THE POUR MODEL

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Suppose that you're an eighth-grade science teacher. You want to introduce a lesson on plate tectonics to your students and you're looking for a technological tool to help you explain and provide a hands-on activity. You do a Google search and find a lot of tools. Your Personal Learning Network (PLN) suggests more. Finally, you've been getting marketing emails from educational publishing companies advertising their tools.

Some of your students face special challenges. One is sight-impaired, one has a hearing impairment, one uses a wheelchair, and several have been diagnosed with ADHD.

How do you evaluate which tool is best and appropriate for your students?

Let's suppose the tools you found are:

1. A website that allows students to print out maps and color in continents and mountain ranges. Its explanations are very simple, on about a third-grade level.
2. A two-hour long YouTube video that seems to be a BBC nature documentary made in the 1970s.

3. A plate tectonics lab simulator on a university geology department website that contains a lot of mathematical equations and specialized jargon.
4. Another online animated plate tectonics simulator that might be perfect. It allows you to drag and drop individual tectonic plates to different parts of the Earth, or to speed up or slow down geological time, and you can see the effect it would have through the simulation.

We can use the POUR model to check if our tools are appropriate. POUR is a distillation of the international Web Content Accessibility Guidelines (WCAG), which forms the basis for many U.S. laws guiding accessibility. POUR stands for Perceivable, Operable, Understandable, and Robust. We'll explore each of these aspects below.

P is for Perceivable

A perceivable digital tool:

- Can be accessed with more than one sense. For instance, if a student is visually impaired, the tool should be compatible with screen reader software and/or include narration.
- Allows all students to interact, comprehend and access all information on the page. For example, a video should have audio, visual, and closed captions so that students with hearing problems, or who need to watch with the sound off, can also understand and ELL students have the reinforcement of spoken and visual language.

- Have a design and layout that is easy for anyone to understand. For example, the tool shouldn't rely on color for organization, should have text that is the appropriate size and font so it is easily readable, and should have proper contrast so it is easier to read

Let's look at our four examples. Would each digital tool pass the perceivability portion of the POUR test of accessibility?

- Number one, our map-printing program, might not, since it relies on color-coding. It would be hard for visually-impaired or colorblind students to use.
- Number two, the video, is also probably not; while the video itself would be helpful, the closed captions on YouTube videos have been widely criticized for their inaccuracy. To make sure a video like this is accessible, you should watch through the video with closed captions so see their level of accuracy. You can also see if there's a transcript available that you could print for any students that need it.
- Number three, the university website, is not perceivable, It has no narration or captions.
- However, number four seems ideal. It has captions and narration for visually-impared students, and has a setting to be more visible for colorblind students.

O is for Operable

An operable tool:

- Allows all students to navigate and use all the different features of a digital tool. For instance,

a game that supports accessibility by having varying ways of controlling the options like mouse, keyboard, voice, touch screen etc.
- Is compatible with assistive technologies in a way that allows them to use the varying functions of the tool. For example, it should work with assistive technologies like voice control or specialized keyboards.
- Allows anyone to control the digital tool in multiple ways to provide accessibility. For example, many types of disabilities require the sole use of keyboards so something that is considered operable should be able to function by only using a keyboard.

How do our four examples do with this test?

- The map-printing program might work. There are a variety of ways students might color after the maps are printed out; for those without the use of their hands, an aide could follow their directions.
- The video is as good as YouTube. The site has a number of accessibility features, and also third-party apps that can make it more accessible.
- Number three, the university website, only takes inputs through the keyboard. It is not very accessible for those who can not type.
- Number four is also not accessible. The main function of the simulation is dragging and dropping plate tectonics with your mouse. As discussed above, many people with disabilities can only use a keyboard and to operate this tool you would have to be able to use a mouse. Therefore, it is not operable to all students and would fail this part of being accessible.

U is for Understandable

An understandable tool:

- Allows students to navigate through in a way that is easy to comprehend and remember. For example, an app would give a clear and simple tutorial when the student opens it.
- Has a design that is simple and consistent to follow while exploring the tool to promote a student's learning what the tool is teaching rather than figuring out how to use the tool. For example, an app would have simple, understandable format throughout, having clear labels and instructions on each factor of the tool and what it does
- Has access to features that help students understand information within that specific tool. For instance, it might have a feature that allows students to highlight and define a word within the tool to help them understand what it means.

Let's look at our four examples:

- Number one is *very* clear. In fact, it might be *too* clear and simple for eighth-grade students, who might be bored by it.
- The video is based on YouTube, which is a simple app to use. Most students already know how to use it.
- Number three is very difficult to use. In fact, it seems designed for advanced students who already know a lot of math, technical terms, and jargon.

- Number four is a simple website that simulates plate tectonics, and has a clear tutorial at the beginning to show students how to create their own simulation. All of the features are labeled to create the simulation and explanations and definitions are accessible through this website.

Numbers to and four definitely demonstrate the Understandability aspect of the POUR model, with clear instructions, simple formatting and consistency throughout the tool. Instructions are available, along with tutorials to quickly help guide the students through the navigation part of the tool, and letting them really focus on *learning* from the tool.

R is for Robust

A robust tool:

- is accessible and compatible with all types of technology. For example, an app or a website that can be accessed on all phones, tablets, and laptops.
- Allow modern features to be enabled and used through the tool even if it is older. For example, it has features that enable voice control, specialized keyboards, and screen readers.

Again, our four examples:

- Tool number one is based in Adobe Flash, a platform that is no longer supported. It will not work with many devices.
- Tool number two, the video, is on YouTube, a platform run by Google to be the most robust and universal it can be.

- Let's look at tool number four. It demonstrates plate tectonics in a fun, understanding way. Some of the student have Ipads and others have Chromebooks. Once I introduced this app to the classroom, only half of my students were able to access the tool with the Apple products and IOS technology. The students that had Chromebooks did not even have the app available in their app store. Is this tool considered robust?

  Of course not! This tool would have to be available on all platforms to be a successful robust technology. This app is limited to students only with IOS technology, available on apple products. A robust app would have been available on chromebooks as well, broadening the availability for students with different devices/technology.

Taking all four factors into account the POUR model into account, it would seem that the YouTube video would be our best choice. None of our four tech tools passed all the tests, but YouTube, which is maintained by Google, a big software corporation, has had the resources put into it to ensure at least minimal accessibility.

However, just because a tool seems to pass POUR doesn't mean it is a good choice! There are many other factors involved. A two-hour, non-interactive video narrated by a man speaking slowly in a British accent is *not* engaging… especially for students with ADHD. Plus, even though YouTube is free, students will probably have to sit through ads to watch it all. Other sites might require you to pay or for students to

give their personal information, or may contain objectionable content.

So, too, if a tool is the best available but still does not meet the needs of one or two of your students, either by design or by content—for instance, a lesson on the color spectrum for colorblind students—you may need to adapt content yourself for individual learners. In the case of the YouTube video, you would need to find a transcript yourself for students who are hard of hearing.

The answer is: POUR is a useful tool, but it is not everything. Reach out to your PLN, keep searching, and keep looking for the best tool to fit your pedagogical needs!

Sources

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