

# Developmental Assessment for Online Learning

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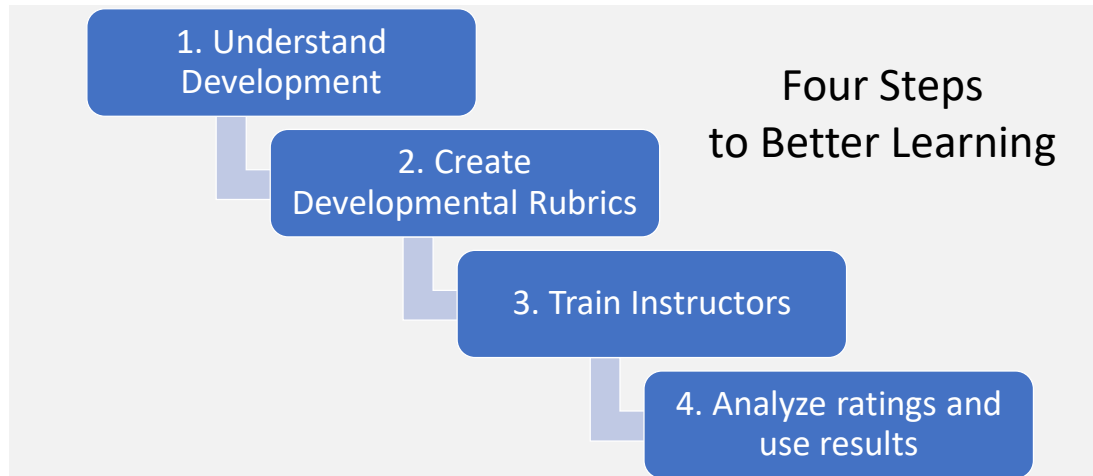
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*Author of Teachers, Learners, Modes of Practice:  
Theory and Methodology for Identifying Knowledge Development*  
Routledge Explorations in Developmental Psychology, 2017

In this presentation, you will *begin* to think about how to use knowledge development to reach your goals. Organization is *fundamental* to optimal use of your understanding of musical development. You can *sustain* this understanding through making developmental rubrics. But Soundscapes discovered that instructors need special training to *master* the use of these rubrics. Even with training, instructor observations will *inspire* discoveries and innovations only when we analyze and reflect on them.

# Assess to Improve Learning

with either online or face-to-face instruction



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## Step 1. Understand Development

You know a lot about musical development. A few concepts will help you organize this knowledge in efficient and powerful ways. These tools also help people to understand development better.

## Institutions and Instructors Develop as well as Learners

- Institutional dimensions
  - Define and maintain goals
  - Raise and allocate funds
  - Identify and keep quality professionals
  - Work with local institutions
  - Initiate and maintain quality assessment
- Instructor dimensions
  - Work within institutional and curricular goals
  - Enable learner improvement in social and behavioral goals
  - Support both iterative and transformational learning at all levels
  - Interact in-person and online with learners, parents, and schools
  - Use assessment while interacting with learners

Here are five ways each that program managers and instructors develop. Each way is a dimension of knowledge that emerges over time in its own unique pattern. Dimensions may develop independently but can also be mutually supportive, like assessment is for institutional fundraising and instructional improvement.

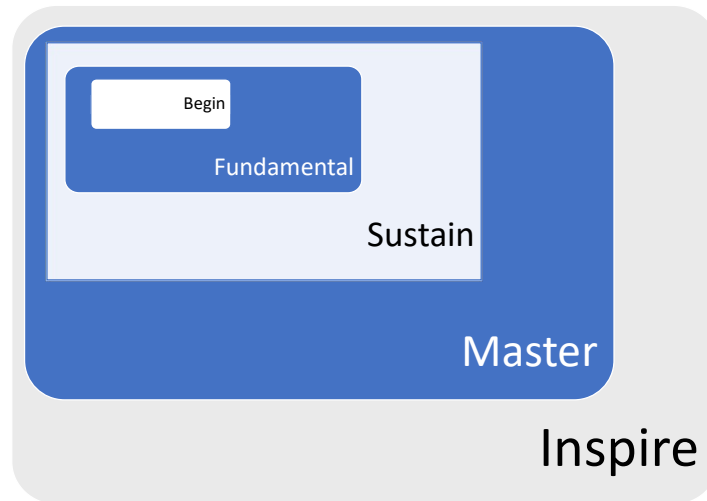
## Human Learning Occurs in Multiple Dimensions

Here are Soundscapes Dimensions for Musical Development

- Behavioral Basis
- Instrument Care
- Aural skills and applications
- Music reading skills and applications
- Physical Technique
- Sound Production Technique
- Practice
- Ensemble
- Relation to Audience

Soundscapes instructors identified nine ways that music learners develop. These are dimensions of learning. They are behavioral basis, instrument care, aural skills and applications, music reading skills and applications, physical technique, sound production technique, practice, ensemble, and relation to audience.

