TECH1002-18 Social Media Innovation

Lecture Twenty-One – Academic Evidence

It's Completely Changed by Wolfgang Tillmans
Filmed and directed by Wolfgang Tillmans, Edited by Michael Amstad
https://youtu.be/1KuVMN4CeXw

1   Academic Evidence and Collective Knowledge
"We need an exercise to free up our imagination of the future in which our present prejudices will become obvious for what they are" (Feenberg, 2016, p. 277).

1.1   Wolfgang Tillmans: my two-year quest to explain the post-truth era
"When I was invited to guest edit and design the 64th edition of the Jahresring, an annual German collection of essays on a theme from art history or philosophy, I immediately knew I wanted to focus on "the backfire effect" – a phenomenon first described and analysed in 2006 by the American political scientists Brendan Nyhan and Jason Reifler. Essentially, people who are entirely convinced by a statement, regardless of how incorrect it might be, cannot be persuaded to change their minds by facts to the contrary. Such evidence only reinforces their belief in the fallacy. We have known for some time that there are people who feel drawn to esoteric conspiracy theories. What is new, however, is that hard facts are no longer believed by wide segments of the population. During the past two years, I have come to realise that if 30% of the electorate are resistant to rational argument, we are on a slippery slope. In light of all this, I wanted to investigate why the backfire effect is having more impact today than it did 10, 20 or 40 years ago. What has changed? What is different? This latter phrase became the title of the book."
https://www.theguardian.com/artanddesign/2018/feb/28/wolfgang-tillmans-what-is-different-backfire-effect

"By communities of memory I mean current ideas of community that derive from long-established belief systems that link the present and the past, communities fashioned, above all, from tradition and religion. Advocates of communities of memory often see their ideal as something once embodied in history. To them, communities of memory are far more than the apple of intellectuals eyes or the jerry-built conceptions of crisis-obsessed policy makers" (Etzioni, 1995, p. 91).

"But if memory is controlled or manufactured and updated every day, history degenerates into a justificatory and legitimising design of power and control. Logically enough, this leads the Inner Party to assert that who controls the past controls the future and who controls the present controls the past" (Bauman & Donskis, 2013, p. 30).

2   Fake News
"Fake or misleading news spreads like wildfire on Facebook because of confirmation bias, a quirk in human psychology that makes us more likely to accept information that conforms to our existing world views. The conspiracy theories are also amplified by a network of highly partisan media outlets with questionable editorial policies, including a website called the Denver Guardian peddling stories about Clinton murdering people and a cluster of pro-Trump sites founded by teenagers in Veles, Macedonia, motivated only by the advertising dollars they can accrue if enough people click on their links."
https://www.theguardian.com/technology/2016/nov/14/facebook-fake-news-us-election-news-feed-algorithm?CMP=Share_iOSApp_Other

"The reports, part of the Oxford Internet Institute's Computational Propaganda Research Project, cover nine nations also including Brazil, Canada, China, Germany, Poland, Ukraine, and the United States. They found "the lies, the junk, the misinformation" of traditional propaganda is widespread online and "supported by Facebook or Twitter's algorithms" according to Philip Howard, Professor of Internet Studies at Oxford."
https://amp.theguardian.com/technology/2017/jun/19/social-media-proganda-manipulating-public-opinion-bots-accounts-facebook-twitter

2.1   Fake-Book
"If I were to run, I'd run as a Republican. They are the dumbest group of voters in the country. They believe

anything on Fox News. I could lie, and they'd still eat it up. I bet my numbers would be terrific." Many Guardian readers will have seen this quote, attributed to a 1998 interview with Donald Trump in People magazine, in their Facebook news feed. It's a great quote, but he never said it. It typifies the kind of fake news and misinformation that has plagued the 2016 election on an unprecedented scale. In the wake of the surprise election of Donald Trump as president of the United States, pressure is growing on Facebook to not only tackle the problem but also to find ways to encourage healthier discourse between people with different political views. Rather than connecting people – as Facebook's euphoric mission statement claims – the bitter polarization of the social network over the last eighteen months suggests Facebook is actually doing more to divide the world. https://www.theguardian.com/technology/2016/nov/10/facebook-fake-news-election-conspiracy-theories

