

# **An Open Education Reader**

David Wiley



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## David Wiley

Lumen Learning

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# Intellectual Property

James Boyle, "The Why of Intellectual Property"

James Boyle, "Thomas Jefferson Writes a Letter"



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# James Boyle, “The Why of Intellectual Property”

Read the article at <https://edtechbooks.org/-TnoN>

## Background

Understanding why the idea of “intellectual property” exists is a critical first step on the way to understanding the open education movement. James Boyle’s book, *The Public Domain*, provides an excellent starting point for developing this understanding.

James Boyle is one of the founding board members and former board chairman of Creative Commons, the most commonly accepted and popular form of open licenses used in the world, which are discussed later in this book. As one of the key members of the modern movement to change the way intellectual property is protected and distributed, Boyle’s views on the subject are fundamental to understanding the societal context of other historically significant developments like the introduction of the free/libre copyright by Richard Stallman, which will also be included in later readings. By understanding these articles, the stage is set for understanding the movements of open education for the past 50 years. The incredible progress of technology has dramatically changed choices society can make regarding intellectual property, but it is important to understand the theory, the history, and the reality of intellectual property if society hopes to make changes that actually lead to progress and truly impactful education.

## Key Points

This first chapter provides an introduction to the history of intellectual property concepts. It also explores what property is, what it is not, and why that matters.

In this chapter, Boyle focuses on the economic theory that created intellectual property. He starts by explaining that since the early days of western civilization, clearly defined and protected property rights have been critical to societal progress. Citizens with property rights could spend time in education, scientific pursuits, and money-generating activities without having to spend a majority of their time sharpening their swords to ward off thieves who came to plunder the profits from those educational, scientific, or money-generating pursuits. With good property rights and good government, societies could focus on productive activities instead of spiraling into anarchy. Key points about property:

- It is generally “rivalrous,” meaning that it can not be used by more than one person at a time, so stealing is taking away another’s opportunity to use the material.
- Well-protected property rights incentivize individuals to produce by helping them capture the future benefits produced by their creation.
- Property rights are especially needed to incentivize individuals when the good they are creating is very expensive to produce and very cheap to reproduce (such as medicine.) Without property rights, the individual would bear all the costs of research necessary to achieve first production but lose future benefits to copycats who reproduce without any initial investment. If this situation prevailed, inventors would be disincentivized from creating in the first place and society overall would suffer.
- The system of property rights in place to create the former incentives are patents, trademarks, and copyrights.

While the theory of “intellectual property rights” is very useful to society, Boyle shows how the application of these protections has become warped and questions their application in the online space. Boyle delves into the following key points about the detrimental effect of misapplied intellectual property regimes:

- Currently in America, corporate copyrights are protected for 95 years and personal rights are life plus 70 years.
- Current copyrights and patents long outlast their purpose of incentivizing creation of society-benefiting works. By extending IP rights to decades after the creation of the work and death of the author, IP actually limits the influence of the creation by restricting reuse, remixing, remaking, or redistribution of works.
- The current policy of instantaneous copyright creates a cultural dead ground by preventing artists or publishers (other producing entities) from using contemporary works even if the artist is dead or doesn’t care.
- Patents are only supposed to be given for inventions that were novel, nonobvious, and useful. Many current patents don’t meet those criteria.
- There are some fundamental differences between ideas and physical property that should change the way we view “intellectual property.” In many ways ideas and digital creations are non-rivalrous, which means that taking from a producer like downloading a movie from Disney doesn’t reduce the supply available to Disney at all. The non-rivalrous nature of digital materials should change the way some laws are structured and applied.
- The internet makes many goods behave more like public goods than private goods.

## Discussion Questions

1. Is it appropriate to use the language of tangible property when referring to ideas and other non-rival goods (like property, theft, or piracy)? What are the similarities? What are the differences? How should they affect intellectual property law?
2. In what ways is an idea rivalrous? In what ways is it not?
3. What are other systems or IP systems that can incentivize creation that avoid the former problems?
4. What is the optimal length of a copyright?
5. How can we balance the personal benefit of the creator of the work with the benefit of the public good?
6. What measures are currently being taken legislatively to reduce copyright restrictions?
7. Who are the stakeholders lobbying for longer copyrights?
8. What are competing incentives to create? Volunteer? Compulsion to create?

## Additional Resources

Wikipedia articles for “Public Goods,” “Private Goods,” “Berne Convention,” “WIPO”



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Access it online or download it at <https://edtechbooks.org/openedReader/the-why-of-intellectual-property>.



## James Boyle, “Thomas Jefferson Writes a Letter”

Read the article at <https://edtechbooks.org/-TnoN>

### Background

“Thomas Jefferson Writes a Letter” provides perspective on the discussions, ideals, and historical events that have shaped our current understanding of intellectual property. This chapter dives deeper into the history of what led us to the current state by introducing the discussions of early influential American founders.

The chapter focuses on a letter Thomas Jefferson wrote in 1813 that succinctly and beautifully captures the heart of the issue of how intellectual property relates to human rights and societal progress.

### Key Points

Unlike the first chapter of his book, Boyle spends more time on the legal ideals that early American founders and western reformers supported in their quest to better society. They were striving for both liberty and progress, which they recognized to be somewhat opposing ideals when it came to certain aspects of intellectual property and motivating individuals to create and share.

Boyle focuses on is Jefferson’s declaration that, “patents are a tolerated monopoly” where competition is limited so that one individual can reap the reward of an idea or intellectual resource. Jefferson espoused the idea that there are certain natural rights people are endowed with like, “life, liberty, and the pursuit of happiness,” but intellectual property rights do not fit that criteria. In fact, intellectual property “rights” are a privilege given by society to benefit society, and not unalienable natural rights. Jefferson writes that this monopolistic privilege becomes more detrimental with time and so should be extremely limited in scope and length. Only under certain circumstances should intellectual property rights be tolerated. He pens what Boyle calls the “Jeffersonian Warning” to outline the conditions that need to be considered before enacting intellectual property rights.

The warning is captured in the following bullet points. Instead of treating intellectual property rights like unalienable natural rights, intellectual property rights:

- Are endowed on individuals for an extremely limited period of time and only as long as the privilege brings benefit to society granting them.
- Inherently hinder innovation because they hinder the spread of knowledge.
- Create many questions that need to be addressed after deciding to enact an intellectual property system.
- Cannot encourage a dead person to produce any more creative works. Most people are not encouraged by the rights they might have after death. Extending the copyright term after an author’s death cannot encourage him to create anything. Thus, extending copyright further after the death of an author does no benefit to him while increases costs to society.

Boyle uses the arguments Jefferson writes to reinforce the argument he made in the first chapter of the book – that intellectual property rights are grossly abused and society loses a lot of innovation and progress because of it. Boyle invokes Jefferson and proposes that in order for “invention to work, we need to confine narrowly the time and scope of the state-provided monopoly, otherwise further inventions would become impossible.”

## Discussion Questions

1. How do the length of a country’s copyrights affect progress and innovation? Is Jefferson’s Warning only applicable in some countries?
2. Since making something illegal doesn’t necessarily stop it from happening, is copyright really the way to protect intellectual property?
3. Why is the grant of copyright free, but patents are so expensive to obtain?
4. What is the optimal length of a copyright?
5. How can we balance providing sufficient incentives to the creator of a work with the public good?
6. What measures are currently being taken legislatively to reduce copyright restrictions?
7. Who are the stakeholders lobbying for longer copyrights?
8. What are competing incentives to create? Volunteer? Compulsion to create?
9. Would people need to purchase extra copyright years at the start, or could they wait and see how things went?  
“To put it another way, if copyright owners had to purchase each additional five years of term separately, the same way we buy warranties on our appliances, the economically rational ones would mainly settle for a fairly short period.”

## Additional Resources

For help answering the first discussion question above, take a look at the link, which is the Wikipedia article for [“List of countries’ copyright lengths.”](#)



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# Free Software

Richard Stallman, "What is Free Software?"
Richard Stallman, "The GNU Project"



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## Richard Stallman, “What is Free Software?”

Read the article at <https://edtechbooks.org/-awLr>

### Background

The term open education refers to the application of open source philosophies and practices in the field of education. The open source movement and many of its philosophies can be traced back to, and grew out of, Richard Stallman’s ideas about free software. The concepts discussed in this reading are in many ways the germ from which open education would eventually evolve. Stallman’s explication of the nature of free (“free as in speech” not “free as in beer”) has heavily influenced definitions of open (open as in accessible to reuse and remix, not open as in “free beer”) as it is used in both the open source and open education communities.

### Key Points

Free Software is focused on liberty, not price. Users are free to run, copy, distribute, study, change, and improve free software. Thus, “free software” is a matter of liberty, not price.

An “unfree” program constitutes an instrument of unjust power. Either the users control the program (free), or the program controls the users (unfree) while the developer controls the program.

There are four essential freedoms of free software:

0. The freedom to run the program as they want to, for any purpose.
1. The freedom to study how the program works, and change it so it does what you want. Must have access to the source code.
2. The freedom to redistribute – to help your neighbor.
3. The freedom to redistribute copies of modified versions. By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

When users don’t control the program, Stallman calls it a “non-free” or “proprietary” program.

## Discussion Questions

1. What about people without the interest/prowess to contribute to free software? Are they being unjustly acted upon?
2. Why is a non-free program necessarily “an instrument of unjust power”?
3. What is inherently “unethical” about non-free software? If someone wants to make money from their efforts in writing software, is that wrong?
4. Does teaching your children computer skills, such as photo editing, using non-free software create an unhealthy dependency (like giving them tobacco might)?



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## Richard Stallman, “The GNU Project”

Read the article at <https://edtechbooks.org/-Fyst>

### Background

In the early days of computer programming, programmers freely shared their source code and worked in cooperation with each other. As the software industry progressed, companies began using nondisclosure agreements that prevented programmers from sharing their code. Stallman rejected this change on moral grounds, and devised the concept of free software as a response. GNU is an operating system based on the free software philosophy. As a free precursor to the open source, and eventually, the open education movement, Stallman’s concepts influenced the development of open educational philosophy and the development of open educational content.

### Key Points

- It is unethical to stop people from sharing and changing software.
- The concept of free software relies on assumptions that the authors disagrees with, such as:
  - Software companies have an unquestionable, natural right to own their software and as a result have power over the people that use the software.
  - The only important thing about software is what tasks it can do and as a result computer users shouldn’t care what society we have.
  - Nobody would create usable software if companies could not own it – obviously not true as evidenced by the free software movement.
- Copyleft uses copyright law to allow users to do whatever they want with the software except make it proprietary.
- This really is a moral code “Unix was (and is) proprietary software, and the GNU Project’s philosophy said that we should not use proprietary software. But, applying the same reasoning that leads to the conclusion that violence in self defense is justified, I concluded that it was legitimate to use a proprietary package when that was crucial for developing a free replacement that would help others stop using the proprietary package.”

### Discussion Questions

1. What motivated Stallman to create a replica of an existing operating system?
2. What motivates people to pay for software (or anything else)?
3. Why would Stallman claim that only caring about what tasks software can do is equivalent to not caring what kind of society we have?



