Where did you learn that?

Appraisal and curation of free online educational resources for health care professionals

Brad Sobolewski, MD, MEd

Ashish Shah, MD

#BloomsTaxonomy

Learn about the scope of online resources in medical education

Learn how to curate and recommend online asynchronous resources for students & colleagues

Practice methods of critical appraisal and evaluation for blog posts, podcasts & videos

dic·tion·ar·y

ˈdikSHəˌnerē

Asynchronous Learning

A student-centered constructivist teaching method utilizing online materials that allows students to learn when are where they want
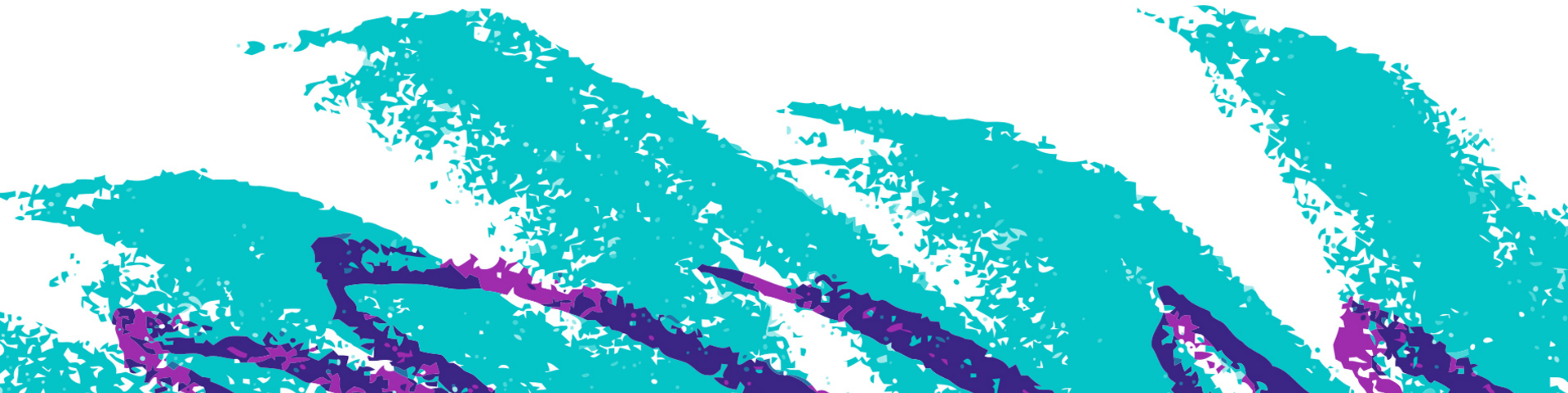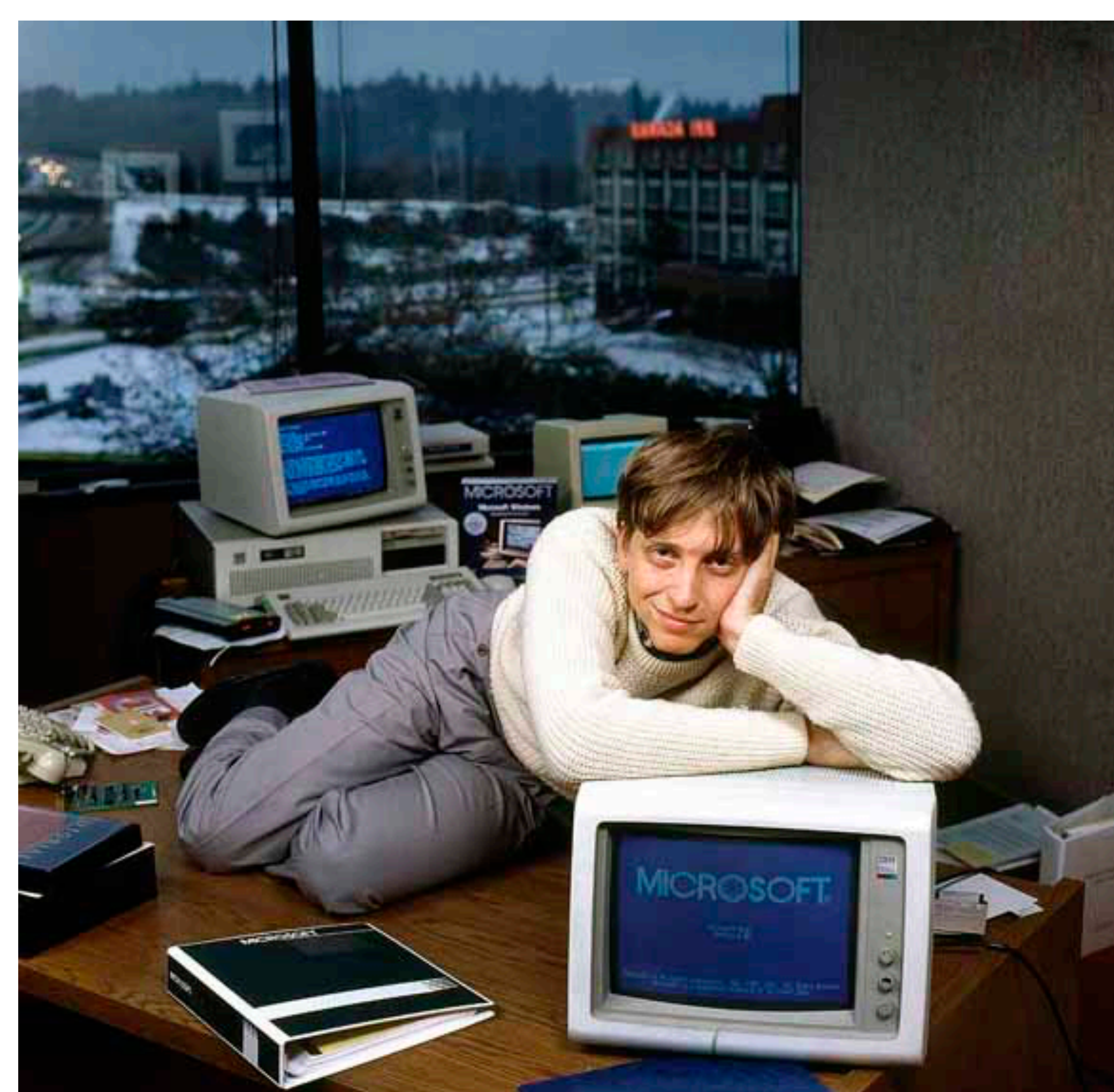
A triumph of reverse chronology