All dimensions have a succession of *modes* each embedded in its predecessor.



Studies of nearly 100 disciplines have shown that all dimensions of knowledge have a common succession of modes of learning, but the modes in each have unique names and emerge in use with unique timing. The names that Soundscapes use for this common succession are begin, fundamental, sustain, master, and inspire.

Each mode has different learning properties.  
Expert instructors can use these to define modes.

Mode Type	Description	Pattern of growth in usage
Begin	Start a new activity	Common at first and doesn't increase in use
Fundamental	Explore	Grow fast but replaced or collapse activity
Sustain	Use long-term	Grow moderately with high commitment
Master	Use without instructors	Grow moderately with higher commitment
Expert	Inspire other users	Grow moderately with highest commitment

Distinguishing the modes of learning in each dimension requires careful reflection on these general properties.

## Learning Within a Mode is Different from Learning Between Modes

1. *Iterative learning* improves performance speed and accuracy within a mode.
2. *Transformative learning* replaces the simpler mode with a more complex mode through the DEEP commitments.
  - Discover dilemmas with one's current mode
  - Examine through reflection assessing one's own role discussing with others and identifying a new more complex mode
  - Enable the new mode through planning rehearsal and empowerment
  - Perform the new mode in public

Good teachers become great teachers by distinguishing when to support iterative learning from when to stimulate a new transformation.



Magnifying the Modes used in two dimensions of music:  
(Each has a unique name initial % growth rate and commitment level).

**Behavioral Basis (Social)**

Not observed

**BEING EXCITED: (Begin)** Shows interest in participating but has difficulty following rules.

**PARTICIPATING: (Fundamental)** Is excited curious and willing to grow; mostly follows the rules.

**BEING INVESTED: (Sustain)** Follows rules and expectations of the teacher with guidance.

**BEING SELF-RELIANT: (Master)** Demonstrates proper rehearsal technique without guidance.

**BEING INFLUENTIAL: (Inspire)** Models rehearsal technique masterfully; serves as an influential leader.

**Aural skills (Musical)**

Not observed

**CONFLATING: (Begin)** Does not distinguish differences in pitch, volume, tempo, and rhythm.

**DISTINGUISHING: (Fundamental)** Is able to identify differences in pitch, volume, tempo, and rhythm.

**ADJUSTING: (Sustain)** Adjusts pitch, volume, tempo, and rhythm with guidance.

**INTERPRETING: (Master)** Applies understanding of pitch, volume, tempo, and rhythm to interpret phrases; makes musical adjustments with less guidance.

**DEMONSTRATING: (Inspire)** Demonstrates mastery of pitch, volume, tempo, rhythm, and phrasing.

In the two dimensions on this slide, notice how there are different names for each mode of learning. For example, Fundamental Behavior is Participating while the Fundamental Aural Skill is Distinguishing. Now look in **aural skills** at the difference between the **distinguishing** and **adjusting** modes. Great teachers know there needs to be a lot of distinguishing before effective adjusting can take place. Trying to make the transformation to adjusting too early can lead to frustration, too late to boredom.

## Regression is Common

*Regression* to a simpler mode is common especially when a new mode is emerging in a different dimension.

We'll see a few slides later how at any moment of time learners will vacillate between advanced and simpler modes.

## Step 2. Use Developmental Rubrics

1. You can systematize your disciplinary knowledge using developmental rubrics, but they become most useful only if you distinguish them from scoring rubrics or grading on the curve.

## Characteristics of Developmental Rubrics

1. Successive modes add complexity.
2. Use 3-5 modes to cover the whole range of development.
3. Ensure that the description of each mode helps to distinguish iterative learning within modes from the transformational learning needed to get new ones.
4. Give unique names to every mode that suggest the transformation that learners make to attain them (make sure it makes sense to say “in my \_\_\_\_\_ (dimension name) I’m going to work on \_\_\_\_\_ (name of the next mode of practice).”