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## Open Source

Eric Raymond, "The Cathedral and the Bazaar"

Eric Raymond, "Homesteading the Noosphere"



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## Eric Raymond, “The Cathedral and the Bazaar”

Read the article at <https://edtechbooks.org/-bGA>

### Background

Largely because of this paper, Eric Raymond is one of the leading voices and proponents of open source software. The open source software movement traces its roots back to the free software movement of the 80s and 90s. Rather than being motivated primarily by ideology, as is the case with free software, the open-source community is driven largely by the utilitarian gains that can be realized through participation in open source. As society has moved more towards open source models, Raymond’s thinking and the community he inspired has heavily influenced intellectual property rights and laws as well as cultural norms regarding software production and development. For example, it is widely accepted that The Cathedral and the Bazaar persuaded Netscape to release the source code for its web browser and launch the Mozilla / Firefox project.

### Key Points

In “The Cathedral and the Bazaar” Eric Raymond provides an outline of 19 lessons he has learned from his participation in the open source community. The thematic thread running through each of these lessons is the superiority of open source and open coding over proprietary software. Raymond offers a strong argument that open source software communities develop software faster, produce software with fewer bugs, are more innovative, and offer a better fit for the end-users than do proprietary software production companies. Raymond also outlines the various preconditions which must exist in order for an open source software community to thrive.

### Discussion Questions

1. According to Raymond, what pre-conditions must be met before open source software communities can flourish? Do you agree or disagree?
2. Besides open source software, what other creative works are developed using similar principles to those outlined by Raymond in this article?
3. What other production environments could benefit from incorporating these principles? Why?
4. Which type of production environments would not benefit from the open source software approach? Why?

### Additional Resources

<https://edtechbooks.org/-lexb>



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## Eric Raymond, “Homesteading the Noosphere”

Read the article at <https://edtechbooks.org/-cgzy>

### Background

In “Homesteading the Noosphere,” Eric Raymond gives a fascinating overview of the motivations and unofficial organizing principles of the software hacker culture which, he argues, are rooted in Lockean principles of ownership. Raymond identifies membership in the open source culture through the lens of variations of degree in zeal and hostility toward commercial software. The different combinations and intensities of these variations comprise nine different hacker attitudes – from those who zealously oppose and are openly hostile to “evil” commercial software to those who code as a hobby and happily enjoy using Windows for their day job (and occasionally on evenings and weekends).

### Key Points

Raymond also explores the somewhat puzzling phenomenon of open source communities of uncompensated programmers who will develop incredibly useful and professional work at a rate faster than compensated programmers. He suggests that hackers have adopted a form of unspoken ownership rights based on “gift culture” where reputation, rather than monetary compensation, is the desired commodity. Raymond uses several historical and related theories to support his argument that the open source community does have a viable structure which allows for efficient paths to conflict resolution and software development.

### Discussion Questions

1. What motivates people to volunteer (e.g., build houses, work in soup kitchens, clean up after disasters, teach children to read)? How have similar motivations driven the open source software communities?
2. How does “abundance” in the online environment affect the gift culture of the hacker community?

### Additional Resources

<https://edtechbooks.org/-lexb>



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## Open Content

David Wiley, "About the Open Publication License"

David Wiley, "Open Content: The First Decade"



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## David Wiley, “About the Open Publication License”

Read the article at <https://edtechbooks.org/-ZjyQ>

### Background

In “About the Open Publication License,” David Wiley outlines the history of open content licensing beginning with the Open Content License (OCL), and followed by the Open Publication License (OPL). He explains the shortcomings of both the Open Content License and the Open Publication License and why they were eventually replaced by the more robust Creative Commons Licenses.

### Key points

- The Open Content License was published on July 14, 1998.
- The improved Open Publication License was published on June 8, 1999, and resulted from collaboration between David Wiley, Eric Raymond, and others.
- The Creative Commons licenses were published in Dec 2002, and are now the licenses used for most open content licensing today.

### Discussion Questions

1. What was the main reasoning for abandoning both the OCL and the OPL in favor of the CC?
2. What are the strengths and weaknesses of the Creative Commons licenses?



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## David Wiley, “Open Content: The First Decade”

Watch the video at <http://vimeo.com/1796014>



### Background

The iSummit '08 marked ten years since the introduction of the first open content license. In this video David Wiley, the founder of Open Content, talks about the inception of the idea of open content, reviews the successes and challenges in open content over the past decade, and shares his vision of the future direction and possibilities of open content.

## Key Points

Open Content emerged gradually from the fertile soil prepared by Richard Stallman's Free Software and Eric Raymond's Open Source movements. Wiley, while working at Marshall University and then as a graduate student at BYU, gradually realized that the ideals and principles of open source software could be applied to the world of digital educational content and, if done properly, could potentially revolutionize education as we know it.

The first step in creating open content was to create a GPL for content. Wiley set out to do this and, in time, helped create the Open Publication License which was the intellectual forerunner to the Creative Commons licenses used worldwide today.

In the last decade millions of products – including photos, music, video, and articles – have been licensed using the Creative Commons license, UNESCO has enthusiastically promoted Open Educational Resources, and the Capetown Declaration has been signed by thousands. All of this led Wiley to exclaim, "Not bad for ten years!"

Finally, Wiley outlines some problems which still need to be figured out such as licensing compatibility and defining the term "noncommercial," and looks ahead to some opportunities, such as CC plus, CC zero, and the concept of the Open High School of Utah (a free and completely online high school which uses only open materials, now renamed Mountain Heights Academy).

## Discussion Questions

1. What were some of the successes of the first decade of Open Content? What were some of the challenges?
2. Besides those mentioned by Wiley, what are some other potential challenges and successes in the future of Open Content?
3. In what ways have you personally seen the impact of Open Educational Resources?

## Additional Resources

[www.openhighschoolcourses.org](http://www.openhighschoolcourses.org)

[www.MountainHeightsAcademy.org](http://www.MountainHeightsAcademy.org)



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V

## Defining Free

Franklin D. Roosevelt, "The Four Freedoms Speech"

Richard Stallman, "Four Freedoms"

Erik Moller, "Freedom Defined"

Bruce Perens, "Debian Free Software Guidelines"



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# Franklin D. Roosevelt, “The Four Freedoms Speech”

Read the article at <https://edtechbooks.org/-RUJE>

## Background

The four freedoms were first declared by President Franklin Delano Roosevelt (FDR) on January 6, 1941, in his State of the Union address. These freedoms known specifically as the freedom of speech, freedom of worship, freedom from want, and freedom from fear are rights that every person everywhere has the right to enjoy.

FDR’s proclamation of these freedoms broke the non-interventionist tradition that had been held in the United States since World War I and propelled the United States to participate in World War II when it was started (just 11 months after these remarks). Everyone deserved these freedoms and the United States’ had a responsibility to help secure them. His speech proclaiming these freedoms was key in giving vision to the United Nations many years later, but more immediately it provided a rationale for America’s involvement in the war.

## Key Points

In the speech, he says,

*“In the future days, which we seek to make secure, we look forward to a world founded upon four essential human freedoms.*

*The first is freedom of speech and expression—everywhere in the world.*

*The second is freedom of every person to worship God in his own way—everywhere in the world.*

*The third is freedom from want—which, translated into world terms, means economic understandings which will secure to every nation a healthy peacetime life for its inhabitants—everywhere in the world.*

*The fourth is freedom from fear—which, translated into world terms, means a world-wide reduction of armaments to such a point and in such a thorough fashion that no nation will be in a position to commit an act of physical aggression against any neighbor—anywhere in the world.*

*That is no vision of a distant millennium. It is a definite basis for a kind of world attainable in our own time and generation. That kind of world is the very antithesis of the so-called new order of tyranny which the dictators seek to create with the crash of a bomb.”—Franklin D. Roosevelt, excerpted from the State of the Union Address to the Congress, January 6, 1941*

## Discussion Questions

1. What impact did FDR's Four Freedoms have on the open movement?
2. How are the Four Freedoms still influencing the open movement?
3. Are those who do not support open ideas practicing a form of tyranny?
4. What, if any, is the economic freedom that open provides?

## Additional Resources

- Four Freedoms Park. fdr4freedoms. Retrived from <http://fdr4freedoms.org/>
- Roosevelt, F. D. (1941). 1941 STATE OF THE UNION ADDRESS TO THE CONGRESS ("THE FOUR FREEDOMS"). (6 January 1941) retrieved from <https://edtechbooks.org/-BWli>
- Kennedy, David M., Freedom From Fear: the American people in depression and war, 1929–1945 (Oxford: Oxford University Press, 1999) 393–94
- Fifth Freedom (Economic Freedom). Wikipedia. Retrieved from <https://edtechbooks.org/-VIX>



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## Richard Stallman, “Four Freedoms”

Read the article at <https://edtechbooks.org/-RUJE>

### Background

Franklin D. Roosevelt’s inspiring speech on the four freedoms provided Richard Stallman’s with a framework for declaring, in a hopefully inspirational manner, Four Freedoms in regard to software. Stallman, an MIT graduate concerned about the growing trend toward proprietary software started the Free Software movement which is now supported by the Free Software Foundation.

### Key Points

A program is “free software” if the program’s users have the four essential freedoms:

1. The freedom to run the program as you wish, for any purpose.
2. The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this.
3. The freedom to redistribute copies so you can help your neighbor.
4. The freedom to distribute copies of your modified versions to others. By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

If software is licensed in a way that does not provide these 4 freedoms, then it is categorized as nonfree or proprietary.

### Discussion Questions

1. What impact do Stallman’s Four Freedoms have on open?
2. How is free different from open?

### Additional Resources

Free Software Foundation. (2013). What is Free Software. Retrieved from <https://edtechbooks.org/-awLr>



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## Erik Moller, “Freedom Defined”

Read the article at <https://edtechbooks.org/-dop>

### Background

As proponents of Stallman’s vision of freedom saw what was happening with open content, they attempted to reclaim the conversation by beginning to speak about “free content.” (This is one place in the historical record where open came first.) However, there was significant ambiguity around the phrase free content, particularly as it was used by participants in Wikimedia projects.

The Freedom Defined work was initiated by Erik Möller as a means to resolve the ambiguity about the phrase free content. It was inspired by the Free Software Definition. Helpful feedback was provided during the initial authoring process (in this chronological order) by Richard Stallman of the Free Software Foundation, Lawrence Lessig of Creative Commons, and Angela Beesley, board member of the Wikimedia Foundation and Vice President of Wikia, Inc. Benjamin Mako Hill, who had been pursuing similar goals (as exemplified in his paper “[Towards a Standard of Freedom](#)”) quickly joined the project and helped to improve the definition even before the launch of the open editing phase, which occurred in 2006.

### Key Points

1. the freedom to use the work and enjoy the benefits of using it
2. the freedom to study the work and to apply knowledge acquired from it
3. the freedom to make and redistribute copies, in whole or in part, of the information or expression
4. the freedom to make changes and improvements, and to distribute derivative works

### Discussion Questions

1. How did Stallman’s Four Freedoms influence this definition?
2. The Free Culture Licenses seem to have the same rules as Stallman’s Free Software, are they the Content arm of Free Software?

### Additional Resources

Licenses. Wikipedia. Retrieved from <https://edtechbooks.org/-xTd>

Portal:Index. Wikipedia. Retrieved from <https://edtechbooks.org/-isTL>

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Free Software Foundation. (2013). What is Free Software. Retrieved from <https://edtechbooks.org/-awLr>

Four Freedoms. Wikipedia. Retrieved from <https://edtechbooks.org/-RUJE>

History of Freedom: Wikipedia. Retrieved from <https://edtechbooks.org/-MuV>



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## Bruce Perens, “Debian Free Software Guidelines”

Read the article at <https://edtechbooks.org/-nTmo>

### Background

The Debian Free Software Guidelines (DFSG) are a set of guidelines that the Debian Project uses to determine whether the license used by a piece of software qualifies as a free software license. This distinction is critical because it determines whether a piece of software qualifies for inclusion in the Debian Project.

