



# The Kohelet Prize 2016

## MULTI-LEVELLED DIFFERENTIATION

### Abstract

This is a revolutionary system that uses technology to differentiate learning based on multiple cognitive learning factors that affect the learning process. Each student is catered to according his or her unique circumstances and abilities.

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Many educators would agree on the necessity of differentiating instruction in our Judaic studies classrooms. However, the difficulties of practical implementation often supersede all other considerations.

Every student has several cognitive factors that affect the learning process. Some of these factors include: intelligence, attention span, aptitude, background knowledge, learning skills, motivation, personality, and learning styles.




Trying to accommodate every one of these issues makes the process of differentiation even more cumbersome.

Looking at the issue from the perspective of classroom content, there are also many complicated decisions to be made. Do we differentiate the learning material or the learning process? How do we accommodate students based on the different rates at which they master the material? How do we allow for students' different personal traits and preferences to play a role while at the same time keeping a focus on learning Jewish texts?

There are models that try to simplify the differentiation process (Tomlinson, 2000). However, I have developed a modified approach that I believe is more suited to the study of Torah texts and easier to implement.

We can place almost all the students' cognitive factors into three basic categories: preparedness aptitude, and personal traits.

Corresponding to these three student related traits are three ways of differentiating the classroom experience: content, pace, and modality.

Preparedness <ul style="list-style-type: none"> <li>• Background knowledge</li> <li>• Skills</li> </ul> 	Content <ul style="list-style-type: none"> <li>• Materials</li> <li>• Practice</li> </ul>
Aptitude <ul style="list-style-type: none"> <li>• Memory</li> <li>• Comprehension</li> </ul> 	Pace <ul style="list-style-type: none"> <li>• Speed</li> <li>• Thoroughness</li> </ul>
Personal Traits <ul style="list-style-type: none"> <li>• Motivation</li> <li>• Learning Style</li> </ul> 	Modality <ul style="list-style-type: none"> <li>• Choice of Apps</li> <li>• Visual, Audio, Kinesthetic</li> <li>• Collaboration vs Individual Work</li> </ul>

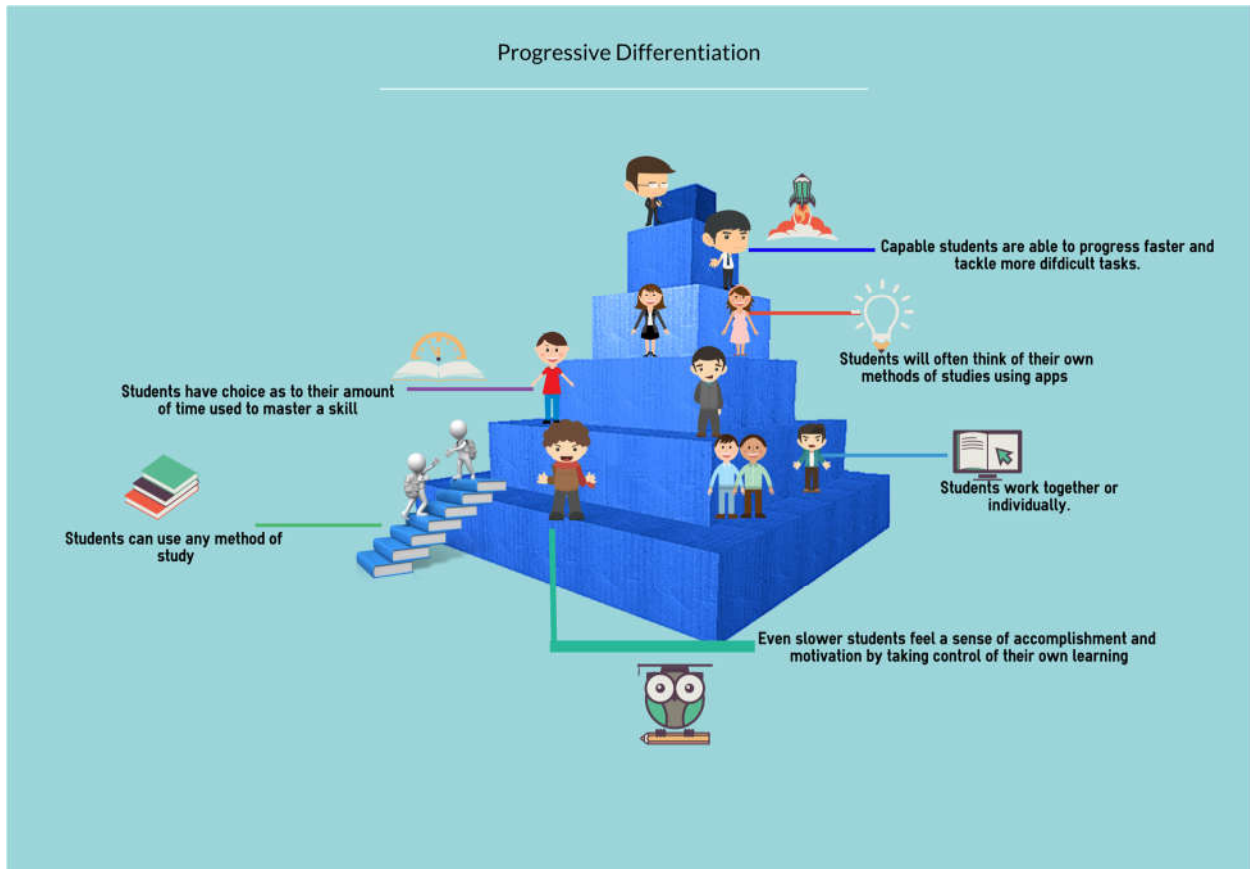
We have incorporated all these factors together to create what we would like to call multi-dimensional differentiation. The learning will diverge both vertically and horizontally.