3   It's All About Algorithms

3.1   'Fiction is outperforming reality': how YouTube's algorithm distorts truth

There are 1.5 billion YouTube users in the world, which is more than the number of households that own televisions. What they watch is shaped by this algorithm, which skims and ranks billions of videos to identify 20 "up next" clips that are both relevant to a previous video and most likely, statistically speaking, to keep a person hooked on their screen. Company insiders tell me the algorithm is the single most important engine of YouTube's growth. In one of the few public explanations of how the formula works – an academic paper that sketches the algorithm's deep neural networks, crunching a vast pool of data about videos and the people who watch them – YouTube engineers describe it as one of the "largest scale and most sophisticated industrial recommendation systems in existence". https://www.theguardian.com/technology/2018/feb/02/how-youtubes-algorithm-distorts-truth

3.2   How YouTube's algorithm distorts reality

The 2016 presidential race was fought online in a swamp of disinformation, conspiracy theories and fake news. Now a Guardian investigation has uncovered evidence suggesting YouTube's recommendation algorithm was disproportionately prompting users to watch pro-Trump and anti-Clinton videos [3.3mins] https://youtu.be/aTxUetlqWmU

4   Experts on the Take

4.1   Pharmaceutical Collusion?

"A front page investigative report by Kevin Hellker of The Wall Street Journal documents collusion between pharmaceutical companies that produce smoking cessation paraphernalia, and paid academics whose position on government health policy advisory committees ensures that government policies support industry's business aspirations–regardless of the scientific evidence." http://ahrp.org/nicotine-fix-evidence-of-collusion-pharma-govt-smoking-guidelines/

4.2   Cancer Society and Big Tobacco colluding?

"It is incomprehensible to me that you still can buy tobacco in these United States of America. In 1964, the U.S. Surgeon General linked cigarette smoking to lung cancer, coronary artery disease and a host of other ailments. Over that 50 years, the federal government displayed warnings on the cigarette pack. Yet, cigarettes are still for sale. The FCC banned cigarette advertising on TV and media. Yet, cigarettes are still for sale. The federal government increased the warning on the dangers of cigarette smoking, in graphic and upsetting commercials showing blackened lungs, amputations and other grizzly results from cigarette smoking. Yet, cigarettes are still for sale. Why is this so, why does our government stand by and let genocide of Americans via the tobacco leaf? Can you handle the truth? Here is the truth. Millions of Americans have died from lung cancer and other cancers as a direct or indirect use of tobacco products. Tens of millions of Americans suffer from lung diseases such as emphysema, COPD, heart disease and a score of other ailments too numerous to mention." https://www.dailyrecord.com/story/opinion/letters/2017/05/15/tobacco-cancer-collusion-smoking/101649008/

4.3   Big Tobacco Gave Researchers $370 Million to Cover up Cancer Link

With a rise in lung cancer happening, the tobacco industry figured that they had better think of something to save their profits fast. They needed to shift blame for cancer from their cigarettes to the consumer. From 1960 to 1988 the tobacco industry provided 1,000 American and British genetic researchers with over 370 billion

dollars to conduct research. The aim of the industry was to create science that would show lung cancer as having its roots in a genetic weakness not in cigarettes. Although no predisposing genes were found, the search to connect genes and lung cancer confounded understanding of the negative health effects of cigarettes and transformed the industry's efforts to escape liability regulation.
https://www.thealternativedaily.com/big-tobacco-gave-researchers-370-million-cover-cancer-link/

4.4   University Research Objectivity

"Academic institutions must adhere to certain core principles. Among the highest is a commitment to open scientific enquiry. The tobacco industry is institutionally allergic to this central tenet, preferring to bury incriminating data and to obfuscate emerging truths about the toxicity of its products. The story of how Philip Morris treated the work of its own scientists, particularly Victor DeNoble and Paul C Mele,15 is staggering proof of the industry's incompatibility for partnership with universities. For decades, the tobacco industry's seductive international programme of research benefaction masqueraded behind the legitimising language of independence, dispassionate enquiry, and respect for scholarship. But, as revealed in the avalanche of internal industry documents now available on the world wide web, the industry was peerless in its proclivity for cultivating venal or naive scientists into a massively funded public relations campaign. The sole purpose of the exercise was to sow doubt among the public." http://tobaccocontrol.bmj.com/content/10/1/1

5   Conspiracy Theories

5.1   VAPOR TRAIL CONSPIRACY!!! Are they out to get us?

https://youtu.be/7_2Nr8RoA6s

- **Andy's Journeys - 11 months ago**
- it is a combination of pollution from the jet engines burning fuel and the moisture it happens from the combustion process. technically what you're seeing is microscopic ice crystals with pollution attached. once things stabilize they evaporate and go

- **Agrimony's Crafts - 11 months ago**
- Hi John! I have followed these chemtrails for years and every time those trails go over more and more people get sick with another disease pops up that usually has no name or the doctors can not figure out what it is. Yes it is population control. I know a lot more about them but space does not permit all I know to tell about it. Yes it is from the government and yes it is a population control. Also all that people have found out about these trails have been forced by the government to remove any truth about them because the government do not want people to know what they are doing. Also if you will notice there is no markings on these planes and they are always white.

