

A BRIGHT FUTURE • PRESENTED BY ANDRÉ THOMAS

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Making the world better through human effort ...

Slide 3



... starts in the classroom.

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Young children learn through play & games ...

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.... then formal education takes play & games out of the classroom,

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Students sit at a desk, listen to their teacher or read a book and take notes.

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They rarely interact with a teacher or each other and, even more rarely, anything that directly relates to the subject.... And we expect them to not only learn and retain but be able to think critically about the information conveyed in the classroom.

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It's no different than when you or I was in school. I ask you – how can that be? We have made groundbreaking advances ... in many cases, multiple times ... in every other aspect of our lives and society; yet, the way we teach in school hasn't changed in... well, since the beginning.

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How do we learn to ride a bike?

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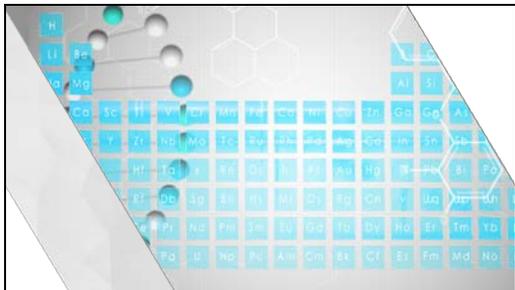
Do we learn through reading about it? ...
pause ... hearing about it?... pause
...watching someone else do it?

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No, we learn by doing it!

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In Chemistry, we ask students to learn the periodic table... typically having them memorize the information. You probably recognize this chart... but how well do you remember all the elements... their symbol? their mass?

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Here's the Pokemon dual-type chart. Most players never even see this massive, complex chart... yet, to be successful, they have learn the information it conveys. Can you imagine if you had to memorize this in order to play the game?

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And, the game is wildly popular among multiple age groups. The complexity is hidden from view – built into a fun and interactive experience that makes learning critical information an intuitive part of the gameplay -and removes the sense of intimidation that often accompanies a large amount of information we need to retain to be successful in our studies. (*percentage of players by age group and total number of users*)

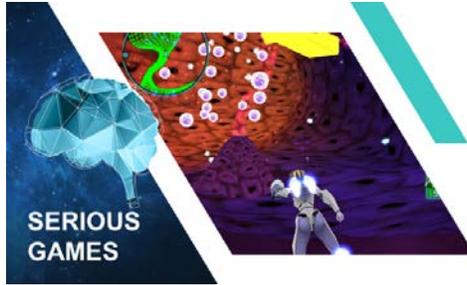
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Games are simply another media. Like books or video, there are a variety of genres and styles which can accommodate diverse subjects.

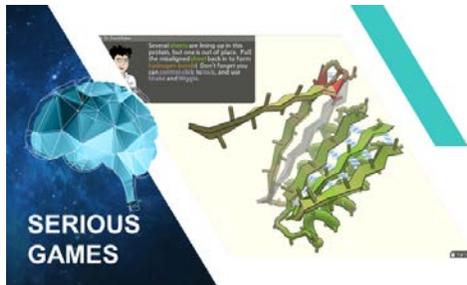
Serious games can be developed in any of these genres; developers choose an appropriate style based on the goals of the game and audience it's trying to reach. Serious Games is, simultaneously, a genre unto itself – defined by it's purpose - something more than pure entertainment.

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Serious games have been designed to cover a wide variety of material – from ReMission, released in 2006, this game engages young cancer patients through entertaining gameplay while impacting specific psychological and behavioral outcomes associated with successful cancer treatment. *(Screenshot from Re-Mission)*

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To Foldit, part of an experimental research project developed by the University of Washington, Center for Game Science, in collaboration with the UW Department of Biochemistry, the objective of Foldit is to fold the structures of selected proteins as perfectly as possible, using tools provided in the game. *(Screenshot from Foldit)*

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To 1979 Revolution: Black Friday, an adventure interactive drama video game developed and published by iNK Studios, where players control Reza Shirazi, an aspiring photojournalist, who returns to Iran amidst the Iranian Revolution. As he becomes more involved in the events of the Revolution, Reza is forced to make decisions in order to survive. *(Screenshot from 1979)*

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To Kerbal Space Program where players direct a nascent space program, staffed and crewed by humanoid aliens known as "Kerbals" in a game that features a realistic orbital physics engine, allowing for various real-life orbital maneuvers such as Hohmann transfer orbits and bi-elliptic transfer orbits (*Screenshot from Kerbal Space Program*)

If players can take on fighting cancer, folding proteins, surviving the Iranian revolution and direct a space program with realistic physics in an experience that engages and motivates them, what else can we do in a game?