The web 2.0 boom in the late 90s and early aughts was all about…
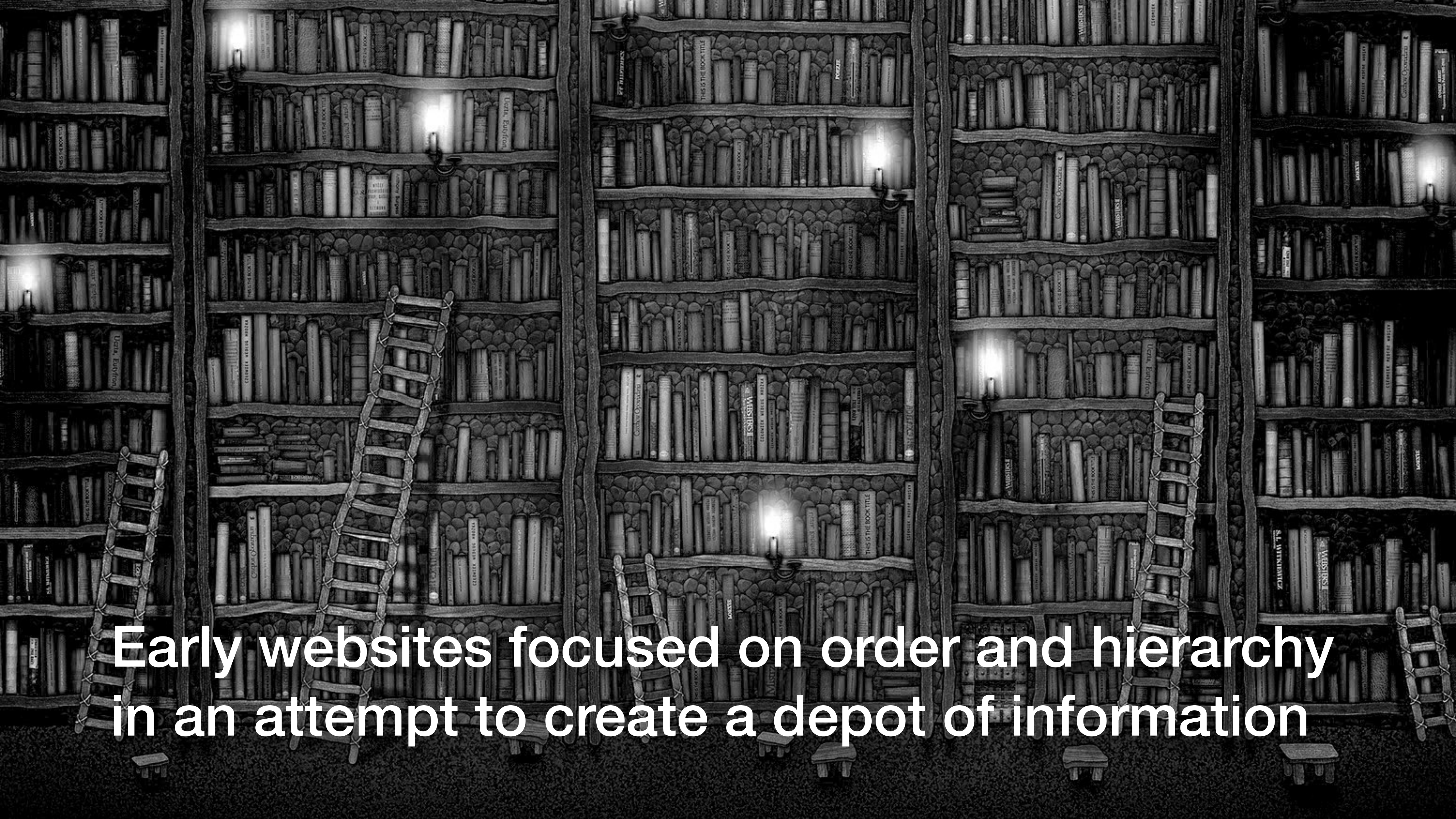
User content