- **Buzzing Bark - 11 months ago**
- Hey Do you want me to try to design the Unknown Merica T-Shirts. Great Video it is weird but almost every conspiracy theory is.

- **Varnliche - 11 months ago**
- a few years ago i was fishing on the gulf of mexico and i was looking at the jet contrails with sunglasses on. I could see fallout arcing down from them with the sunglasses but not with the naked eye. don't know what it is but thats a little true story for you folks

- **Carol M - 11 months ago (edited)**
- Hahahahaaaa you crack me up !! I was just saying the same thing today as it was a clear shy and all you could see was chem trails in Mid TNETA: nice foil hat 😵 😵

- **annette duffy - 11 months ago**
- If it's population control, then they've failed miserably.

- **Shel - 11 months ago**
- at least your sky has blue in it ..here its always chemed

6   Ideological Antagonism

Progressive   Libertarian

Statist   Conservative
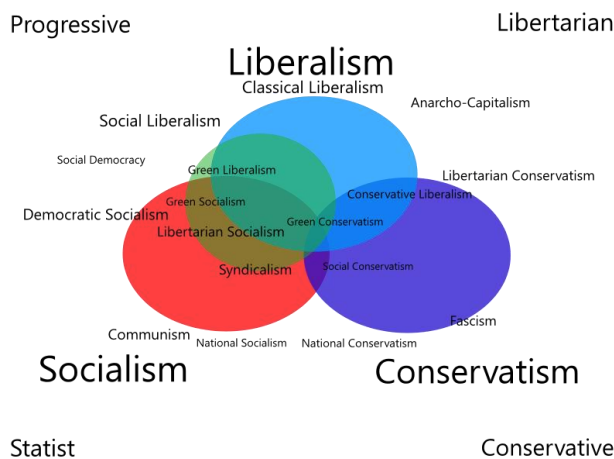
6.1   Bernie Sanders Vs Hillary Clinton: Comparing Neoliberalism To Democratic Socialism On Issues

"Bernie Sanders and Hillary Clinton are on the opposite ends of the liberal spectrum. Though Mrs. Clinton is socially a liberal, supporting gay marriage, abortion, and equal rights, these issues have very little to do with money. Economically at least, Mrs. Clinton seems to be far more conservative, which literally means less generous, and there is a reason for that. Mrs. Clinton is a neoliberal and not only that, she was raised as a Republican and campaigned for Barry Goldwater, as described in the Wall Street Shill. Bernie Sanders and Hillary Clinton both urge the American people to shake off their preconceived ideas and prejudices about other human beings. They want everyone treated equally and with respect, regardless of race, religion, nationality, or gender. Sanders would also like for the American people to broaden their political horizons past cold war propaganda and embrace the truth about European democratic socialism, just a little of which he believes could provide a better life for all Americans. Remember, last time the U.S. economy was really bad, that is what FDR did — and it worked" https://www.inquisitr.com/3174833/bernie-sanders-vs-hillary-clinton-comparing-neoliberalism-to-democratic-socialism-on-issues/

6.2   Liberalism versus Socialism

"Philosophers of liberalism and socialism actually have very different visions for the world. They don't disagree at all on the idea that spreading the wealth around is good for everybody. In fact, this idea finds one of its greatest expressions in the work of the philosopher of welfare liberalism, John Rawls. He proposed two principles of justice, one of which—the "Difference Principle"—claims that inequalities are permissible if and only if they benefit the worst-off person. Since many inequalities arising from the free market violate this principle, some wealth must be redistributed." http://harvardpolitics.com/united-states/liberalism-versus-socialism/

7   Critical Thinking

"For Foucault, knowledge, the particular common-sense view of the world prevailing in a culture at any one time, is intimately bound up with power. Any version of an event brings with it the potential for social practices, for acting in one way rather than another, and for marginalizing alternative ways of acting" (Burr, 1995, p. 64).