The idea of stating the project’s “social contract with the free software community” was suggested by Ean Schuessler. This DFSG was drafted by Bruce Perens, refined by the other Debian developers during a month-long e-mail conference in June 1997, and then accepted as the publicly stated policy of the Debian Project.

### Key Points

Debian Social Contract, which includes the DFSG, states:

- Debian will remain 100% Free Software – they will support users who develop and use non-free software on Debian, but won't make the system need it.
- The Debian Free Software Guidelines:
  - Free Redistribution – no restrictions, no royalties
  - Source code – must be distributed as well
  - Derived Works – must be allowed
  - Integrity of the Author's Source Code – license can restrict source code from being distributed when modified only if patch files are allowed. Derived files can be required to use a different name or number. (This is a grudging compromise).
  - No discriminations against persons or groups
  - No Discrimination against fields of endeavor (e.g. business, genetic research)
  - Distribution of license – must be able to use same license in distributions
  - License must not be specific to Debian – license must be free standing
  - License must not contaminate other software – must not restrict software that comes with it.
  - Example licenses – GPL, BSD, Artistic.
- They will give back to the free software community – new things will be licensed as free software. They will make the best system they can and improve their products.
- Won't hide problems – keep the whole but report public
- Priorities are users and free software – Won't stop them from using whatever software they want on Debian, but the system will remain high-quality and free.
- Programs that don't meet free software standards – There is a place for non-free software on Debian and they will provide an infrastructure for it.

## Discussion Questions

1. What relationship does Debian have with open?

## Additional Resources

Open Source Definition. (2014). Open Source Initiative. Retrieved from <http://opensource.org/docs/osd>

Debian Social Contract. (1997). Debian Social Contract, Version 1.0. Retrieved from <https://edtechbooks.org/-NQxq>



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## Defining Open

Bruce Perens, "The Open Source Definition"

David Wiley, "Open Content"

OKFN, "Open Definition"

David Wiley, "The Access Compromise and the 5th R"

David Wiley, "Open Definitions, Specificity, and Avoiding Bright Lines"



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## Bruce Perens, “The Open Source Definition”

Read the article at <http://opensource.org/docs/osd>

### Background

As a result of fundamental differences between free software and open sources, there was a need to more clearly define what open really meant and differentiate it from free. The Open Source Definition (OSD) helped to clarify what was meant by open and to distinguish the open movement from the free software movement. Like the DFSG on which it is based, the OSD is used primarily to determine whether or not software licenses qualify for the label “open source.”

### Key Points

- Free Redistribution
- Source Code
- Derived Works
- Integrity of The Author’s Source Code
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavor
- Distribution of License
- License Must Not Be Specific to a Product
- License Must Not Restrict Other Software
- License Must Be Technology-Neutral

The definition contains the same conditions as Debian with the addition that the License must be technology neutral – the license can’t require that any specific technology or interface.

### Discussion Questions

1. How did the Debian Free Software Guidelines influence the Open Definition?
2. Why is open not the same as free?
3. Is Google Open? Free? Neither? Both? Why?

### Additional Resources

Debian Social Contract. (1997). Debian Social Contract, Version 1.0. Retrieved from <https://edtechbooks.org/-NQxq>



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## David Wiley, “Open Content”

Read the article at <https://edtechbooks.org/-tFQ>

### Background

Inspired by open source and free software, “open content” seeks to reasonably apply the principles of openness to non-software creative works including writing, images, sounds, and videos. David Wiley, who coined the term in 1998, is particularly interested in how open content can reduce the cost and increase the quality of education.

At its core “open content” describes a copyrightable work that is licensed in a way that “provides users with free and perpetual permission to engage in the 5R activities” which are retain, reuse, revise, remix, and redistribute.

### Key Points

5Rs

- Retain – the right to make, own, and control copies of the content (e.g., download, own, store, and manage)
- Reuse – the right to use the content in a wide range of ways (e.g., in a class, in a study group, on a website, in a video)
- Revise – the right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language)
- Remix – the right to combine the original or revised content with other open content to create something new (e.g., incorporate the content into a mashup)
- Redistribute – the right to share copies of the original content, your revisions, or your remixes with others (e.g., give a copy of the content to a friend)

Legal requirements and restrictions can make content less open, as can poor technical choices.

### Discussion Questions

1. How does copyright with open source interplay with copyleft (Stallman/GNU)?
2. What are the ramifications of open content educational materials?
3. What is the future of education with open content?
4. Is open content less expensive?
5. Is open content free of cost? If so, why? If not, why not?
6. Are textbooks really going away? Will they become irrelevant? Useable?
7. Do we really need to keep the textbooks that we have?
8. What do we do with the older versions of the textbooks?

## Additional Resources

Future of OER. (2014). Iterating toward openness. Retrieved from <https://edtechbooks.org/-tmlX>

Open Content. (2014). Iterating toward openness. Retrieved from <http://opencontent.org/blog/>



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## OKFN, “Open Definition”

Read the article at <http://opendefinition.org/od/>

### Background

The open definition was created to offer a precise and clear definition of open and how it works and is used.  
*“Knowledge is open if anyone is free to access, use, modify, and share it – subject, at most, to measures that preserve provenance and openness.”*

### Key Points

Open licenses – must satisfy the following requirements

- Open Works
  - Open Licenses – work must be available under an open license
  - Access – the work must be available as a whole and at no more than a reasonable one-time reproduction costs
  - Open Format – work must be provided in a convenient and modifiable form
- Open Licenses – Required permissions
  - Use – must allow free use of licensed work
  - Redistribution – license must allow redistribution of the licensed work
  - Modification (and distribution under the same terms as the original) – must allow derivatives of the license work
  - Separation – the parts have the same rights as the whole – this is a new one
  - Compilation – not restrict works it is distributed with
  - Non-discrimination – the license must not discriminate
  - Propagation – the rights must apply to all to whom it is redistributed
  - Application to any purpose – license must allow use, redistribution, modification, and compilation
  - No charge – the license can’t impose a fee.
- Acceptable Conditions
  - Attribution – distributions of the work must include attributions
  - Integrity – may require modified versions of a licensed work carry a different name or version number
  - Share-alike – copies must remain under the same license
  - Notice – the license may require notification of copyright notices
  - Source – modified worked needs to be available in a form that will allow for more modification
  - Technical restriction prohibition – this may prohibit distribution of the work
  - Non-aggression – license may require modifiers to grant the public additional permissions

## Discussion Questions

1. How did the Debian Free Software Guidelines influence the Open Definition?
2. Why do some proponents of open argue that placing the Share Alike restriction in licenses makes content more open? Do you agree?

## Additional Resources

Debian Social Contract. (1997). Debian Social Contract, Version 1.0. Retrieved from <https://edtechbooks.org/-NQxg>



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# David Wiley, “The Access Compromise and the 5th R”

Read the article at <https://edtechbooks.org/-gXV>

## Background

The 5th R (Retain) was introduced seven years after the 4R’s (reuse, revise, remix, and redistribute) were identified. To provide access to literature, libraries were created to give people access to books when ownership was impossible.

Now ownership is very possible, but the cost of textbooks is climbing to a point where institutions are trying to convince students to go back to an access model.

## Key Points

- Open educational resources (OER) is defined as free and unfettered access to the resources as well as whatever copyright permissions are necessary for users to engage in the 4R activities.
- The attack on personal property – publishers retain control over you and the use of their content.
- Disappearing ink – institutions try to make books more affordable by decreasing access to them (buyback, rental, subscription, digital rights management) – the institution/publishers are essentially communicating to students that their texts won’t be useful outside of one class, which seems to defeat the purpose of them. The university is sending a mixed message when they do this and at the same time requiring that you take classes based on these books.
- The 5th R
  - Commercial publishers are not going to fix this, so it falls to open education
  - OER frameworks have not yet focused on ownership, though it is implied in other areas
  - Adding to the framework will bring focus to this issue.

## Discussion Questions

1. Think of hosting issues. If you have access to something now, and it almost feels like ownership because you don’t want a hard copy or even a hard drive copy of most things, but if someone else is hosting it, does that mean you could lose access at any time, without any warning?
2. Why is the 5R important in the issue of open?
3. Is there an access compromise now?

## Additional Resources

Open Education License Draft <https://edtechbooks.org/-ktb>



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## David Wiley, “Open Definitions, Specificity, and Avoiding Bright Lines”

Read the article at <https://edtechbooks.org/-gbyW>

### Background

This brief essay argues explicitly against the idea of a bright line test for “open” in the context of open content.

### Key Points

- Open definitions exist along a continuum.
- While there are some who want precise or “bright line” definitions, that allow them to clearly delineate what is open and what is not, providing space for decision makers to think deeply about the concept of openness is important.
- Not all the lessons of open source software can be imported directly into our thinking about open content. Software and content are different in subtle and important ways.

### Discussion Question

1. Should you be more open?
2. How can you be more open?

### Additional Resources

Debian Social Contract (1997). Debian Social Contract, Version 1.0. Retrieved from <https://edtechbooks.org/-NQxq>





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Comparison of Open Source Licenses



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# GNU General Public License

Explore the website at <https://edtechbooks.org/-eABG>

## Background

GPL or GNU General Public License was the first copyleft license, and is still the most broadly used.

## Key Points

- Free, copyleft license for software + other things
- To preserve, not take away your freedom
  - the right to distribute software, even at a cost
  - The right to receive the source code and make changes
- Rules
  - Need to respect the freedom of others by informing them they can access the source code.
  - assert copyright and then offer people the GNU license
- Another version of the GPL called the AGPL. You have to distribute source code, even if you don't distribute the software as in the case of web apps (e.g. facebook)

## Discussion Questions

1. What is the situation with devices that don't let users run modified version in the 3rd to last paragraph?
2. How could a patent be applied to software?
3. It's interesting that GPL licensed software can be used to create proprietary software. Is this for practical reasons?
4. Microsoft seems to claim that GPL has some viral properties, does non-free software not have these same properties?
5. How can Stallman justify selling license exceptions to companies? Aren't they evil?





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# BSD License

Read the article at <https://edtechbooks.org/-HVhd>

## Background

BSD – Berkeley Software Distribution license. The original BSD license is Free Software Foundation/GPL compatible, but the modified versions are not because of advertising clauses.

## Key Points

- Free software license, with minimal restrictions on redistribution
  - Does not have share-alike requirements like copyleft.
- Allows proprietary use and allows incorporation into proprietary products.

## Discussion Questions

1. Why would a person choose the BSD over the GPL?
2. How does BSD contrast from GPL?
3. What differentiates BSD from other licenses?

## Additional Resources

Free Software Foundation (2014). gnu.org. Retrieved from <https://edtechbooks.org/-eABG>

Permissive Free Software License (2014). Wikipedia. Retrieved from <https://edtechbooks.org/-sxGd>





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# MIT License

Read the article at <https://edtechbooks.org/-Zxy>

## Background

The Massachusetts Institute of Technology has their own version of an “as-is” software license. This license grants permission to the user free of charge to use and reuse their material/software in any way they see fit.