Organization

Infinite variety

"Content is king"

–Bill Gates, 1996

Early websites focused on order and hierarchy in an attempt to create a depot of information

This lead to a backlash against the editorial control imposed by Yahoo-style cataloging
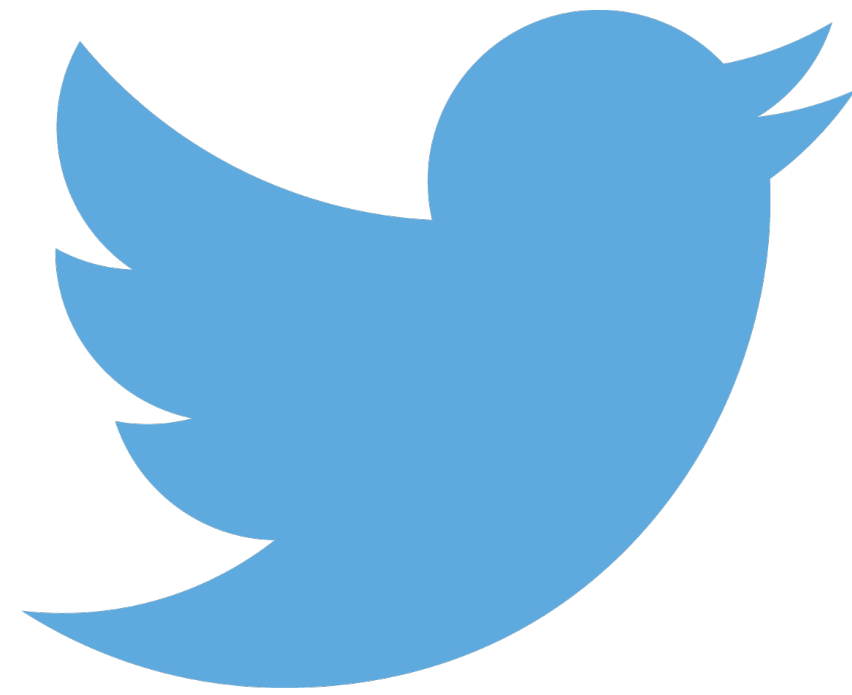
Therefore we got…