Vertical differentiation can be defined as catering to the needs of the students based on their level of learning that they are prepared for. Students can also progress at their own pace by learning more material or the same material at greater depth.

Horizontal differentiation can be defined as giving students various methods and choice of modalities to learn the same content. This allows us to cater to the individual traits of each learner.

We try to teach every class in a way to differentiate the learning experience both vertically and horizontally.

### Progressive Differentiation



Progressive Differentiation can be defined as a system where the students can advance through a subject such as vocabulary proportionate to their own needs and desired pace. We use this technique when students are starting to learn the vocabulary from a new text. When students can achieve mastery of vocabulary and simple understanding of the text. This facilitates progression to the next levels in Bloom's Taxonomy. Students feel a sense of competence and autonomy.

There is a choice of apps with different learning approaches for the students to choose from. Some examples of our iPad apps are:

Quia: Students practice with self-grading quizzes and games

Quizlet: Digital flash cards created by the students

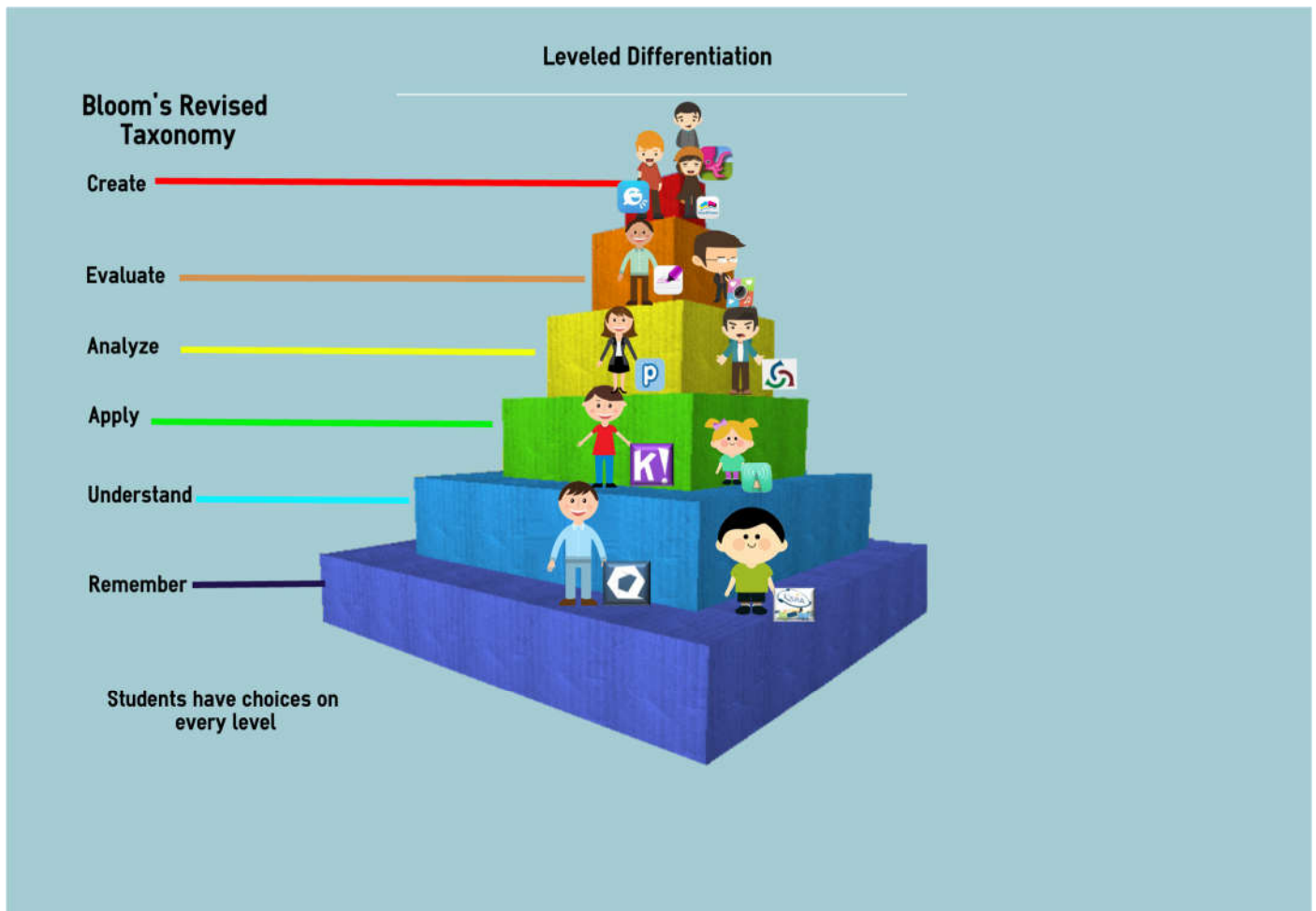
Doodlecast Pro: Students can listen to someone reading and translating the text. Advanced students can create their own recording and share with their friends.

Thinglink: A translation of each word of the text appears when the student touches the word on the screen.

Ebackpack/AirTable: Students create and study vocabulary lists. More advanced students proceed to study the vocabulary words of Rashi's commentary on the text.

These are just a few examples of apps that we use that allow students to take control of their learning both "vertically" (upward progress) and "horizontally" (choice of learning technique)

### Leveled Differentiation



Students are encouraged and enabled to advance to higher levels of thinking. While working on the same text, students are guided to work on the level that is most appropriate for them. Some students work on the simple understanding of the text, while others will be working on more challenging issues. When the students are ready, they advance to a more challenging issue in the text such as trying to discover a question about the text or investigating a question asked by one of the commentators.

