UNDERSTANDING: CONTENT / CONCEPTS</u></p> <ol style="list-style-type: none">1. Stays on topic2. Asks relevant questions3. Able to explain concepts to others, and offers to do so4. Offers constructive ideas and suggestions that influence group decisions5. Supports ideas with references to class work, notes, texts, or other resources

The larger skill set is broken down into component subskills

Note the specific demonstrations of each sub-skill

Note that these statements are content-agnostic; they may be applied to a variety of learning experiences

There are other sub-skills required for collaboration, but these three serve as an example of the articulated sub-skills. For any large skills set, whether you are using extant standards or building the set on your own, it is important to *state precise demonstrations of proficiency*. Sometimes standards provide details akin to those in Table 1, but sometimes teachers need to further clarify standards to arrive at this level of precision. The precision supports both instructional as well as assessment design, making it easier to select the correct sub-skill at the correct time.

We recommend trying this out with a couple of large, complex skills sets that are addressed multiple times in a single year. If a team of teachers is involved in the process, convene to discuss the various sub-skills as they apply horizontally across subject areas and/or vertically through the years. Yes—you are doing curriculum articulation and making your programs more coherent! The process is iterative, and it is likely that teachers will refine the lists once they start tracking skills throughout the year, which is the next step in the process. Avoid getting bogged down if possible.

Next Steps: Tracking Skills over the Year

We still have half of a school year left, so it is possible to gather some rich data if you begin to track skills now. However, we usually recommend that teachers track articulated skills over an entire course. With articulation comes clarity, and with clarity comes honesty. It is now time to take an honest look at exactly how many times, and in which learning experiences, these skills are truly *practiced by students*. When we give opportunities for explicit practice (meaning that students also realize they are practicing the skill), we are allowed to say “we do that.” You can view the tracker as evidence to support your claim.

A tracker is very easy to design, and we find that a simple spreadsheet works well. Learning experiences form the headings of each column (we recommend using a lesson series, a lab, or a “chunk” of curriculum that is smaller than a unit), and the articulated sub-skills are entered into each row. Every time a learning experience explicitly affords an opportunity *for students to practice a given sub-skill*, a tick-mark is entered into the corresponding cell. See Table 2 for an example of tracked Algebra skills in our secondary science program.

Table 2: Sample Skills tracker for Algebra skills in a Science Course

	Lab #1 - Scale Model of the Lab Space	Lab #2 - Quantitative obs - Mixtures	Lab #3 - Quantitative obs - Filtration	Lab #4 - Properties of matter	Lab #5 - Stream Tables - effects of a dam
Unit conversions (conversion factors, factor-label method, etc.)	•				•
Derived units (rate, concentration, etc.)					•
Exp. Error	•		•		
Scientific Notation	•				
Simple Expressions			•		
Performing Basic Operations	•		•		•
Formula Manipulation					•
Ind. & Dep. Variables					
Data Collection Table Entry	•	•	•		•
Data Collection Table Creation				•	
Graphing/Data org.					
Data Analysis	•	•	•	•	•
Scale (analogies, calculations)	•				•
Ratios, Proportions & Percentages	•		•		
Direct & Indirect relationships					•

Note that math skills are tapped to enhance the rigor of the science learning. Algebra skills form the larger skills set, and the sub-skills are articulated in Table 2. Again, this is an excerpt and is not intended to be exhaustive. Some skills are intentionally not introduced until a bit later in the course when students have become proficient in precursor skills. This is an example of how a skills tracker can shift from a documentation instrument to a proactive planning tool.

The processes of skills articulation and skills tracking are iterative, each one feeding the other in responsive ways. So what are you waiting for? Select a complex skills set, then convene with colleagues or proceed individually to articulate this larger set into precise sub-skills. Do your research first; many of the skills you want to articulate have been articulated by others. Try searching for standards or rubrics as a starting point. Then set up your tracker, knowing that you can change the way you state each sub-skill if it doesn't seem quite right for your course. The benefit of working with a colleague is that it prevents you from creating sub-skills that are overly particular or tailored to your discipline. The most desirable skills sets are applicable across subjects. While there are certainly disciplinary nuances, check that you are not combining skills and concepts/content needlessly.

Reflecting on Skills Articulation and Tracking Data

Once you begin the simple tracking process, it is amazing how the frequency of sub-skills practice quickly surfaces. Upon reflection, you will see how often are students practicing the skill, and how much time lapses before they practice it again. This trajectory is critical for determining fair skills assessment practices.

I liken the process of skills practice to my godson learning to ride a bicycle at age four. The basic sub-skills involve balancing, stopping with brakes and/or feet, turning, and steering straight. The basics may be learned if guidance (modeling) and sufficient practice are part of the equation. Also, the bicycle needs to be the correct size; 4-year-olds don't do well on adult-sized bikes. The more often my godson rides his bike, the better he gets. He becomes more confident and begins to enjoy riding. He wants to show others that he can do it, and he wants to ride with others who know how.

It wouldn't be fair to begin to teach him how to ride a bicycle if it were only possible to ride once every 6-8 weeks. Though he would likely make some improvement, he wouldn't make progress quickly enough to make bicycling "stick." This may make him feel that he simply wasn't cut out for bicycling, that he is less coordinated than his peers who seem to be riding quite well or, more tragically, that he is simply not someone who learns quickly. Soon he may grow out of his 4-year-old bike without having mastered the basics. His body will be ready for a bigger, more sophisticated bike, but it may be more uncomfortable to learn the basics at an older age.

The metaphor speaks volumes, and helps all of us think about the trajectory of skills development we can and should provide our students. The good news is that the steps of skills articulation and skills tracking are relatively easy to tackle, and the process will offer numerous insights. If you desire a PowerPoint deck related to skills articulation and tracking, we provide it free to our library users at www.educhange.com/library. I invite you to learn more about this process and ask questions as they arise: catherine@educhange.com Also please attend my session on this topic at the **AASSA** Educators' Conference in Curacao. Make skills articulation and tracking your New Year's resolution!

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