## Key Points

- Permits reuse within proprietary software as long as copies of the licensed software include a copy of the MIT license terms and copyright notice.
- Proprietary software stays proprietary.
- Explicitly states the rights of the user.

## Discussion Questions

1. Why would a person choose the MIT license over BSD or GPL?
2. How does the MIT License differentiate itself from BSD and GPL?

## Additional Resources

Free Software Foundation (2014) <https://edtechbooks.org/-eABG>

Berkeley Software Distribution (2014) <https://edtechbooks.org/-HVhd>





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# Apache License

Read the article at <https://edtechbooks.org/-EQzq>

## Background

This license is more extensive than the BSD and MIT licenses, with some interesting considerations, such as patents and trademarks. One quarter of Google code projects boast Apache licenses, including Android OS.

## Key Points

- Doesn't require derivative work to be distributed using the same licenses.
- Does require that all unmodified parts must have their original license.
- Whenever code is changed a notice must be included. This notice cannot modify the license.

## Discussion Questions

1. Why would a person choose the Apache License over MIT, BSD or GPL?
2. How is the Apache License different from the MIT, BSD and GPL licenses?

## Additional Resources

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## Comparison of Open Source Licenses

### Background

There are a wide range of open source / free software licenses which are both popular and widely used. These licenses have much in common but differ from each other in subtle ways.

### Key Points

License Comparison:

	MIT license	BSD License	Apache License	GNU License
Popular and widely used:	Yes	Yes	Yes	Yes
License type	Permissive	Permissive	Permissive	Strong Copyleft
Jurisdiction:	Not Specified	Not Specified	Not Specified	Not Specified
Grants patent rights	No	No	Yes	No
Patent retaliation clause	No	No	Yes	No
Specifies enhanced attribution	No	No	No	No
Addresses privacy loophole:	No	No	No	No
Includes 'no promotion' feature	Yes	Yes	Yes	Yes

### Discussion Questions

1. Why are there so many types of licenses?
2. Who governs the licenses?
3. How can you choose the license type that is best for you?

### Additional Resources

Free Software Foundation. (2014). gnu.org. Retrieved from <https://edtechbooks.org/-eABG>

Berkeley Software Distribution. (2014). Wikipedia. Retrieved from <https://edtechbooks.org/-HVhd>

MIT License. (2014). Open Source Initiative. Retrieved from <https://edtechbooks.org/-Zxv>

Apache License. (2014). apache.org. Retrieved from <https://edtechbooks.org/-EQzg>

License Differentiator. (2014). OSSWATCH. Retrieved from <https://edtechbooks.org/-rVCG>



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# Creative Commons Licenses

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## Background

Creative Commons provides the open licenses used by the vast majority of open content, including over 880M items according to a [recent report](#).

The breadth and depth of license options available through Creative Commons licenses provides any creator with a wide range of opportunities to license any type of work with a human readable license, a “legalese” version of the same license, as well as a machine readable version of the license. While fixing overaggressive copyright is the best solution, Creative Commons provides authors and creators with a relatively simple way to share their work in the current legal context.

All CC licenses carry the attribution term “BY.” From there the creator can select from an array of other options which include the following:

- Share Alike (SA) – if you make changes to the material and distribute that changed version, you must license your new version using the same CC license
- NonCommercial (NC) – you cannot use the material in way primarily intended for or directed towards commercial advantage or monetary compensation
- No Derivatives (ND) – no changes can be made to the material

## Key Points

- Licensors can retain copyright while sharing their work.
  - Allows them to get credit.
- License Selection Wizard asks two questions:
  - Does the licensor want to allow commercial use?
  - Does the licensor want derivatives to be shared alike?
- Layers of License
  - Legal code – traditional
  - Human readable – Summarizes and expresses the most important information in language a normal human being can understand.
  - Machine readable – allows search engines to index content based on the license.
- Licenses
  - CC BY = Attribution
  - CC BY-SA = Attribution-ShareAlike
  - CC BY-ND = Attribution -NoDerivs
  - CC BY-NC = NonComercial
  - CC BY-NC-SA = NonCommerical-ShareAlike
  - CC BY-NC-ND = NonCommercial-NoDerivs
- One of the purposes is the reduce friction
  - It can be difficult to track down copyright holders to get permission even if they want to give it
  - There is just the one, the historical licenses (e.g. open content), encourage you not to use them anymore.
  - There will never be another license to avoid license proliferation

## Discussion Questions

1. Which is the best license?
2. Under what circumstances would you choose to use which licenses?
3. Discuss the pros and cons of not using the NC license, thereby allowing commercial use of openly licensed materials for gain.
4. Under which circumstances would it be best to use a ND license?

## Additional Resources

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# GNU Free Documentation License

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## Background

The Free Software Foundation's version of a copyleft license for software manuals and textbooks, although it specifies that the license is not restricted solely to software-related materials. Published, to some degree, as a response to the open content licenses.

## Key Points

- The purpose is to make a document free (liberated)
  - Allows the author to get credit, without being responsible for modifications by others
  - Derivative works need to be shared alike
- If there are more than 100 copies distributed then the original must be made available as well
- Used by Wikipedia (+ CC BY-SA) – not compatible without a modified authorship clause.
- Some find it unfree because it allows invariant text which can't be modified or removed, which doesn't allow people to make changes.
- Less than reasonable for short printed text – you have to include a hard copy of the license with every printed copy of something licensed with it.

## Discussion Questions

1. When is a GNU Free Documentation License better than a Creative Commons license?

## Additional Resources

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# Open Publication License

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## Background

The Open Publication License was one of the first open content licenses. It has now been retired and licensors are now encouraged to use Creative Commons licenses.

## Key Points

- Severability – if part of it is unenforceable somewhere, the rest of it is still in force
- No warranty
- Modifications must be labeled, with acknowledgement to past and present authors and must provided reference to the original.
- Allows for a prohibition of substantively modified versions
- Can combine with other, less restrictive licenses.

## Discussion Questions

1. How do the OPL and Creative Commons licenses compare? How are they similar? How are they different? Why?

## Additional Resources

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## Open CourseWare

Charles Vest, "Disturbing the Educational Universe: Universities in the Digital Age – Dinosaurs or Prometheans?"

History of MIT OCW

MIT OCW Evaluation Report (2005)

MIT Reaches OCW Milestone

David Wiley, "OpenCourseWars"



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## Charles Vest, “Disturbing the Educational Universe: Universities in the Digital Age – Dinosaurs or Prometheans?”

Read the article at <https://edtechbooks.org/-brzv>

### Background

In 2001 MIT Announced that it would use the internet to provide open access to all of it's courses. Several universities and foundations joined together to create the Open Knowledge Initiative. Technology enabled active learning (TEAL) was also developed to more fully engage students in course materials beyond lecture. Dinosaurs or Prometheans was given to lend validity to the openness argument in higher education and provide instruction on how to apply it. MIT President Charles Vest explores a fork in the road – will the future of education belong to the age of machines or will it remain in the realm of human connection? The answer to both, he says, is a resounding YES!

The last 14 years have been the most significant, prolific, and highly experimental years of the OCW movement. In just over a decade, thanks to the internet, the information democratizing and education proliferation has exploded. MIT has been at the forefront leading the way. In this article Vest shares an inspiring vision of technology allowing education to be libre/open to students around the world, connecting students and professors globally to the best resources.

### Key Points

Practicing openness increases learning, while closed education stifles learners and prevents them from fully opening their minds. Free education is, therefore, a service to society; The spirit of open courseware means that both content, and content repositories need to be open. The Greek myth about Prometheus tells how he stole fire from the Gods to give to the humans. Such is the story of this article, however in the case of open “sharing” is preferred to theft. MIT became a group of what the author calls prometheans when they decided to share their courses openly. Universities that refuse to adapt are compared to dinosaurs, in danger of extinction. Every institution must decide how it will play in the digital age, both strategically and tactically. Adaptive universities are not in danger of extinction. They will continue to play an important role in providing the most intense, advanced, and effective education. At this early stage he submits that we must experiment to figure out what will work best. We live in a time of substantial experimentation and calculated risk taking in terms of the use of digital media in education.

Vest then introduces the principle of openness, specifically open courseware and open systems. Since “the glory of American higher education is its democratizing reach,” the quality of American education has grown as materials have been produced and people with knowledge have gone out to share what they have gained. The internet is shortening the cycle time. “MIT OCW is different [from earlier distance education models] ... It is a form of sharing among institutions. It is a form of academic publishing more than of teaching. It puts materials in the hands of others to use as they see fit.”

Several universities and foundations joined together to create the Open Knowledge Initiative. The goal was to build an environment to develop an open architecture for learning management systems.

New media allows us to teach at a distance and to bring far flung experiences to our students. Movement in this sphere is both outward (e.g. teaching students on campus and in other countries within the same course) and inward (e.g. students getting feedback on projects from people in industry overseas). It also promotes sharing “laboratories, libraries, and lectures” as all of these can be and have been moved online. Some are very difficult to build online, so different institutions will need to collaborate and share.

Vest indicates that open courseware will fuel innovation within participating institutions as technology expands possibilities for teaching and learning on campus. He concedes, however, that there are issues with the current intellectual property environment. The needs of the entertainment industry have guided the development of laws that govern all electronic media, but these laws don't necessarily work for other industries. MIT OCW raises questions about who owns course materials, especially when MIT resources were used to create a course. As we navigate this issue he maintains that licensing is a more open avenue than subscription.

Vest concludes by looking toward the future. He advises the reader to expect increased collaborative activities and electronic learning communities and to look to new interfaces and means of human-computer interaction for development. He also predicts a future of heavy digital use in education and online educational communities, on-the-job, just-in-time learning becoming the norm in many industries and cost-effective education spreading throughout the world until education will no longer be an economical consideration, because online educational resources will flow like water.

## Discussion Questions

1. Are we past the point of experimentation yet? If not, how do we know when we will be? Will we ever be truly past experimenting?
2. The author says: “The glory of American higher education is its democratizing reach.” Is this still true today (especially when compared to other developed nations)? Was it ever true?
3. The author discusses laboratories, libraries and lectures online. What else has been moved online since? What else could be moved online?
4. Charles Vest addresses the complexity of intellectual property law, which has advanced since this writing. How has that affected OWC's legal issues?
5. What is your institution doing specifically with OpenCourseWare? Is there anything like an MIT equivalent?
6. Vest says: “A meaningful set of changes and exemptions must be worked out in Washington if digital libraries are to realize their promise for research, scholarship, and education.” Is anything being done here? Has any progress been made? What changes would you suggest?





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# History of MIT OCW

Read the article at <https://edtechbooks.org/-ogsC>

## Background

In 2007 MIT compiled a timeline of the most important milestones in its OpenCourseWare movement to date. Since then it has been updated to include more recent events. Below are a few of the most meaningful occasions.

## Key Points

- 1999 – MIT considered how to use the internet to fulfill their mission – to advance knowledge and education students
- 2000 – Proposed OCW
- 2002 – First site with 50 courses on it
- 2004 – OCW adopted CC license
- 2005 – OCW Consortium formed
- 2007 – Virtually the entire curriculum published online
- OCW Scholar, OCW Lecture Hall launched

## Discussion Questions

1. What effect did MIT OCW have on the current open landscape?
2. What event do you think was the most influential event for OpenCourseWare? Why?