"For Foucault, power and resistance are two sides of the same coin. The power implicit in one discourse is only apparent from the resistance implicit in another" (Burr, 1995, p. 64).

"A very widespread understanding is the classic Marxist view. This is the view of ideology as 'false-consciousness'. The basic assumption underlying this view that there is a real, material state of affairs" (Burr, 1995, p. 79).

8   Verification or Refutation

"Individuals within a community relate to these common objects and use them as vehicles for expanding the collective knowledge of the group" (Lesser, Fontaine, & Slusher, 2000, p. ix).

"Through the interaction of people, places, and things, communities help individuals develop a sense of identity within their organization" (Lesser et al., 2000, p. ix).

"But what about the ownership of knowledge? Where should it be located? What was going to be the new structure to take on this responsibility" (Etienne Wenger in Lesser et al., 2000, p. 4).

"Such communities do not take knowledge in their speciality to be an object; it is living part of their practice even when they document it. Knowing is an act of participation" (Etienne Wenger in Lesser et al., 2000, p. 4).

9   Experimentation
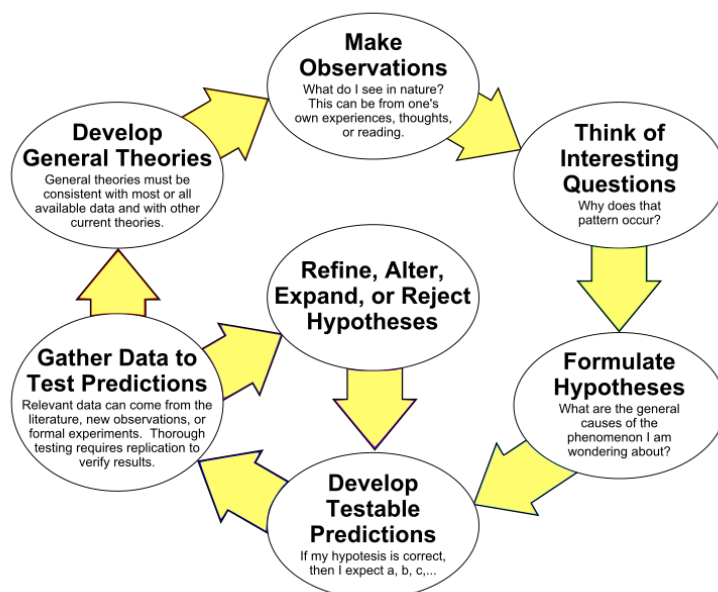
"The scientific method is a body of techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. To be termed scientific, a method of inquiry is commonly

based on empirical or measurable evidence subject to specific principles of reasoning. The Oxford Dictionaries Online defines the scientific method as "a method or procedure that has characterized natural science since the 17th century, consisting in systematic observation, measurement, and experiment, and the formulation, testing, and modification of hypotheses". Experiments are a procedure designed to test hypotheses. Experiments are an important tool of the scientific method." https://en.wikipedia.org/wiki/Scientific_method

9.1   The Big Bang Theory Scientific Method Clip Season 6 Episode 5
https://www.youtube.com/watch?v=_7sSuhQ1_24

9.2   What is the ``scientific method''?
"The scientific method is the best way yet discovered for winnowing the truth from lies and delusion. The simple version looks something like this:
- *1.* Observe some aspect of the universe.
- *2.* Invent a tentative description, called a *hypothesis*, that is consistent with what you have observed.
- *3.* Use the hypothesis to make predictions.
- *4.* Test those predictions by experiments or further observations and modify the hypothesis in the light of your results.
- *5.* Repeat steps 3 and 4 until there are no discrepancies between theory and experiment and/or observation.

When consistency is obtained the hypothesis becomes a *theory* and provides a coherent set of propositions which explain a class of phenomena. A theory is then a framework within which observations are explained and predictions are made." http://physics.ucr.edu/~wudka/Physics7/Notes_www/node6.html

10   Truth or Plausibility?
"Knowing is a human act, whereas information is an object that can be filed, stored, and moved around. Knowledge is a product of thinking, created in the present moment, whereas information is fully made and can sit in storage. To share knowledge, we need to think about the current situation, whereas we can simply mover information from one mailbox to another. However, knowledge is more than you think. Knowledge settles into our body" (Richard McDermott in Lesser et al., 2000, p. 27).