It helps to have an expert in knowledge development support your use of these characteristics.

## Adapt or Create Developmental Rubrics

*1. Adapt Soundscapes Rubrics to your setting or*

*2. Create your own Developmental Rubrics*

- a. Interview* expert instructors to define dimensions and modes of practice (making sure new modes require transformative learning).
- b. Summarize* the interviews into 6 to 12 most often mentioned dimensions and definitions of modes show changing commitments.
- c. Name modes* using a unique term for each that is not used in any other dimension and help learners to identify each new commitment.
- d. Make easy-to-use forms* (e.g. use Google Forms and cell phones).

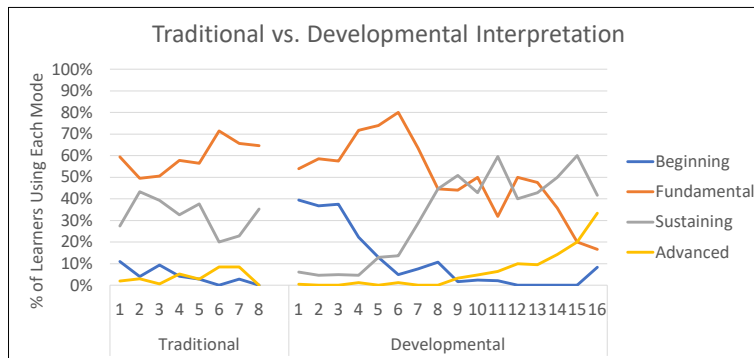
You don't have to reinvent the wheel, but you can adjust it to fit your own bicycle.

## Step 3. Train Instructors

You can waste years of assessment data by not training instructors first how to attend to the whole range of development while teaching just a small part of it. To be successful, learn the ideas in the next slide.

## Essentials for Effective Training

1. *Rate* in group meetings with all levels of instructors rating all levels of learners.
2. *Check ratings* often to ensure no rating on the curve.
3. *Rate often* enough for instructors to memorize the forms.
4. *Encourage instructors* to use the mode names to inspire learner progress.
5. Retain trained instructors.



The data in this chart showed a remarkable program transformation. The horizontal axis is the number of terms that a learner has been in the program. The vertical axis is the percentage of learners who used the mode during each term. Each color is a different mode of learning. Notice first, that two or more modes appear at every point in time. Development is more like a series of overlapping waves than a staircase of stages. Look next at the terms on the left part of the chart before the break in the lines. Those parts of the curves happened in the early years of Soundscapes before Program Director, Rey Ramirez introduced training groups where instructors for all levels meet together and discuss

their ratings of learners from all levels. The blue and yellow lines for the beginning and advanced modes don't change from year to year any more than in traditional classes the percentage of D's and A's change from one level of a program to the next. The instructors were grading on the curve. After the training, (right of the break) blue declines over time and yellow increases. That is a typical developmental pattern. The next year after the training, we discovered that the dropout rate for learners from the most impoverished homes declined to the same level as the other learners. Traditional grading that compares only students in one class demoralizes learners who begin behind others, because their grades stay at the bottom of the class year after year. Developmental ratings show their progress from one year to the next and thus, encourage both the learners and their parents.



## Step 4. Analyze Ratings and Discuss Results

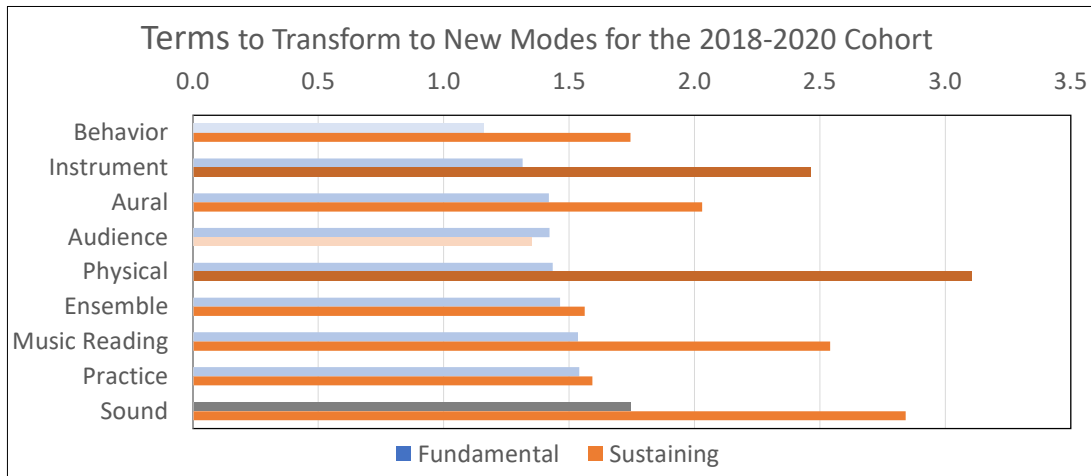
I've been analyzing the Soundscapes data for 7 years and reported to them at least once every year. Under Anne's and Rey's leadership, the program has made very effective use of the results.