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Access it online or download it at <https://edtechbooks.org/openedReader/history-of-mit-ocw>.



## MIT OCW Evaluation Report (2005)

Read the article at <https://edtechbooks.org/-TjaH>

### Background

In 2005 MIT produced an evaluation of the access, use and impact of OpenCourseWare. Findings were drawn from web analytics, surveys and interviews of OCW users, MIT faculty, students and alumni.

### Key Points

- MIT reports dramatic growth in access (56% annual increase) on the original site as well as to mirror sites around the world. OCW materials are being distributed offline (printed and digital copies) and have gained a broad international audience. Visitors are generally happy with the file formats that courseware is provided in.
- OCW is used by educators, students and self-learners for many purposes. Many faculty who contribute to OCW feel they have improved their regular courses through the process.
- A great majority of visitors find OCW positive and useful; many more universities have initiated projects similar to MIT OCW.

### Discussion Questions

1. Do you think that access, use, and impact are the most important OCW metrics to evaluate? What metrics would you add?
2. What should be done to improve access, use, and impact of OCW?





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Access it online or download it at <https://edtechbooks.org/openedreader/mit-ocw-evaluation-report-2005>.

## MIT Reaches OCW Milestone

Watch the video at <https://edtechbooks.org/-omg>



[Watch on YouTube](#)

### Background

Two MIT OCW videos (to this point) have been in the top 10 on Youtube – they are advanced engineering and math courses.

### Key Points

This suggests to MIT that people want to learn – even things that aren't traditionally considered "interesting".

## Discussion Questions

1. MIT OCW includes a disclaimer that it is not an MIT education. What are the things that make OCW different than an “MIT education”?
2. Why do you think such complex MIT OCW videos have become so popular?



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Access it online or download it at <https://edtechbooks.org/openedReader/mit-reaches-ocw-milestone>.

## David Wiley, “OpenCourseWars”

Read the article at <http://opencontent.org/future/>

### Background

OpenCourseWars is a “sci-fi” look back at 2011 and 2012 from a vantage point in the future.

### Key Points

Wiley swipes at legislatures and lawyers, and institutions and publishers as he explores potential ups and downs of OER and Creative Commons licensing throughout the years. Legislatures fund initiatives, then bad press and mud-slinging cause funding cuts. Legal issues surrounding the Non-Commercial license cause angst as the Chinese educate their armies with American, taxpayer funded textbooks and all OpenCourseWare supporters are painted with the broad brush of commie liberalism and hung out to dry. Lawsuits reign supreme, chaos ensues, students take matters into their own hands and a MetaU emerges replete with lectures, notes, third row cell phone vids, proper non R/O ‘tribbing capabilities, and access to student tutors who are paid for their performance. Lock this one up in the time machine and break it out in 2025 to see which predictions were spot on and which ones fell short. Either way it’s a highly entertaining read that highlights quirks and fragility in the open education ecosystem.

### Discussion Questions

1. What predictions have been realized since this was published? Which have not?
2. What pitfalls and possibilities do you anticipate for open courseware?



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Access it online or download it at <https://edtechbooks.org/openedReader/opencoursewars>.



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## Open Educational Resources

UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing

Cape Town Open Education Declaration

UNESCO, "2012 Paris OER Declaration"

Wiley, Bliss, and McEwen, "Open Educational Resources: OER Literature Review"

Boston Consulting Group, "Open Educational Resources: The OER Ecosystem"



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Access it online or download it at

[https://edtechbooks.org/openedreader/open\\_educational\\_resources](https://edtechbooks.org/openedreader/open_educational_resources).



# UNESCO Forum on the Impact of Open Courseware for Higher Education in Developing

Read the article at <https://edtechbooks.org/-ajdp>

## Background

The term “open educational resources” was first adopted for the first time at UNESCO’s 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries. The forum was convened following MIT’s high-profile and revolutionary push to create “Open Courseware.” (Hopefully you, as a wonderful studious learner, have already read the previous section of this book where we touched on that.) In order to garner popular support for this new area of education and increased collaboration, several representatives came together in Paris to hold the forum. Hundreds of delegates from many countries and higher educational institutions attended the forum.

## Key Points

Because the forum focused on collaboration across institutions, countries, and cultures, many of the key points center around synergistic action verbs.

- Foster awareness and use of OER – contributing to social inclusion and lifelong learning
- Facilitate enabling environments for ICT – bridge the digital divide
- Reinforce the development of strategies of policies on OER
- Promote the understanding and use of open licensing frameworks
- Support capacity building for the sustainable development of materials – support institutions and teachers in building OER
- Foster strategic alliances for OER
- Encourage the development and adaptation of OER in a variety of languages and cultural contexts. This is important because many educators were worried that open courseware would be used to make developing countries dependent on first world countries for content and that content would westernize educational practices.
- Encourage research on OER
- Facilitate finding, retrieving and sharing OER
- Encourage the open licensing of educational materials produced with public funds

## Discussion Questions

1. Take a look at the breakdown of countries who attended the forum. How may the country demographics have an effect on the development of open courseware?
2. How do differences in culture affect the purpose and implementation of open courseware?

## Additional Resources

Grad student discussion YouTube video: <https://edtechbooks.org/-bGAR>



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Access it online or download it at <https://edtechbooks.org/openedReader/unesco-forum-on-the-impact-of-open-courseware-for-higher-education-in-developing>.

# Cape Town Open Education Declaration

Read the article at <https://edtechbooks.org/-wNtQ>

## Background

Five years following the monumental UNESCO forum in 2002, the Open Society Institute and the Shuttleworth Foundation convened a meeting in Cape Town to which thirty leading proponents of open education were invited to collaborate on the text of a manifesto about how OER should be funded and supported. The Cape Town Open Education Declaration was released on 22 January 2008. The declaration garnered over 2727 signatures of support from many different countries and institutions.

## Key Points

The declaration urged governments and publishers to make publicly funded educational materials available at no charge via the internet. It takes that the Purposes of OER is to make materials accessible in areas with low funding and nourish a participatory learning, creating and sharing culture needed in rapidly changing societies. In addition, OER facilitates collaborative, flexible learning that empowers teachers to benefit from one another.

The declaration addresses the roles of educators as well. In order to increase the reach of OER, educators and learners should actively participate in making OER a priority by creating, using, adapting, and improving OER materials. Educators should also focus on building education around collaboration, discovery and knowledge creating.

Lastly, the declaration calls on funders and policymakers to make OER a priority by using taxpayer dollars and then releasing the materials to the public in open content and in widely-accessible formats so that use and editing are encouraged.

## Discussion Questions

1. Take a look at the breakdown of countries who signed the declaration. How may the country demographics have affect on the development of open courseware?
2. How do differences in culture affect the purpose and implementation of open courseware?
3. If governments pay for OER but it is produced by educators, who decides and owns the copyright law? Are there other models of funding other than government funding?
4. If schools used OER that teachers collaborated on, how would that change the dynamics of funding, research, and learning?
5. What would happen if everything the declaration called for actually occurred?

## Additional Resources

Examine the missions of OER-funders.

Check out the Shuttleworth Foundation at this website: <https://www.shuttleworthfoundation.org/>

Check out the Hewlett Foundation at this website: <http://www.hewlett.org/>

Read the World Bank Report on countries' educational expenditures here: <https://edtechbooks.org/-xUJU>



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Access it online or download it at <https://edtechbooks.org/openedReader/cape-town-open-education-declaration>.

# UNESCO, “2012 Paris OER Declaration”

Read the article at <http://goo.gl/vnSHjk>

## Background

The Paris Declaration is a product of the World Open Educational Resource Congress, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO), that took place in Paris, France, on June 20-22, 2012.

## Key Points

The Declaration builds upon several United Nations and UNESCO declarations and conventions concerning education as a universally human right and the promotion of multilingual and multicultural materials.

The Paris Declaration states:

- Foster awareness and use of OER – contributing to social inclusion and lifelong learning.
- Facilitate enabling environments for ICT – bridge the digital divide.
- Reinforce the development of strategies of policies on OER.
- Promote the understanding and use of open licensing frameworks.
- Support capacity building for the sustainable development of materials – support institutions and teachers in building OER.
- Foster strategic alliances for OER.
- Encourage the development and adaptation of OER in a variety of languages and cultural contexts.
- Encourage research on OER.
- Facilitate finding, retrieving and sharing OER.
- Encourage the open licensing of educational materials produced with public funds.

## Discussion Questions

1. What progress has been made on the 10 recommendations since the Paris Declaration?
2. Are any of the recommendations obsolete? Which ones, and why?
3. Have any of the recommendations been fulfilled? Which ones, and why?
4. Do any recommendations need to be updated, adjusted, or strengthened? Which ones, and why?
5. Is anything missing from the list? What would you add to it?

## Additional Resources

<https://edtechbooks.org/-YEFR>

<https://edtechbooks.org/-dcw>



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Access it online or download it at <https://edtechbooks.org/openedReader/open-educational-resources-2012-paris-declaration>.

## Wiley, Bliss, and McEwen, “Open Educational Resources: OER Literature Review”

Read the article at <https://edtechbooks.org/-vhdu>

### Background

The authors provide a thorough review of the existing literature on open educational resources in 2012. This “State of OER review” reports on a variety of OER definitions over the past fifteen years, reviews production models of OER and touts its benefits. Perhaps the most historically significant section is the Challenges of OER, where the authors unpack five sweeping issues: discovery, sustainability, quality, localization, and remix. The article concludes that these obstacles must be overcome if OER is going to fulfill its potential.

### Key Points

The definition of open is well-traveled for a term still in its initiatory stages.

1. Wiley (2010) – Open is a matter of cost and copyright – 4 (now 5) Rs.
2. Wenk (2010) – Open means the freedom to use, study, redistribute and change.
3. Patricial, del Rocio & Elizabeth (2010) – Open means having the term “open license” in the definition.
4. Tuomi (2006) – Open means having levels of openness in the definition.
5. In practice open refers to things under the Creative Commons license

OER Research indicates that there are multiple models of sharing and producing OER, in addition to multiple benefits and almost as many challenges to the implement of OER.

- Models of sharing OER: There are multiple methods of sharing OER; it can be shared as a single resource, a textbook or courseware. Sharing in “recognizable” chunks makes adoption smoother for faculty.
- Models of producing OER: Conversely, there are also multiple methods of creating OER, such as Institutional (MIT OCW), which can be prohibitively expensive to create as well as to maintain, or Commons-base, such as Wikipedia.
- Benefits of OER:
  - Institutions/faculty
    - Mission aligned – public outreach, especially in public universities
    - Makes course development faster and easier
    - PR – attention, relationships with partners
    - Internal publishing and production
    - Influences students to attend
    - Increases revenue through distance education
    - More cost-effective for students

- Challenges for OER:
- Discovery – combated through refractories, indexes, metadata, recommender systems sustainability – suggestions include donations, and charging for some parts.
- Quality – “you-get-what-you-pay-for mentality” and difficulties finding the high quality OER. Mitigated by user assigned ratings, though this created problems of perspective.
- Localization – OER is licensed so that users can remix it, but there is no way of knowing if they will have the skills to do so. People from outside a given culture don’t have the context to remix properly
- Remix – people are rarely remixing. Reuse can be difficult when design/pedagogical assumptions are not clear.

The future of OER looks promising as more nations are joining the OER effort. There are also some gaps that need to be filled in open assessment, a wide open frontier that needs to be explored.