"It is most common to say that science is done by collecting observations and grinding out theories from them. Charles Darwin once said, after working long and hard on the problem of the Origin of Species, "My mind seems to have become a kind of machine for grinding general laws out of large collections of facts." This is a popularly accepted notion. We observe, observe, and observe, and we look for theories to best explain the mass of facts. (Although even this is not really true: Popper points out that we must start with some a priori knowledge to be able to generate new knowledge. Observation is always done with some hypotheses in mind– we can't understand the world from a totally blank slate…)

The problem, as Popper saw it, is that some bodies of knowledge more properly named pseudosciences would be considered scientific if the "Observe & Deduce" operating definition were left alone. For example, a believing astrologist can ably provide you with "evidence" that their theories are sound. The biographical information of a great many people can be explained this way, they'd say…
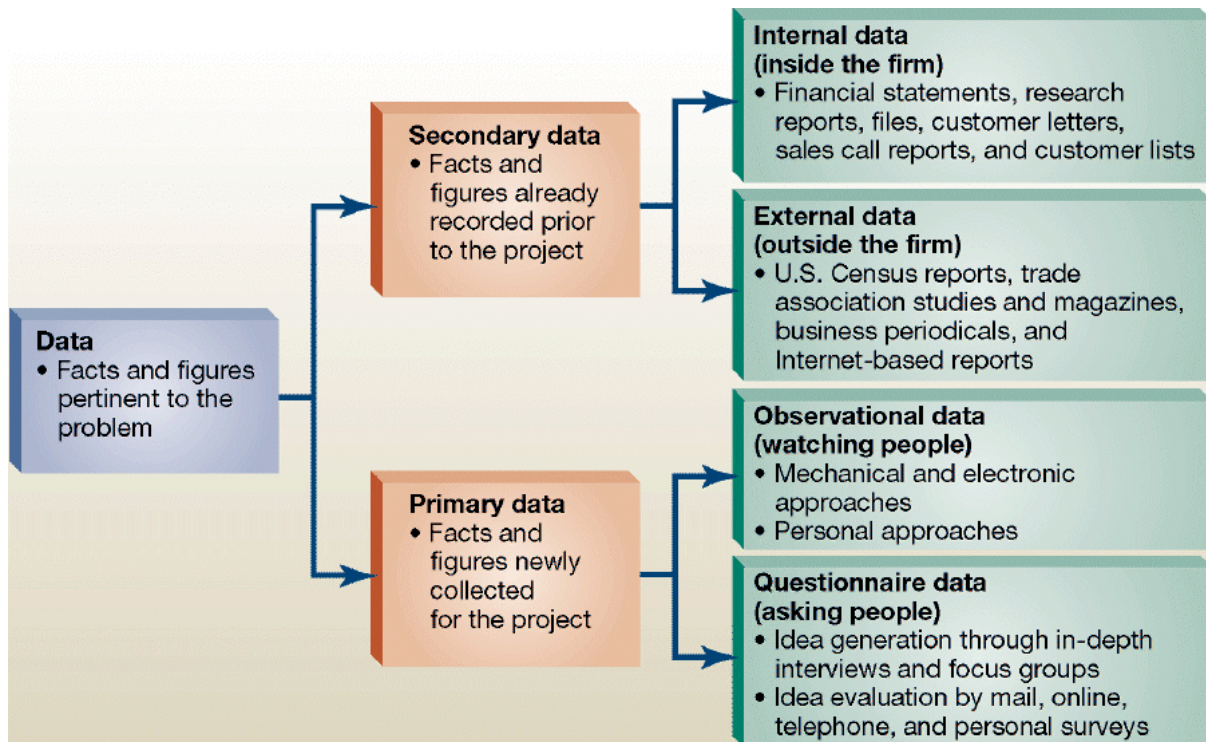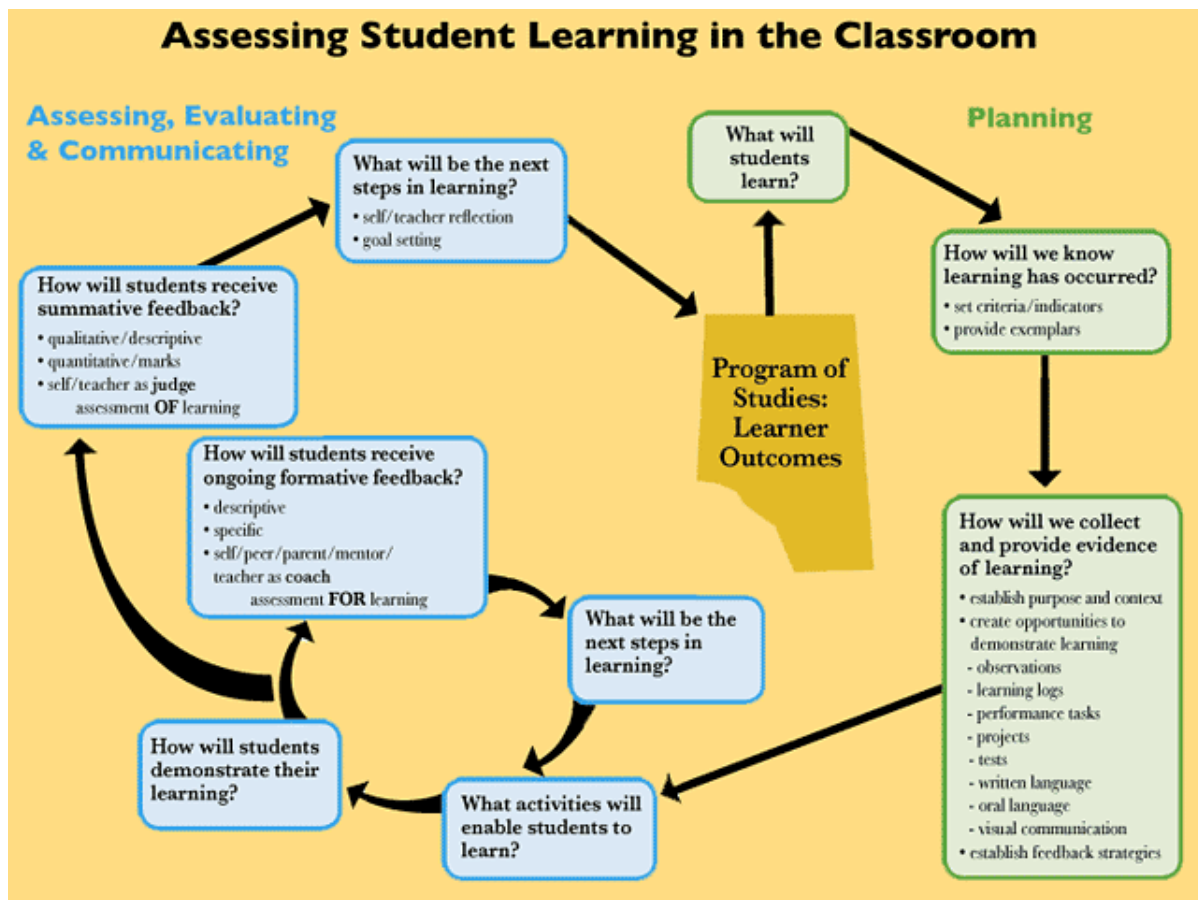
In a true science, the following statement can be easily made: "If *x* happens, it would show demonstrably that theory *y* is not true." We can then design an experiment, a physical one or sometimes a simple thought experiment, to figure out if *x* actually does happen. It's the opposite of looking for verification; you must try to show the theory is *incorrect*, and if you fail to do so, thereby *strengthen* it. Pseudosciences cannot and do not do this–they are not strong enough to hold up.