## Collaborative Results

1. Commit to track progress across years and reflect on changes:
  - a. Differences due to poverty or IEP,
  - b. The number of terms before transforming to new modes,
  - c. The percentage of regressions from each mode, and
  - d. Online teaching versus in-person teaching
2. Report to parents showing developmental progress each term.
3. Report to curriculum designers and instructors.
4. Adjust curriculum and instruction if any differences seem problematic.

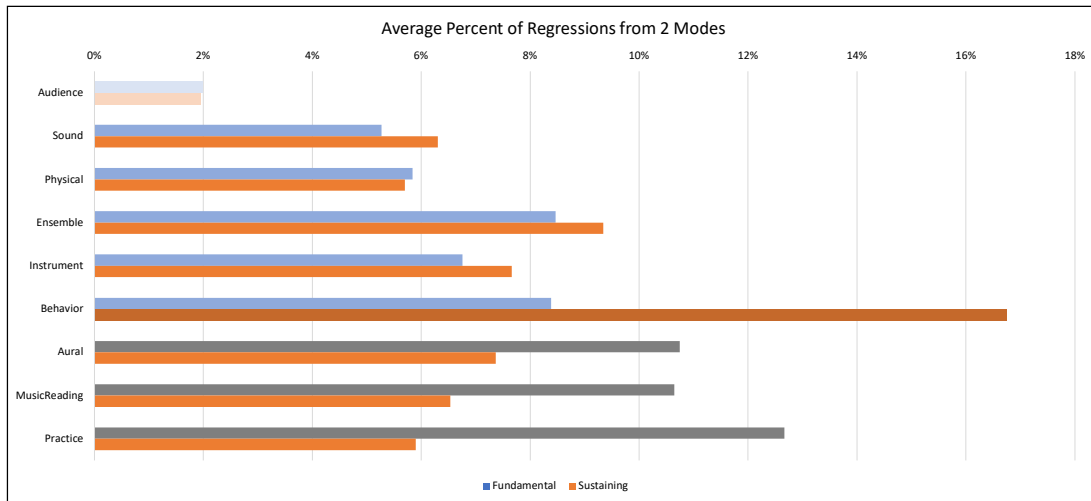
More data creates more opportunities, so the analysis now addresses different issues than in the past and the Soundscapes use of the data gets better and better. We've always looked at poverty and IEP effects, but transformations, regressions, and online teaching effects depend on accurate developmental ratings.

## How long do learners stay within a mode?



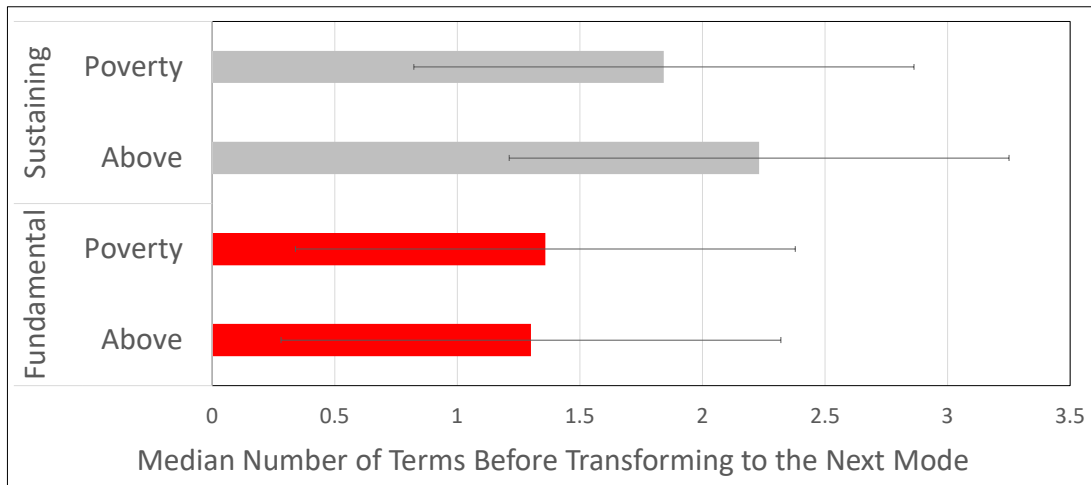
This chart shows the length of time to transform to the next mode for only the fundamental and sustaining modes. Modes with darker lines take significantly longer than comparable modes with lighter lines. Most learners get past the beginning modes before the first term is over. Since we don't assess until the end of the term, we don't know how long that takes them. Also learners need to perform at the master level for many years before they can inspire others. Without many students using the inspiring mode, we will not know how many years it takes to get there.