## Discussion Questions

1. Should open assessment be in its own repository or in a package with resources? Why?
2. What is the best way to remove barriers to OER?
3. What are three things you can do today to inspire someone to use OER?

## Additional Resources

OER Commons <https://www.oercommons.org/>

Connexions <http://cnx.org/>



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Access it online or download it at <https://edtechbooks.org/openedreader/open-educational-resources-oer-literature-review>.

# Boston Consulting Group, “Open Educational Resources: The OER Ecosystem”

Read the article at <http://goo.gl/F28ZeL>

## Background

In late 2012, the William and Flora Hewlett Foundation, one of the major benefactors of the Open Educational Resource movement, commissioned the Boston Consulting Group (BCG) to do an evaluation of the OER ecosystem in an effort to determine its current state and its progress toward mainstream adoption. The BCG compiled primary and secondary research, in addition to conducting extensive interviews of roughly 375 OER experts and participants, teachers and educators. The OER Ecosystem is the summary report of their findings.

## Key Points

The key research components included reviewing the role of OER, the role of the teacher, and the level of disruption, contrasted with how OER enriches existing resources, how OER is used as primary material, and how OER helps “flip” the classroom. The overall trend is that OER has some green shoots beginning to sprout but more resources are needed in order for it to become mainstream.

- OER is most commonly used in a classroom, with the teacher remixing and sharing content
- OER is strongest in the higher ed arena, and in K-12 science and math
- Quality material is hard to find and not packaged in a usable way.
- The usage of OER is beginning to move into the mainstream, but the development is behind.
- Procurement processes hinder OER
  1. Some states require physical textbooks
  2. RFP processes are lengthy and difficult
  3. Districts fear losing funding
  4. Cultural preferences exist for traditional materials

Confusion exists about teachers’ intellectual property rights. Do they have the authority and autonomy to share if they want to?

Why aren’t teachers using OER?

1. Time to remix resources and logistics of getting someone to cover classes etc.
2. Design knowledge

## Discussion Questions

1. What is the number one strategy you would employ to make OER more mainstream in K-12, and in higher ed?
2. Which stakeholders are best positioned to escort OER into the mainstream population and why? Policy makers, administrators, educators, funders?
3. Why is there more OER in K-12 science and math? Is OER in the arts an important area of focus? Why or why not?
4. How does one unequivocally determine what the “best” OER looks like? For example, who decides which OER lesson on the Civil War is really the best? Explain how you arrive at your answer, and defend it.

## Additional Resources

<https://edtechbooks.org/-VwXs>



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Access it online or download it at <https://edtechbooks.org/openedReader/open-educational-resources-the-oer-ecosystem>.

## Open Textbooks

Nicole Allen, "Open Textbooks: A Cover to Cover Solution: How Open Textbooks are the Path to Affordability"

Frydenberg and Matkin, "Open Textbooks: Why? What? How? When?"



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Access it online or download it at [https://edtechbooks.org/openedReader/open\\_textbooks](https://edtechbooks.org/openedReader/open_textbooks).



## Nicole Allen, “Open Textbooks: A Cover to Cover Solution: How Open Textbooks are the Path to Affordability”

Read the article here <https://edtechbooks.org/-VvdJ>

### Background

The average student spends \$900 on textbooks a year, which is 26% of average university tuition, and 76% of average community college tuition. Student Public Interest Research Groups (PIRGs) conducted groundbreaking research in 2010, surveying 1428 college students across ten campuses on the cost of the ten most common college textbooks. Student PIRGs makes several recommendations on how to reduce costs for students, mainly, that by using open textbooks students can realize 80% savings.

### Key Points

The issue of high cost textbooks emerges in part due to the lack of transparency in the process and in the end user accountability being waylaid by uninvolved middlemen. Publishers provide the textbook information to the administration or faculty who oftentimes make selections based on factors other than cost. New laws, however, such as the Higher Education Opportunity Act, now require vendors to disclose textbook prices during marketing. Other tactics, such as releasing a new edition with minute cosmetic changes every 3-4 years, bundling curriculum packages and not selling textbooks individually, or engaging in “resale sabotage” by reselling items that have no resale value like a 180 day textbook subscription.

The existing marketplace is changing. Students can now rent textbooks in either hardcopy or digital formats. E-books and e-readers are also available, but many students still prefer a traditional textbook. Alternate models are currently emerging. Open-source textbooks are available online under an open-source license, provide free digital access, low cost printing and customization.

Student PIRGs found that textbook affordability solutions must satisfy a wide range of student preferences:

- students are split between print and digital – leaning toward print.
- A combination may be best
- Most students prefer to rent some books and buy some others
- Traditional cost-reducing options only appeal to a subset of students, and therefore cannot reduce much of the overall market cost.
- Open Textbooks can reduce costs for all students and have potential long-term sustainability
- Course reduce costs by 80% over the market
- Sustainability
  - Many students would purchase hard copies of textbooks even if digital copies were available for free
  - 76% said they would support a small fee to subsidize open textbook authors

Therefore, the solution must reduce costs and appeal to a wide range of students, both of which open textbooks can accomplish. And it seems as though open textbooks can incentivize publishers to respect students as consumers.

The research recommendations includes the following:

- Publishers should develop models that can produce high quality, reasonably priced books (e.g. Flat World Knowledge) because print on demand is more cost effective.
- Faculty should use open and other affordable textbooks when possible.
- College and governments should invest in open textbooks and other sustainable models.
- Students should spread information about open textbooks.

## Discussion Questions

1. Students who prefer print text books cite readability/notetaking. How can open textbooks be more readable and conducive to note taking?
2. Why are students choosing to rent some of their books?
3. How can authors increase textbook relevance so students will be more likely to keep them?

## Additional Resources

CK-12 Foundation <http://www.ck12.org/>

OpenStax College <https://edtechbooks.org/-TDnE>

Boundless <http://www.boundless.org/>

Open Textbook Library <https://edtechbooks.org/-ft>

College Open Textbooks <http://collegeopentextbooks.org/>





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Access it online or download it at <https://edtechbooks.org/openedReader/open-textbooks-a-cover-to-cover-solution-how-open-textbooks-are-the-path-to-affordability>.



## Frydenberg and Matkin, “Open Textbooks: Why? What? How? When?”

Read the article at <https://edtechbooks.org/-Vqgb>

### Background

Educators, authors, administrators of open-source based organizations, entrepreneurs, and stakeholders in the open textbook movement, gathered in Newport Beach, CA in 2007 to explore four basic research questions:

1. Why do we need open textbooks?
2. What are open textbooks (how are they defined)?
3. How will open textbooks be produced and then used?
4. And finally, when will open textbooks be available in sufficient quantity and quality to have a positive impact?

### Key Points

1. Why open textbooks? College textbook costs are skyrocketing and open textbooks are one solution on how to make college more affordable. The K-12 textbook process is fraught with politics and bureaucracy, so it is not addressed in the same manner, although open textbooks can save public schools money as well. In developing countries the key is access to high quality materials, which open textbooks provide.
2. What are open textbooks (how are they defined)? The discussion revealed several pairs of new dimensions to consider:
  - K-12/Higher Education: The contexts are so different that any discussion has to be defined in one or the other of these contexts.
  - Developed Countries/Undeveloped Countries: Developed countries have resources whereas undeveloped countries can benefit more readily from access to OER in general.
  - Top Down/Bottom up: Top down – I’ll tell you what is good for you/Bottom-up – Let me tell you what I want.
  - Course/Reference: Will the OER be a part and parcel course or just supplementary reference materials?
  - Core Content/Service Mode: If you build it they will come vs. including pedagogy.
  - High Tech/User Capabilities: Media rich tech may enhance user experience in developed countries but limit the ability of those in undeveloped countries.

Additionally, barriers to the use of OER, include initial cost and sustaining resources, inertia, technology, distribution and discoverability, lack of quality standards, intellectual property and digital rights management and politics, which must be considered in the broader context of adoption of OER.

- How will open textbooks be produced and then used?
  - Quality: Various groups are trying to address the issue of quality by implementing standards, a rating system, crowd-sourcing, and filters.
  - Accessibility – in terms of software it should be on an open, modular, flexible platform and usable at varying levels of capacity.
  - Sustainability – a sustainability plan is a critical part of any OER project. If it is not relevant or financially viable in a year, that needs to be considered.
  - Community and Convergence – funding typically comes from institutions or community in order to maintain sustainability.
- And finally, when will open textbooks be available in sufficient quantity and quality to have a positive impact? “When” is the appropriate question to ask, not if. It is important to situate OER within the existing framework of textbook publishers rather than to create tension between the two groups.

Next steps: Aside from additional funding, these five activities are essential in moving forward:

- Infrastructure capacity building by developing standards, enabling tools for interoperability, funding for discoverability, increasing institutional involvement and marketing the movement.
- Establishing a clearinghouse or network facilitator, which will decrease the redundancy of multiple entities building the same courses.
- Community formation, which is a crucial step, even if they are separate from institutions, such as the Open Education Consortium, formerly the Open CourseWare Consortium, which is separate from MIT.
- Funding and publicizing demonstration projects, including step by step best practices for easy replication so others can do the same thing in their own institutions and communities.
- Research – Foundations can bring together practitioners to discuss the biggest areas of concern and collaborate on research in those areas.

Minor improvements can be made that will help the movement make significant strides.

## Discussion Questions

1. How can openness fit into the proprietary textbook model appropriately?
2. What are the benefits and drawbacks of viewing OER through the lens of the new dimensions above?
3. What are your top three ideas for overcoming the barriers of OER use?

## Additional Resources

CK-12 Foundation <http://www.ck12.org/>

OpenStax College <https://edtechbooks.org/-TDnE>

Boundless <http://www.boundless.org/>

Open Textbook Library <https://edtechbooks.org/-ft>

College Open Textbooks <http://collegeopentextbooks.org/>



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## Research in Open Education

OER Research Hub

Open Education Group

Marshall Smith, "Ruminations on Research on OER"



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## OER Research Hub

Explore the website at <http://oerresearchhub.org/>

### Background

The OER Research Hub is a UK-based organization connected to the Open University that gathers and analyzes research on the impact of OER. In keeping with the philosophy of open, they believe that you should not hide your research questions but you should be open so others can help find answers to your questions. The OER Research Hub was funded by the Hewlett Foundation.

### Key Points

The OER Research Hub's work is structured around the following hypotheses:

- Use of OER leads to improvement in student performance and satisfaction;
- The open aspect of OER creates different usage and adoption patterns than other online resources.
- Open education models lead to more equitable access to education, serving a broader base of learners than traditional education;
- Use of OER is an effective method for improving retention for at-risk students;
- Use of OER leads to critical reflection by educators, with evidence of improvement in their practice;
- OER adoption at an institutional level leads to financial benefits for students and/or institutions;
- Informal learners use a variety of indicators when selecting OER;
- Informal learners adopt a variety of techniques to compensate for the lack of formal support, which can be supported in open courses;
- Open education acts as a bridge to formal education, and is complementary, not competitive, with it;
- Participation in OER pilots and programs leads to policy change at institutional level;
- Informal means of assessment are motivators to learning with OER.

### Discussion Questions

1. Which section of COUP is the most important to you? Students? Teachers? School administrators? Parents?
2. How are the OER Research Hub's hypotheses related to the Open Education Group's COUP framework?