Popper contrasted these theories against Relativity, which made specific, verifiable predictions, giving the conditions under which the predictions *could be shown false*. It turned out that Einstein's predictions came to be **true** when tested, thus verifying the theory through attempts to falsify it. But the essential nature of the theory gave grounds under which it could have been wrong. To this day, physicists seek to figure out where Relativity *breaks down* in order to come to a more fundamental understanding of physical reality. And while

the theory may eventually be proven incomplete or a special case of a more general phenomenon, it has still made accurate, testable predictions that have led to practical breakthroughs.

Thus, in Popper's words, science requires testability: *"If observation shows that the predicted effect is definitely absent, then the theory is simply refuted."* This means a good theory must have an element of **risk** to it. It must be able to be proven wrong under stated conditions." https://www.fs.blog/2016/01/karl-popper-on-science-pseudoscience/

Assessing Student Learning in the Classroom

Assessing, Evaluating & Communicating

Planning

What will students learn?

What will be the next steps in learning?
- self/teacher reflection
- goal setting

How will we know learning has occurred?
- set criteria/indicators
- provide exemplars

How will students receive summative feedback?
- qualitative/descriptive
- quantitative/marks
- self/teacher as judge
  assessment **OF** learning

Program of Studies: Learner Outcomes

How will students receive ongoing formative feedback?
- descriptive
- specific
- self/peer/parent/mentor/
  teacher as coach
      assessment **FOR** learning

What will be the next steps in learning?