The apps we use allow the students to progress quickly to higher levels of thinking through their own individual learning paths.

The following are some of the apps that we have used in classroom, categorized according to Bloom's Revised Taxonomy (Anderson, L. W., Krathwohl, D. R., & Airasian, P. W., 2001).

Remembering:

- **Quizlet and Quia:** The students use a flash card app to record and practice vocabulary words. They create their own games with vocabulary words to make the study more engaging. Students proceed at their own speed until they are completely proficient.

We now plan to extend the use of these tools to Tanach and use them for the learning of shorashim and key words. Students can choose to take computer graded quizzes as many times as they choose.

- **Doodlecast:** The instructor creates a video with voice over on image of the Gemara with a virtual pointer focusing on words as he speaks. Children are capable of practicing on their own without any outside help. This tool can guide the students to properly pronounce the Tanach words.

Understanding:

- **Cabinet:** Our students have used this app to highlight the Gemara in different colors to differentiate between questions, answers, proofs, and explanations. When applied to Tanach, the students highlight shorashim in the words of the pasuk. Students mark words that they find difficult so that they can add those words to their Quizlet flashcards. The highlighting can be easily revised when needed.
- **Text Arrange:** We hired someone to create an app that allows the students to test themselves on the order of the pasukim or lines of text.

Applying:

- **Ebackpack:** The students apply their newly learned vocabulary by recording themselves reading the Gemara. The instructor uses the recording as an assessment. We use this tool for Tanach by having the students record their reading of pasukim. Some students may choose Doodlecast to use the virtual pointer. The instructor receives the recordings, evaluates the student's work, and provides written or oral feedback.