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# Open Education Group

Explore the website at <http://openedgroup.org/>

## Background

The Open Education Group is a research group comprised of faculty, current and former students, and OER colleagues that seeks to answer research questions about the impact of OER. Most of the group members are affiliated with Brigham Young University.

## Key Points

The Open Education Group has developed a research framework for studying the impact of OER. The framework is called “COUP” and it stands for:

- Cost (savings)
- Outcomes (learning)
- Use (student/teacher)
- Perceptions (student/teacher)

## Discussion Questions

1. Which section of COUP is the most important to you? Students? Teachers? School administrators? Parents?
2. How are the OER Research Hub’s hypotheses related to the Open Education Group’s COUP framework?



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## Marshall Smith, “Ruminations on Research on OER”

Read the article at <http://goo.gl/THMylq>

### Key Points

The characteristics that define OER potentially add value above or different from those achieved by a similar non-OER pieces. OER could be widely disruptive, but institutional barriers will need to be overcome. There are nine areas of Research that can help OER become more widely adopted.

- Policy
  - Positive and negative factors in the political environment
  - Characteristics of current educational policies that constrain or enable the use of OER
- Access/use
  - What added value does OER have?
  - What distinguishes OER from other products?
  - The local conditions that make it possible to easily and fruitfully exercise the 4Rs.
- Effectiveness
  - “As the educational landscape changes, the nature and content that we expect of student learning might change as well” – also as the job market changes, as society shifts.
  - Do OER that are adapted to fit local needs improve achievement and attainment?
- Innovation
  - OER are less bound, and therefore might be more “genuinely innovative”
  - Innovation is by definition unexpected – we should be open to it, especially since we don’t know what could come of it.
- Beyond Formal Education
  - It would be interesting to organize OER by outcomes rather than sectors (e.g. water scarcity, global warming). This is similar to the learning outcome idea we had.
- Sustainability
  - It isn’t necessary for any particular OER to be sustained forever.
- Development and Improvement
  - “Studies to understand and improve the process of creating, altering, and using OER”
- Implementation
  - What is the process for introducing OER into classrooms, schools, districts and countries and how can that process be improved.
- Infrastructure

## Additional Resources

<https://edtechbooks.org/-Txh>



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## The Economics of Open

Yochai Benkler, "Coases Penguin, or Linux and The Nature of the Firm"

Yochai Benkler, "Common Wisdom: Peer Production of Educational Materials"

Yochai Benkler, "Sharing Nicely': On shareable goods and the emergence of sharing as a modality of economic production"



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# Yochai Benkler, “Coases Penguin, or Linux and The Nature of the Firm”

Read the article at <https://edtechbooks.org/-PDq>

## Background

Yochai Benkler’s “Coase’s Penguin, or, Linux and The Nature of the Firm” was written at the beginning of the Web 2.0 age and has provided very accurate frameworks for viewing the expansion of peer-driven projects in the internet atmosphere. By applying fundamental economic thought to these projects, Benkler shows that that they actually can grow out of our current models and should be as fundamental as the models we use right now. Coase, an influential economist, introduced a model of firm formation in 1960. The model worked well until the rise of the internet showed instances where individuals and structures (like Linus and the Linux project) defied the model. Through examining these modern exceptions with the same framework of assumptions as Coase used writing *The Nature of the Firm*, Benkler extends the model to form an additional model of peer production, which could help society understand whether to use free markets, firms, or peer-production structures to efficiently optimize production.

## Key Points

Despite models and theory that would say that individuals won’t expend large efforts on work on projects in which they receive no (monetary) reward, we see that quite a few do, e.g GNU, NASA click worker, Wikipedia, Project Gutenberg, academia etc.

Part I illustrates the “phenomenon of large- and medium scale collaborations among individuals that are organized without markets or managerial hierarchies” that are “emerging everywhere in the information and cultural production system.”

Part II is the framework for explaining this phenomenon. Many individuals independently search the available information and opportunities to participate. They self-identify their tasks for various reasons. Individuals choose their own tasks, which makes them more viable. This requires a review system so that people don’t take on something they can’t do. Also part II explains the advantages of “commons-based peer production” over markets or firms. They have improved identification and allocation of creative/capable people to achieve certain tasks. Commons-based peer production has a distinct advantage, drawing upon the creativity of many.

Part III is about motivation. Nobody will invest if they can’t benefit from it so motivation plays an important role. There are diverse types of motivation and each will attract different people.

Open Projects should be:

- modular – divided into components that can be produced by an independent individual
- size – the modules should be small – many people can help, even if they have small amounts of motivation to contribute. It is good to have many levels of granularity to match levels of motivation.
- low-cost integration that includes quality control and a mechanism for putting the modules into the final product. A project needs to defend against bad contributions or be cheaply assembled.

Peer Production examples – how each component of the information-production chain is covered using a peer-based model online.

- Content
  - Clickworkers – crowd sourcing mapping craters on Mars. Projects that would take months of time for a few professionals can be done with a few minutes of effort each contributed by a different volunteers. The budget for the project goes to coordination, people contribute for fun.
  - Wikipedia – users adapt to the norms that wikipedia has set up.
- Relevance/Accreditation
  - Amazon – other people liked what you liked and X – so yes, with enough people/ data points it can make suggestions to individuals
  - Google – using links to other sites in the ranking algorithms
  - Slashdot (/reddit) – up voting and down voting systems
- Value-added Distribution
  - Napster – thousands of individuals share their hard drive space instead of one central server
  - Project Gutenberg/Distributed Proofreaders – people proofread books so they can be available digitally. Books are read multiple times to look for errors.

There are diverse motivations for why people contribute to open projects. There are three main types of rewards, the combination of which shapes motivation: monetary, hedonic, and social-psychological. These rewards can be positive or negative. The amount of motivations that a contributor needs is connected to the modularity and granularity of the project. “Peer production is limited not by the total cost or complexity of a project, but by its modularity, granularity, and the cost of integration.” Modularity is the extent to which a project can be broken down to parts that can be done independently by individuals. Granularity is the size of the modules. More people will be attracted to the project the smaller the modules are.

## Discussion Questions

1. How can we make educational resources more modular, granular, and easy to integrate?
2. How does “Commons-based peer production” improve upon market or firm-based production strategies?
3. What are the advantages of “commons-based peer production” over markets or firms?
4. What has the Wikipedia phenomenon shown us since the writing of this article in 2002?
5. How does motivation, project modularity and granularity, and the presence or absence of intellectual property rights play in to the success or non-success of commons-based peer production?





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# Yochai Benkler, “Common Wisdom: Peer Production of Educational Materials”

Read the article at <https://edtechbooks.org/-mJYX>

## Background

This paper was commissioned by The Center for Open and Sustainable Learning at Utah State University. It was first presented at Advancing the Effectiveness and Sustainability of Open Education, the 17th Annual Instructional Technology Institute at Utah State University, September 30, 2005.

## Key Points

Yochai Benkler is answering the question: is peer production suitable for educational resources? He discusses the limits and the barriers to creating educational resources. He also talks about the strategies and innovations that might improve development. The two main reasons he supports this are to provide education everywhere and especially in the poorest countries.

There are two different types of production that he addresses. Commons-based and Peer-based. Commons based is when inputs are received from the commons and no one has exclusive rights. Peer-based production is similar but it adds an element of coordination.

Discrete learning objects is the term he uses to describe the most basic educational resource. He says that the reason that peer production of these objects is because of three reasons. Cost reduction, diverse motivations, and cheap, ubiquitous internet access. Because the creation of these objects is so easy the problem is sorting them so they can be useful. This problem can be solved by a system that has self-archiving and tagging tools. Or it can be done through peer production.

Higher order materials such as textbooks are harder to make in this fashion because they are not as modular. Wikipedia is a good example of a higher order material but it is an encyclopedia and not a textbook. A textbook requires themes, approaches and theories to run through the material.

WikiBooks tried to use their model to create textbooks but they have had little success because textbooks aren't as modular as an encyclopedia. People have tried to write open textbooks collaboratively but they haven't succeeded because once broken down to smaller levels of granularity textbooks can't be put back together because they are too granular and the transaction cost is too high.

## Discussion Questions

1. Why have textbooks historically been more difficult to create by means of peer-production? What do you think is the ideal contribution size to successfully peer-produce an open textbook?
2. When might commons-based production be more valuable than peer-based production? Why?
3. How would the creation of a tool that can successfully create open textbook through peer-based production change education?



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## Yochai Benkler, “‘Sharing Nicely’: On shareable goods and the emergence of sharing as a modality of economic production”

Read the article at <https://edtechbooks.org/-JbuJ>

### Background

Yochai Benkler explains how large scale practices of sharing private, excludable goods emerge. He uses several case studies to illustrate where this is happening. Transaction costs and motivation are examined as they relate to sharing practices among individuals who are strangers or weakly related.

### Key Points

Shareable goods are defined as physical goods that have excess capacity. They have two main characteristics. First they are lumpy which means “they provision functionality in discrete packages rather than in a smooth flow” so there are set amounts that you buy regardless of whether that amount is too much or too little for your needs. Memory on a PC is a good example; you buy a certain amount even if you will never use all of the capacity. The second characteristic is granularity. A steam engine is a good example of large granularity because it can only be used by aggregating demand for it while a donut is a low granularity good.

Because everything is “lumpy” it is possible to harness the excess capacity through sharing. There are two types of goods that are lumpy and can be shared. The first is a renewable good which is something that can be used again and again. The second is a rapidly decaying resource like a car with empty seats. The two factors that determine if these two types of goods can be shared is the transaction cost of sharing and the motivation of the people sharing.

When we talk about transaction cost we need to determine our transactional framework. The first step is to determine exclusion. If we have no exclusion then we are simply leaving the resource open for anyone to use. This can lead to congestion costs which means the resource might not be available when you need it. The second step is choosing between perfect exclusion and partial exclusion. Partial exclusion requires you to be selective or non-selective in how you exclude people. Your transactional framework will determine your transaction cost which is the cost of sharing. Motivation is the reason that people will share. These two factors are directly correlated. The higher the transaction cost the higher the motivation to share has to be. People have intrinsic and extrinsic motivations. Extrinsic motivations “crowd out” intrinsic motivations by impairing self-determination and self-esteem. It is not acceptable to pay your friends for dinner, but it is acceptable to bring wine.

## Discussion Questions

1. Now that we understand the theory of the shareable goods model, can we create conditions that encourage sharing or must we take this as an endogenous variable? What would you do to encourage this efficient use of goods?
2. What is more important when creating sharable educational resource transaction costs or motivation?

## Additional Resources

Within in the article, Benkler includes a rich array of footnotes and references to additional materials that would be useful to read and explore.



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## Open Business Models

Eric Raymond, "The Magic Cauldron"

OSI, "Open Source Case for Business"

Various, "A Summer 2014 Conversation on Business Models in Open Education"



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## Eric Raymond, “The Magic Cauldron”

Read the article at <https://edtechbooks.org/-oXHM>

### Background

Eric Raymond, a substantial contributor to the theory and conversation in the open source community, strikes again with his paper “The Magic Cauldron.” The essay, he claims, will “begin by exploding some common myths about software production economics; then continue the line of analysis of these essays into the realm of economics, game theory and business models.” Though written in 1999 before the rise of the many of the open education resources and businesses currently seen, Raymond lays out clearly the most plausible business models that could work to sustain open-source or open-content companies and the usefulness of each model. Understanding this article will provide an ability for comprehensive analysis of the rise and fall of companies that used one or more or none of his models to capture the money in the markets and create sustainable businesses.