How will we collect and provide evidence of learning?
- establish purpose and context
- create opportunities to demonstrate learning
  - observations
  - learning logs
  - performance tasks
  - projects
  - tests
  - written language
  - oral language
  - visual communication
- establish feedback strategies

How will students demonstrate their learning?

What activities will enable students to learn?

Data
- Facts and figures pertinent to the problem

Secondary data
- Facts and figures already recorded prior to the project

Internal data (inside the firm)
- Financial statements, research reports, files, customer letters, sales call reports, and customer lists

External data (outside the firm)
- U.S. Census reports, trade association studies and magazines, business periodicals, and Internet-based reports

Primary data
- Facts and figures newly collected for the project

Observational data (watching people)
- Mechanical and electronic approaches
- Personal approaches

Questionnaire data (asking people)
- Idea generation through in-depth interviews and focus groups
- Idea evaluation by mail, online, telephone, and personal surveys

https://sites.google.com/site/geographyfais/fieldwork/data-collection/types-of-data

12 Primary Data

"Qualitative research is concerned with understanding and interpreting another person's social world through accessing their lived experiences. Three types of qualitative field research methods are described here that focus on capturing lived experiences: direct observation; participant observation; and qualitative interviews."
https://www.researchconnections.org/childcare/datamethods/fieldresearch.jsp

13 Secondary Data

"Secondary data refers to data that was collected by someone other than the user. Common sources of secondary data for social science include censuses, information collected by government departments, organisational records and data that was originally collected for other research purposes. Primary data, by contrast, are collected by the investigator conducting the research. Secondary data analysis can save time that would otherwise be spent collecting data and, particularly in the case of quantitative data, can provide larger and higher-quality databases that would be unfeasible for any individual researcher to collect on their own. In addition, analysts of social and economic change consider secondary data essential, since it is impossible to conduct a new survey that can adequately capture past change and/or developments. However, secondary data analysis can be less useful in marketing research, as data may be outdated or inaccurate."
https://en.wikipedia.org/wiki/Secondary_data

14 Quantitative Data

"Social media metrics are data and statistics that give you insights into your social media marketing performance. While some social media marketing metrics are universal, there are also platform specific metrics you need to learn. Plus, some data is calculated differently depending on the platform and social media metrics tools you're using." https://sproutsocial.com/insights/social-media-metrics-that-matter/

15 Qualitative Data

"Rather, qualitative research's central criteria depend on whether findings are grounded in empirical material or whether the methods are appropriately selected and applied, as well as the relevance of findings and the reflexivity of proceedings" (Flick, 2009 p.15).

"Qualitative inquiry represents a legitimate mode of social and human science exploration without apology or comparisons to quantitative research. Good models of qualitative inquiry demonstrate the rigor, difficulty, and time-consuming nature of this approach" (Creswell, 1998 p.9).

"There are different types of research questions…:
- What type is it?
- What is its structure?
- How frequent is it?
- What are the causes?
- What are the processes?
- What are its consequences?
- What are people's strategies?" (Flick, 2009 p.101).

- "Meanings
- Practices
- Episodes
- Encounters
- Roles
- Relationships
- Groups
- Organisations
- Lifestyles" (Flick, 2009 p.102).

"Generally speaking, we can differentiate between research questions oriented towards describing states and

those describing processes. In the first case you should describe how a certain state (which type, how often) has come about (causes, strategies) and how this state is maintained (structure). In the second case, the aim is to describe how something develops or changes (causes, processes, consequences, strategies)" (Flick, 2009 p.102).

16   Literature Reviews

Reason for Reviewing the Literature:
- Informing yourself of what is happening in the field.
- Gaining a level of topical and methodological knowledge and expertise.
- Finding potential gaps in the literature that may point to potential research questions.

Purpose of the Literature Review:
- Informing your audience of what is happening in the field.
- Establishing your credibility as a knowledgeable and capable researcher.
- Arguing the relevance of your research questions.