Analyzing:

- **Popplet:** Students use this to create a mind map/diagram to explain each stage of the Gemara. Apple TV is used for students to display their projects. When applied to Tanach, the students create a mind map of shorashim and their connected words in the parasha.

Evaluating:

- **Google Docs, Classkick:** The instructor assigns questions on parts of the Gemara for the students to work on in pairs. The student's work is observed on the instructor's iPad in real

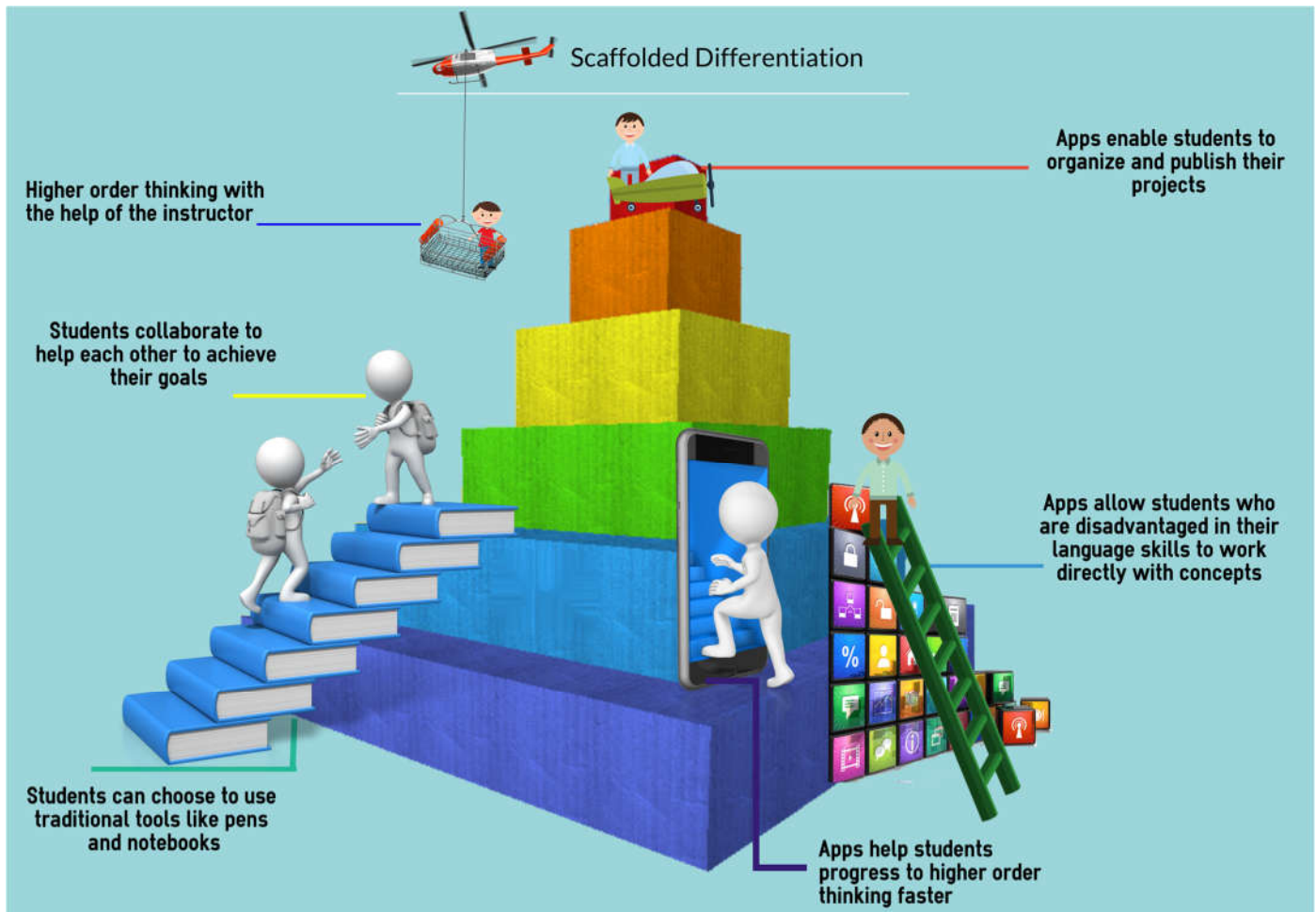
time. In Tanach, more advanced students use group collaboration to translate each pasuk. They use their knowledge of shorashim to create their own translations during group discussion. Less advanced students can be given a list of vocabulary words to help them with their work.