## How often do learners show regression?



This chart shows that some dimensions are much more volatile than others. In them, learners show regressions to simpler modes more often than in others. Notice how the modes of learning while facing an audience are much more stable than the modes of learning on other occasions. More frequent assessment would help to reduce the volatility in the behavior, aural, music reading, and practice dimensions.

### Number of Terms that Learners Need Before Moving to the Next Mode (Medians and Error Bars Showing Overlap): Poverty vs. Above-Poverty Homes

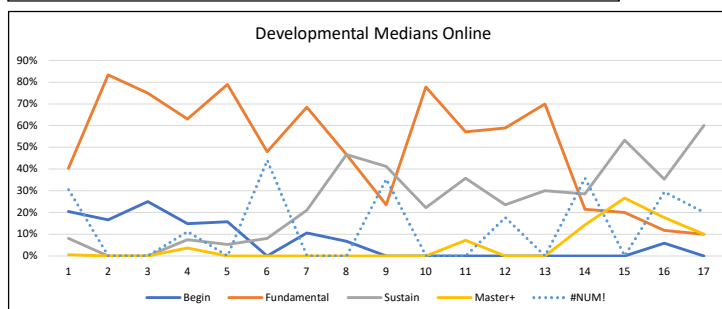
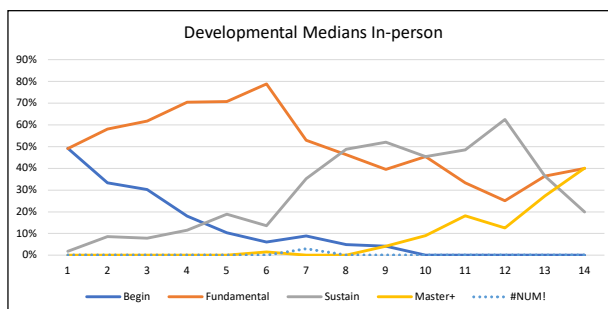


When I first encountered the results in this slide, it took my breath away. Notice that the variation shown by the thin error lines is much greater than the differences between the wide bars with the same color. After six years of seeing large statistically significant lags in the learners from impoverished homes, they disappeared along with the difference in retention. Continuation of this finding over several years would be an important milestone for Soundscapes and El Sistema.

## In-person vs. Online Median Ratings

Some difficulty rating (dotted lines correlated with erratic *Fundamental* percentages) but this was solved by the second rating.

Overall regression of *Master+* to *Sustaining* for the most experienced students. This might be gone by the next round or two of rating.



Here's the slide you have been waiting for. Soundscape's superb history of developmental assessment over time is shown in the top chart. Because of this, we can easily compare it to what happened when we transitioned to online learning in the bottom chart. Notice first, the erratic changes in the Fundamental line (red). These changes are highly correlated with the inability to rate (dotted grey line). That difficulty only appeared in the first term of online rating but affected students at all levels of experience. Second, the rise in the median frequency of using the master mode (the yellow line) among the most experienced learners has vanished in the online learning. This means that online

learning produced more regression among learners using master modes than among less developed learners.

Soundscapes conducted a short study last summer and found regressions especially common in the dimensions of Aural Skills and Applications and of Behavior. We suspect that many of these regressions will disappear as learners and instructors get more familiar with the online setting. However, the ensemble dimension is likely to see the regression preserved until students can get back together. Also, if learners from homes above the poverty level have more regressions than those below, it may limit the non-effect of poverty.

## Contacts

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Thank you for your interest in improving learning through developmental assessment. Soundscapes enduring work on developmental assessment has made it easier to implement in other settings. Please contact any of us with any questions. We are eager to help other El Sistema programs.