The Stream

The Stream's hierarchy and organization is based on…

nowness

This flow gives the internet a presence

There is no END to the flow of information

The horizon is constantly receding

Half life of a story is <12 hours & the average reader spends 2 minutes on it

This feels like a burden

Since we can't keep up the there has developed a "melancholy to the infinite scroll"

"Why can't the web be a news ticker and a museum?"

"Let the web be the web again, a network of many times, not just now"

Alexis Madrigal

Senior Tech Editor at *The Atlantic*

The Google effect

"A flattening of expertise"

Tara Brabazon, 2006

The internet is used as a personal memory bank for information (transactive memory)

People are more likely to remember *where* they found the information rather than the information itself

Many lack literacy skills and strategies to sort trash from relevant

Teaching requires expertise in not only content but context

The information age requires information *management*

Flow

The feed

Posts & tweets

Continual updates that remind people that you exist

Stock

Durable content

What people discover via search

Spreads slowly but surely, building fans over time

The trick is to create hugely compelling **stock** and use the **flow** to get the people there

What does this mean for medical education?

"You're able to reach across the world almost instantaneously. Information technology has really transformed how we learn and what we learn"

Michelle Lin

Emergency Medicine, University of California San Francisco

Editor-in-Chief, Academic Life in Emergency Medicine

#FOAMed

If you want to know how we practiced medicine 5 years ago, read a textbook.

If you want to know how we practiced medicine 2 years ago, read a journal.

If you want to know how we practice medicine now, go to a (good) conference.

If you want to know how we will practice medicine in the future, listen in the hallways and use FOAM.

Free Open Access Medical Education (**FOAM**) was conceived at the 2012 International Conference on Emergency Medicine

Mike Cadogan wanted to help used online technologies to help make education stick and spread

#FOAMed is the movement and conversation that supports the concept of **FOAM**

FOAMed is

Independent of a specific blog or media format

An interactive collaboration of like minded individuals free of geographical hinderances

FOAMed is not

Social media

A scientific publication

Free from peer review

A cult, a popularity contest, or a marketing exercise

Why bother with FOAM?

Cut down knowledge translation time

Healthcare professionals like it

Disruptive Innovation

Blogs

Websites where individuals or groups can rapidly post, compile and disseminate information

Concise, current, and referenced synopses of clinical and educational material that can be used for on-shift learning

Blogs feature the experiential commentary that textbooks and journal may lack

Podcasts

Digitally recorded material downloaded or streamed

Began in earnest in 2003-2004

Now >150,000 English language podcasts

Many in medicine - independent entities, associated with traditional journals and organizations

Videos

YouTube is king

Journal sites will produce and host their own video

Many residents look for a procedure video prior to performing one in the ED

And more

Wikis

Reddit

International Conferences (SMACC, DFTB)

Is any of this blog stuff actually being used in an **official** capacity?

In 2008 the ACGME's Review Committee for Emergency Medicine launched the **Individualized Interactive Instruction** (III) Initiative

Emergency Medicine programs can replace up to 20% of didactics with faculty-monitored asynchronous learning

ACGME III Criteria

1. The program director must monitor resident participation

2. There must be an evaluation component

3. There must be faculty oversight

4. The activity must be monitored for effectiveness

"Skepticism exists among educators and scholars, especially given that most online medical education resources lack the traditional peer-review process and that one might easily publish material online, using disruptive technologies such as blogs or podcasts."

Chan et. al

Annals of Emergency Medicine, 2016

Is any of this stuff any good?