### Key Points

Raymond first points to the differences between “use value” and “sale value.” To be clear, software production is in many ways dissimilar from traditional manufacturing. In many businesses, software (and to a lesser extent, content) can be extremely valuable to a company, but not sellable. In this case, this means the software has “use value” but not “sale value.” This theory of “use-value” is the driving reason why companies can open-source their software without ruining their business. With open-source, they are increasing the efficiency and effectiveness of their code—improving the “use value”—without losing potential future earnings.

The remainder of the article deals with different models that might help companies turn the open-sourced use-value resources into possible financial resources.

#### Use-value Funding Models

Models that create open-source products that are so valuable because of their open-source-ness that they actually attract money to create a sustainable business.

- **Cost Sharing:** Open-source resources can spread costs of development or maintenance so low that businesses benefit by joining the network.
- **Risk Spreading:** Likewise, open-source reduces risk by spreading risk across companies. This mitigates risk that companies won’t be able to adapt or maintain their internal-resources to meet outside challenges.

#### Indirect Sale Models

- Loss Leader: Use open software to capture the market for related proprietary software that creates revenue.
- Widget Frosting: Used primarily by hardware companies who sell hardware that requires software that will not create revenue.
- Give away a recipe, open a Restaurant: In this model, businesses focus on providing paid services around their free open-source products. This can be useful when customers do not want to hassle with managing the product themselves.
- Accessorizing: Sell complementary goods to the product ranging from brand paraphernalia to complementary code-products.
- Free the future, sell the present: In this model you release software with a closed license that will expire at a pre-determined time. This allows users customizability and guarantees that the product can be taken over by the open source community.
- Free the software, sell the brand: This is a relatively untested and risky model. The core idea is customers can pay the code originator to be officially branded as compliant with certain qualifications so everyone with the same brand name have compatible software even if it is modified.
- Free the software, sell the content: Subscription-based sales on the content.

Strategies and Ecosystems: In the remaining sections, Raymond speaks of strategies to apply the above models. In the “When to be open, when to be closed” section, he gives examples how companies have balanced the return of open source against the return to proprietary source to decide which one they wanted to use or when to switch from one to the other. He also explores more examples about how companies have stayed ahead of competition that has access to all the same materials and code produced. All in all, Raymond sees open source as a wonderful thing for companies and the market because it brings out the best strengths and services. Companies can collaborate to become stronger and then compete to provide better service for the customer. Of course this is not easy for businesses to do so Raymond spends time discussing more about how a company should deal with these challenges.

In summary, the following discriminators push towards open source:

- (a) Reliability/stability/scalability are critical.
- (b) Correctness of design and implementation cannot readily be verified by means other than independent peer review.
- (c) The software is critical to the user’s control of his/her business.
- (d) The software establishes or enables a common computing and communications infrastructure.
- (e) Key methods (or functional equivalents of them) are part of common engineering knowledge.

## Discussion Questions

1. Is this list of open-source business models comprehensive? What other models exist in the world?
2. Which models can be mixed together? Are there synergistic strengths from combining different models?
3. How would open-source businesses affect the average, non-hacker consumer?

## Additional Resources

Raymond mentions Digital Creation’s move to open-source their “secret weapon” product. Here is an article by Paul Everitt, Digital Creation’s CEO, on why they made the decision.

“How We Reached The Open Source Business Decision” <https://edtechbooks.org/-LBL>



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## OSI, “Open Source Case for Business”

Read the article at <https://edtechbooks.org/-gscWu>

### Background

Like Eric Raymond’s article, “The Magic Cauldron,” “Open Source Case” analyzes different revenue models for open source companies. This compliments Raymond’s article by being a little more contemporary and also infuses more a business investor perspective into how companies can leverage the power of open source to their advantage.

### Key Points

Businesses should adopt open software because it is safer for the business. The section “The Reliability Problem” focuses on the proven models that show that open-source is often more reliable and robust than closed-source materials. As businesses focus more on software products and services, they should consider the advantages of taking proprietary software or software products and making them open source. The advantages of open sourcing include:

- More reliable software at a lower cost because the cost of debugging is out-of-house instead of in-house costs
- Quicker development
- Stronger ties to the customer who is part of the process and more loyal because the product better fits their needs even in a constantly-shifting market
- Larger dissemination of the product and broader market

More loyal customers with a better product? It sounds like a pretty good bet for an investor as long as the business has a way of turning these additional strengths into a revenue. When that happens, investors will provide funds as long as the company provides a return on the investment. The article reemphasizes models that Eric Raymond explains in his article, “The Magic Cauldron” as possible ways that investors can capitalize on the benefits of strong open-source companies that provide value.

### Discussion Questions

1. What benefits attract investors? Why is a strong business worth investing in even if it produces products that can be reproduced for free?
2. Which business model seems the most viable and robust to you?
3. How do these models relate to the economic theories developed in Benkler’s “Coase’s Penguin, or, Linux and *The Nature of the Firm*”?

## Additional Resources

A list of some open-source startups listed in Wired magazine: <https://edtechbooks.org/-xpp>

Another article addressed to business owners and managers that builds on Eric Raymond's article "The Magic Cauldron" while adding more arguments for good open-source business practices. Frank Hecker, "Setting Up Shop" <https://edtechbooks.org/-ywMz>



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## Various, “A Summer 2014 Conversation on Business Models in Open Education”

Read Jose Ferreira’s article at <https://edtechbooks.org/-QSDp>

Read David Wiley’s article at <https://edtechbooks.org/-cBtY>

Read Michael Feldstein’s article at <https://edtechbooks.org/-cBtY>

Read Brian Jacob’s article at <https://edtechbooks.org/-lBkz>

### Background

Eric Raymond’s defining essay, “The Magic Cauldron” was written in 1999 and 2000 as the theoretical base of how companies could capitalize on open-source and open-content products and services to produce a profit. In 2014, almost 15 years later, a blogging conversation ensued between three CEOs and one researcher. Each CEO was using different business OER models and hoping for wide scale adoption of their materials. In essence, their conversation was trying to see who was right about the market and which model would succeed best. This is a pivotal conversation in the education community because it is connected to the question of how the education community accepts open education resources. Why should they? What motivates them to adopt OER materials? How do they? How can companies create sustainable innovation in this sector?

### Jose Ferreira

Background: Jose Ferreira is the CEO of Knewton, a company best described as a widget-frosting company that creates learning management systems that build on OER resources with accessories that might increase the feedback and effectiveness of teaching. Ferreira posted this blog after David Wiley’s comment in the Knewton Education Symposium that OER will overthrow textbook publishers.

Key Points: Jose Ferreira makes the case that OER creates low-end materials that are inconvenient to use and do not increase learning. With this mindset, he advocates the assured future of his company because he believes educators and educational institutions will be willing to pay to have someone else manage the creation and adaptation of OER materials as well as other sophisticated services that complement the learning process.

## David Wiley

Background: David Wiley, one of the leaders in developing the open content community, launched Lumen, a social venture that provides prepackaged OER resources and training to colleges, particularly community colleges. Lumen, opened in 2013, is a “Give Away the Recipe, Open a Restaurant” model that Eric Raymond touched on in his article, “The Magic Cauldron.” As an instructional designer and professor, Wiley has also done extensive research of the effect of OER on student learning outcomes. He quickly responded to Ferreira’s post with his own viewpoint of the OER market.

Key Points: Wiley first points out that Ferreira’s advice that publishers capture the high-end of OER resources market seems foolish because current publishers require exclusivity as a necessary component of profitability and real OER breaks the requirement of exclusivity. He continues on the point that OER will not win because it makes absolutely better materials than current publishers but rather it will win because it is fantastic compared in the metrics of “learning outcome per dollar,” the premise behind Lumen’s marketable competitive edge. This metric is found by dividing the passing rate of classroom by the money spent on learning resources (e.g. textbooks). Given this metric, some schools are seeing remarkable improvement in by switching to OER. The basic point is that this is the metric that will swing the future market and create sustainable demand for OER-based companies like Lumen.

## Michael Feldstein

Background: Michael Feldstein has a long and history with online platforms that helped companies improve learning and create bridges between companies, education, and internet. His experience includes instructional design for blended classrooms and managing an online Learning Management System. He jumped into David Wiley’s and Jose Ferreira’s conversation following the Knewton Education Symposium on his e-Literate website. The website is, “a hobby weblog about educational technology and related topics that is...written by Michael and some of his trusted colleagues in the field of educational technology.” This article is important to the conversation because it develops the discussion about what fundamental assumptions need to be true in order for either Wiley or Ferreira to be correct. A careful comparison of this article against “Coase’s Penguin” would allow an individual to see how those theoretical models are being applied in real life.

Key Points: Michael Feldstein points out that the feasibility of Ferreira and Wiley’s differing opinions “depends” on the development of licensing and economic models. Currently OER licensing creates revenue headaches for both the suppliers and the competition and therefore “have not yet cracked the sales and marketing nut or proven out revenue models that enable them to do what is necessary to drive adoption at scale.” He continues, “If everybody is losing, then nobody is winning. At least at the moment.” Ferreira is sure that complex, data-driven LMS packages are what the market wants. Wiley is certain that the learning outcome per dollar metric is the deciding factor. Feldstein is pointing out that regardless of who is right about the important factors that influence adoption, neither business will succeed until the business (not just the product) works and is a sustainable, revenue generating process.

## Brian Jacobs

Background: The last voice to add an important piece to these CEO’s debate was Brian Jacobs’, the CEO of panOpen, a platform that provides OER textbooks. Jacobs addresses one last point about assumptions that the others did not and which might be a crucial part to the success or failure of any one of the OER-based business models.

Key Points: Jacobs begins simply by questioning, “the assumption holds that because open-source educational content is like open-source software — in that it’s free content that you can chop up, remix, and share with anyone — its application and uses should follow in a similar way.” He points out that teachers’ resources are not developed or used like hackers’ programs. This defeats many of the synergies and motivations that Raymond noted open source imbued in hacker communities. Jacob’s key take away is that new motivational systems must be implemented to use and create the materials before OER becomes widely adopted. One such point is that teachers should be financially

compensated for adopting and adjusting OER material to make up for the inconvenience they take upon themselves when they could have used a textbook in the first place. This is a very different take on Wiley's or Ferreira's assumptions on what motivates adoption. He ends with, "because instructors are not hackers and belong to an entirely different community of practice, a system for distributed content development also needs to be accompanied by a system of distributed financial incentives." The truth of Jacobs' pivotal assumptions remain to be seen as these three businesses and other different models struggle for wide-scale adoption and ample revenue streams.

## Discussion Questions

1. What market is each CEO trying to tap into? Will students, instructors, instructional designers, publishers, or administrators be the swing group to tip the tables for OER companies?
2. Does the idea of disruptive innovation pose a threat to companies trying to catch the high-end market like Knewton?
3. How do current OER educational communities resemble open-source hacker communities? How do they differ? How does that affect their subset of the open economy?

## Additional Resources

In addition to looking at these companies websites and other companies' websites, review the economic models in "Coase's Penguin," "Sharing Nicely" and articles in the Open Educational Resources section, particularly "Giving Knowledge Free" to see how these theoretical models and high-level research plays out in the current stage of open educational development.



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