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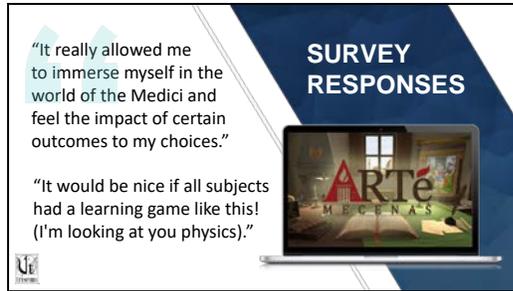
(ARTe Educational Trailer)

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Based on an IRB-approved research study conducted in the Fall of 2016, we got our first glimpse at what can happen when learning is properly integrated into a game.

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“It really allowed me to immerse myself in the world of the Medici and feel the impact of certain outcomes to my choices.”

“It would be nice if all subjects had a learning game like this! (I'm looking at you physics).”

SURVEY RESPONSES

ARTE MECENAS

The feedback from the students and instructors who have played the game has been excellent. And it doesn't stop there... *(Quotes from Mecenat study)*

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Is 90% achievement really mastery? What happens when you run 90 meters in a 100 meter race? *(Runner on track)*

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You fail, you don't even get last place. *(Same runner, stopped and disqualified stamped on top)*

Halfway through slides

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What happens in our classrooms when a student achieves 90%? They receive a 1. ...Imagine if you lived in a house that was only 90% complete or your car had no wheels ... if we only need 90% to be successful, what are we sacrificing? Can we do better? (*Stopped Runner 'disqualified' side-by-side with student taking a test and '1'*)

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Consider this recent article, it's but one example of an article or study highlighting a problem seen all over the world – students are failing math. Why? (pause) Why are students struggling with the most basic skills? As I previously discussed, the world around us has evolved... we take for granted the change and progress in technology and other aspects of society but we have a tendency to overlook the way children's cultural perspective changes and, even we adapt slowly. We're not providing teachers the right tools for this time and these students ...(pause) ... but we can.

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It may seem like a large leap, but it's not really. Games have been a part of the learning experience for a long time, now we have a new type of game – video games – and they have so much potential. (*Variant Ed Trailer*)

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In one classroom in Italy, we see the possibilities of what can be achieved by integrating games and game-based learning into the classroom. The teacher tested her students after the traditional lesson... 80% of her students were successful. *(Provided chart and callout for the 80% success rate)*

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Then she had them to play Variant: Limits and tested the class again once they were done. After playing the game, the success rate was 100%. *(Provided chart and callout for the 100% success rate)*

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Think of the possibilities; a year from now, the headline could be something like this... *(Previous screenshot on laptop comes back then fades to new headline)*

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What happens when students fail in class? How often do you let your students fail? How motivating is it for a student to fail? If students are given an opportunity to try over and over again and know how to learn from mistakes, those failures become a step in the ladder to success. Games provide a unique opportunity for trial and error, are given immediate feedback and can often retry immediately. *(Frustrated student and ladder with lower 'fail' rungs and, at the top, success)*

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Or think about this: What goes through your mind if you missed your plane by 5 minutes? How about 2 hours?

[\(Click for clock animation\)](#)

What if I could rewind time? Games provide a unique opportunity for trial and error, we are given immediate feedback and can often retry immediately, as many times as we need for the concept to 'click'. *(Girl looking at departure screen, clock still until click then runs backwards)*

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How much do you want your students to spend on mastering the content? 10 minutes, 30 minutes, 2 hours, 10 hours? What's the ideal balance to give students the benefits of homework but still allow them space for family, friends, activities and other learning experiences? *(Tired girl behind piles of books)*

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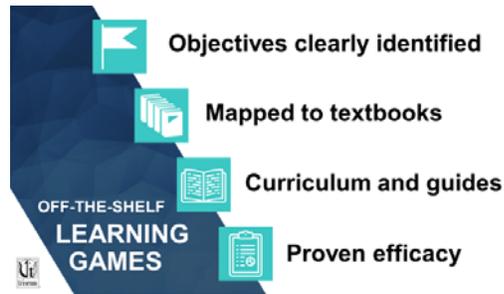
Now what? How do we harness the power of games for education? ...we integrate games and build courses around them ... effecting a higher level of mastery while saving students time and money *(Girl at computer, followed by title then icons and text)*