The FOAM Social Media Index

Western Journal of Emergency Medicine, 2015

Systematic Review

JGME, 2015

Modified Delphi

Annals of Emergency Medicine, 2015

ALiEM Air

JGME, 2016 & Annals of Emergency Medicine, 2016

The FOAM Social Media Index

An effort to create a comparable parameter to Impact factor

Blogs that are high quality have scores that correlate with the temporal stability and long term impact of high impact journals

It includes an Alexa ranking, facebook likes and twitter followers

Systematic Review

Systematic review of 157 references from MEDLINE, Embase, Web of Science & ERIC following PRISMA and SRQR

Goal: "Identify quality indicators for secondary resources that are described in the literature, which might be applicable to blogs and podcasts."

Methods: Qualitative, thematic analysis using a constant comparative method to generate themes until saturation was reached

Themes and Subthemes of Quality Indicators That Reached Consensus

Theme 1: Credibility	Theme 2: Content	Theme 3: Design
Subtheme 1: Transparency	Subtheme 1: Professionalism	Subtheme 1: Aesthetics
Subtheme 2: Process	Subtheme 2: Engagement	Subtheme 2: Interaction
Subtheme 3: Use of other resources	Subtheme 3: Academic rigor	Subtheme 3: Functionality
Subtheme 4: Trustworthiness	Subtheme 4: Orientation	Subtheme 4: Ease of use
Subtheme 5: Bias	. . .	. . .

A total of 151 quality indicators emerged among the 3 themes: credibility (53 quality indicators), content (44 quality indicators), and design (54 quality indicators)

The interrater agreements were 91%, 90%, and 89% for the credibility, content, and design themes, respectively.

Modified Delphi

Built an expert consensus on quality in Emergency Medicine and Critical Care blogs and podcasts

Two iterative surveys with 22 bloggers and 24 podcasters and a 90% response rate

31 items selected from 151 possibilities

Themes: Credibility, content and design

Quality indicators endorsed by ≥90% of bloggers and podcasters

Is the resource credible?

Is the editorial process independent from sponsors, conflict of interest, and other sources of bias?

Does the resource cite its references?

Is the content of this educational resource of good quality?

Is the information presented in the resource accurate?

Is the content of the resource presented in a logical, clear and coherent way?

Is the resource transparent about who was involved in its creation?

Is the identity of the resource's author clear?

Are the authorities (eg, author, editor, publisher) who created the resource free of financial conflicts of interest?

ALiEM Air

In July 2014 Academic Life in Emergency Medicine launched their AiR series, which was eligible for asynchronous credit for EM programs

It is a collection of collated FOAM resources organized by theme with knowledge questions and resources to allow program director review

The authors published their methods in JGME in 2016

ALiEM Air

Each AiR module takes 63-81 hours to develop

Includes content from top Social Media Index sites from within the last 12 months

Resources with a score ≥30 on the following **Detailed Assessment Scale** are included

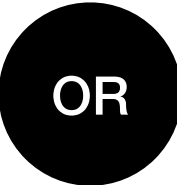| Tier 1 BEEM Rater Scale	Score	Tier 2 Content Accuracy	Score	Tier 3 Educational Utility	Score	Tier 4 EBM	Score	Tier 5 Referenced	Score
Assuming that the results of this article are valid, how much does this article impact on EM clinical practice?		Do you have any concerns about the accuracy of the data presented or conclusions of this article?		Are there useful educational pearls in this article for residents?		Does this article reflect evidence based medicine (EBM) and thus lack bias?		Are the authors and literature clearly cited?	
Useless information	1	Yes, many concerns from many inaccuracies	1	Low value: No valuable pearls	1	Not EBM based, only expert opinion (and thus more biased)	1	No	1
Not really interesting, not really new, changes nothing	2		2		2		2		2
Interesting and new, but doesn't change practice	3	Yes, a major concern about few inaccuracies	3	Yes, but there are only a few (1-2) valuable or multiple (>=3) less-valuable educational pearls	3	Minimally EBM based	3		3
Interesting and new, has the potential to change practice	4		4		4		4		4
New and important: this would probably change practice for some EPs	5	Minimal concerns over minor inaccuracies	5	Yes, there are several (>=3) valuable educational pearls, or a few (1-2) KEY educational pearls that every resident should know before graduating	5	Mostly EBM based	5		5
New and Important: this would change practice for most EPs	6		6		6		6		6
This is a "must know" for EPs	7	No concerns over inaccuracies	7	Yes, there are multiple key education pearls that residents should know before graduating	7	Yes exclusively EBM based (unbiased)	7	Yes	7