- **Thinglink:** The students write their own notes and explanations directly linked to any word in the text. They add their translations to each pasuk which appear when the words are clicked on. For less advanced students, the instructor can add his own translations as a scaffold.

Creating:

- **Explain Everything, Telegami, Green Screen, Bookpress:** A student creates impressive visual presentations that connect to their own audio explanation of the Gemara.
- After translating the pasukim In Tanach, the students in collaborative groups are asked to record their questions. The students use Sefaria.org to click on the pasuk and view the commentaries that answer their questions.
  1. The students create their own books using Bookpress. The books include their translations, questions, and notes.
  2. To see the bigger picture in the sefer that they are learning, the students use mind mapping apps such as Popplet to keep a running diary about larger themes. For example, if the students are learning about Avraham, they can add to their mind maps whenever they come across a new insight on an ongoing basis.
  3. Green screen and Telegami are used by students to create a presentation about the Parasha. The background image for the presentation can be images that illustrate the Parasha in conjunction with explanations of the text.

## Scaffolded Differentiation



Ideally, we want all students to be able to demonstrate their learning on the higher order thinking levels of Bloom's Revised Taxonomy. All students should be able to create learning projects based on what they have learned. To help some of the weaker students achieve beyond what they would normally be able to do on their own, we use apps as a scaffold. Students create projects that would normally be beyond their abilities while working with any source of help. This model is used over a longer period of time so that all the students have an opportunity to acquire the tools needed to create through their learning.

Some examples are as follows:

Popplet: Students create an outline of the text to help with their understanding of the text when creating their presentations.

Telegami, Chatterbox: These apps enable students to work independently while the instructor helps the weaker students

Greenscreen: Allows collaboration on a project so that students with divergent skills can help each other.

Bookpress: Helps independent students organize all their learning projects and publish them in book form.

Ebackpack: Students who prefer to use traditional pens and notebooks scan their work to create a digital portfolio.

Doodlecast Pro: Students with disadvantaged language skills can use this app to give a clear translation of the text so that they can focus on the deeper concepts.

We have firsthand experience in implementing this program and have seen the success of this revolutionary system as our former and current students have mastered skills that previously took years to achieve.

### **The following are some examples of how we are using apps in the classroom**

Self-Assessment:

Practice Quiz

<http://www.quia.com/quiz/5502960.html>

Practice Quiz

<http://www.quia.com/quiz/1362332.html>

Rags to Riches Game:

<http://www.quia.com/rr/1085661.html>

Flash Cards and matching game:

[https://quizlet.com/\\_1neohx](https://quizlet.com/_1neohx)

You can also use a QR code:



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Practice reading: The instructor makes a recording for independent practice.

<https://drive.google.com/file/d/0B5XzWZns1f16dHBwVFNObkJKcFk/view?usp=sharing>

Self-assessment: When the student clicks on a word, the translation appears.

<https://www.thinglink.com/scene/710863889503354882>

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An example of student work highlighting the Gemara. Questions are in yellow and answers are in blue.

Click on the following



Foxit Reader PDF  
Document

Or click on this link:

<https://www.dropbox.com/s/h1qfqf4mykd4tpv/Gemara%20Color.Yosef%20A.pdf?dl=0>

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An example of student work using Popplet to outline the Gemara:

Click on the following



Foxit Reader PDF  
Document

Or click on this link:

<https://www.dropbox.com/s/otnonvpuyakpwzw/Brachot%20Chart.pdf?dl=0>

Students create their own PowerPoint presentations on the Gemara

<https://www.dropbox.com/s/uyjc4qji05uinkk/Tefilat%20Hashachar%20Joseph.pptm?dl=0>

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PowerPoint presentations can be made into videos:



Or click on this link:

<https://www.dropbox.com/s/kpdkaj6iplldg4x/Tefilat%20Hashachar%20Joseph.mp4?dl=0>

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Students create their own Telegami presentations on the Gemara:



Or click on this link:

<https://telligami.com/gami/IR03S0/>

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Bibliography:

Anderson, L. W., Krathwohl, D. R., & Airasian, P. W. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman

Tomlinson, Carol A and Susan D Allan. *Leadership for differentiating schools & classrooms*. 1st ed. Alexandria, Va.: Association for Supervision and Curriculum Development, 2000. Print.