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What does all of this mean for you? How do you integrate games into your classroom and where do you find them, anyway? *(Teacher with students around a laptop)*

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The first option is to look at off-the-shelf learning games... Now, not all learning games are equal; there are some key things you should look for when you're considering a learning game:

1. Ensure learning objectives are clearly identified. If the game wasn't built from the start with learning objectives at the core of the design – it may not be as effective.
2. Are there any textbook mappings for the game? Game developers that take the time to understand local, national and international curriculum are going to build something that better follows what you're trying to teach in the classroom.
3. Is there any curriculum materials/guides for using the game? Games should always provide some basic materials on how to play, at the very least. If there are examples of how other teachers have integrated the game into their classrooms, that's even better.
4. Is there rigorous scientific research validating the efficacy behind the game? This is an important one and very hard to find. Many companies make claims about their learning tools and games but how many make the effort to do the research? This doesn't mean a game isn't a good tool for your classroom but it's something to consider. (*icons and text*)

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What about games that don't meet the learning game criteria or entertainment games? Can you bring those into the classroom? Of course. You can use the same approach you would use with any other entertainment media, there are plenty of films, books and other media (music, radio, news, etc) that have great value in education. Just like with those, you would probably prep your students by explaining where things may be inaccurate or have a discussion afterward, to both find out what they got out of the experience and see if they recognized the issues. *(icons and text)*

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Another option is to make your own games.

The process follows a few key steps:

- Identify SLOs (based on Bloom's taxonomy), these will help you determine what kind of game might work
- Determine how you'll assess, so you know if the game has succeeded in teaching the SLOs
- Reference the work of existing games (utilize what already works) – there's no point in reinventing the wheel
- Have your students design the games. This engages them in the process and forces them to learn the concepts if they're going to be successful at teaching them through a game.

A couple of things you should be aware of in designing a learning game:

- Avoid gamification (since this is the first time it's mentioned, you may want to describe what the difference is)
- Don't be afraid to throw out ideas. It's easy to get stuck on your first idea... but designing a game takes a lot of iteration and you can't get too attached.

(boardgame style pieces build in with bullets being highlighted pieces along the board)

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RESOURCES

- Bolter, Sharon; Kapp, Karl. *Play to Learn: Everything You Need to Know About Designing Effective Learning Games*. ATD, 2017.
- Farber, Matthew. *Game-Based Learning in Action: How an Expert Affinity Group Teaches With Games (New Literacies and Digital Epistemologies)*. Peter Lang, 2018.
- Fullerton, Tracy. *Game Design Workshop: A Playcentric Approach to Creating Innovative Games, Third Edition*. CRC Press, 2014.
- Sheldon, Lee. *The Multiplayer Classroom: Designing Coursework as a Game*. Cengage Learning, 2011.

There are a number of resources you can review if you're interested in learning more or creating your own learning game. *(stack of books and bullet points)*

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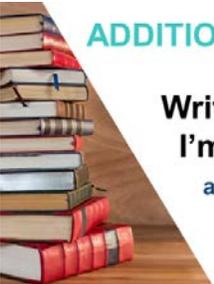


ADDITIONAL RESOURCES

- Zentrum für Angewandte Spieleforschung
www.donauuni.ac.at/de/departments/artsmanagement/zentrum/angewandte_spieleforschung/index.php
- Games Institute Austria
www.gamesinstituteaustria.org
- Zentrum für Lerntechnologie & Innovation
<https://zli.phwien.ac.at/>
- Future Learning Lab (Verein zur Förderung digitaler Bildungsangebote)
<https://futurelearning.at/>

(stack of books and bullet points)

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ADDITIONAL RESOURCES

**Write to me,
I'm happy to help**
athomas@Triseum.com

(stack of books and contact info) [Last slide](#)

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Imagine ... the possibilities of a future where students are engaged in what they're learning and see the joy in subjects as diverse as math and art. Imagine the world they'll build when they're no longer intimidated by subjects because of the way they're taught but excited to learn new things. Imagine what future generations will do when they can harness the power of play. *(similar to opening but the word 'imagine' appears instead)*