ALiEM Air

The authors also wanted to see if their **Detailed Assessment** correlated well with expert **Gestalt Ratings**

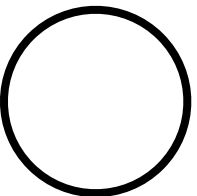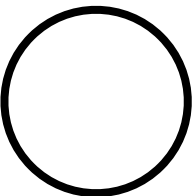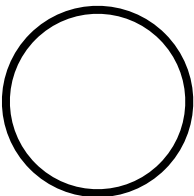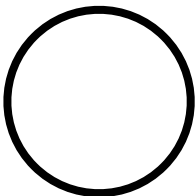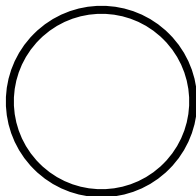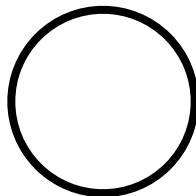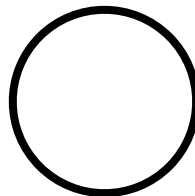This was their way of assessing validity and determining how many raters were needed for each module

Using the following novel Gestalt scale expert raters assessed 40 **ALiEM AiR** resources

Would you recommend this to a learner? OR **Would you recommend this to a colleague for their continuing medical education**

(1)   (2)   (3)   (4)   (5)   (6)   (7)

1   2   3   4   5   6   7

No, this is an inappropriate resource for this audience

This may be useful for this audience

Yes, this is a great resource for this audience

ALiEM Air

Interrater reliability was 0.81

A minimum of 9 raters is needed to achieve reliability for each module

The ALiEMU platform is currently used by 200 programs and >6,000 individual users

Video killed the procedure focused textbook chapter?

Videos

A **good** educational video…

1. Is from a reputable source

2. Explains one thing and does it well

3. Shows the steps in a "clutter free" manner

4. Is adequately referenced

How can you get started with FOAM?

First, you have to decide that you want to get started with FOAM

Use Twitter

Getting started with FOAM

The thread that ties FOAM together

Follow people who share good stuff

Use Twitter to keep up with blogs, podcasts and even the medical literature

Add **#FOAMed** to any tweets you make that share free open-access medical education resources or that have medical education value in their own right

Sub-speciality hashtags **#FOAMcc** for critical care, and **#FOAMped** for pediatrics (among many others)

Be "real" and identifiable, tweet at conferences, use a separate personal handle

See what's out there

Getting started with FOAM

Ask colleagues, residents and students what they are reading

Start with a few key resources and follow by Twitter, RSS or email

Search for online content at **GoogleFOAM.com**

Know that Emergency Medicine and Critical Care have laid some spectacular groundwork

Don't worry about information overload

Be professional & active

Getting started with FOAM

Always protect patients

Show yourself and your colleagues in the best possible light

The success of FOAM depends on the interaction of like-minded experts and enthusiasts

You can consume (flow) and create (stock)

Share
Getting started with FOAM

Give feedback on blogs/podcasts & suggest corrections

FOAM creators are doing it for the love of it - be generous in support and in what you share - even if it is "just" a PubMed link

FOAM creators must acknowledge original sources including other FOAM resources and use a "Creative Commons" license

Remember, many health care professionals like online learning! Be ready and willing to embrace it.

contact me

Educator Portfolio @ BradSobolewski.com

Brad.Sobolewski@cchmc.org

PEMBlog.com

@PEMTweets

facebook.com/PEMTweets

vimeo.com/PEMCincinnati

PEMBlog on YouTube