17   Discussion Summaries

"Although you clearly need to write in an academic style, it can be helpful to imagine that you are telling a story. The thread running through the story is the explanation of why you decided to do the study that you are doing. The story needs to be logical, informative, persuasive, comprehensive and, ideally, interesting. It needs to reach the logical conclusion that your research is a good idea. If there is a key article or book that is of major importance to the development of your own research ideas, it is important to give extra space to describing and critiquing that piece of literature in more depth. Similarly, if there are some studies that you will be referring to more than to others, it would be useful to give them a full report and critique at this stage."
https://www2.le.ac.uk/offices/ld/resources/writing/writing-resources/literature-review

18   Media Evidence
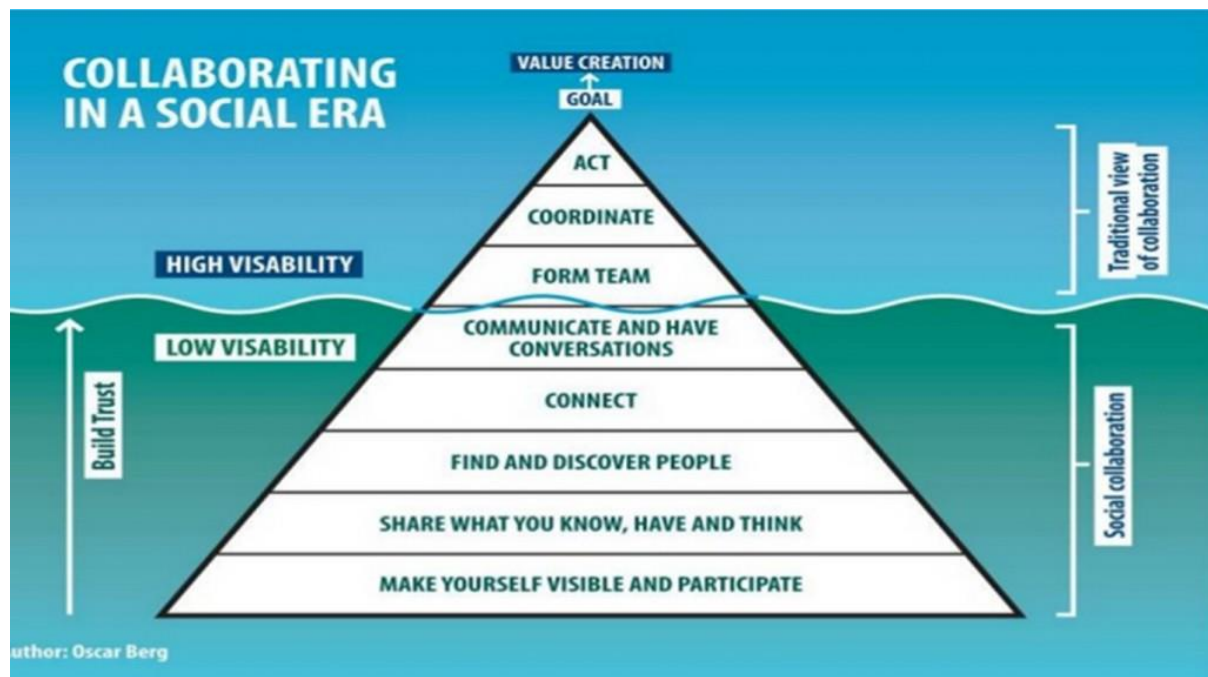
"Learning, which has always existed as a social process, is enhanced by the new social connectivity that cuts across barriers of time and space. New horizons are opening up through social media for the mutual sharing of knowledge and the identification of knowledge gaps." http://www.evidentlycochrane.net/the-unknown-unknowns-crowdsourcing-research-through-social-media/

19   Experiential or Personal Evidence

"Reflection involves not simply a sequence of ideas, but a consequence – a consecutive ordering in such a way that each determines the next as its proper outcome, while each in turn leans back on its predecessors" (Dewey, 1910 p.2).

20   Referencing & Citations

20.1   Harvard Referencing Tutorial

Learn how to use Harvard Referencing in your assignments, dissertations and reports from this comprehensive tutorial from the Library and Learning Resources Department at London South Bank University.
https://youtu.be/prETpsgBU4w

20.2   Citation Management

"RefWorks is software designed to allow you to input, organise, manage, retrieve and format lists of references (bibliographies). RefWorks also works with Microsoft Word via a Mac or PC to insert references and create a bibliography (Write-N-Cite)."
http://www.library.dmu.ac.uk/Resources/Databases/index.php?page=164&id=3613

20.3   Workshop Eight - Information Management

- The workshop session this week is delivered with colleagues from the DMU Library, who are sharing the experience and expertise in managing information as part of the learning and study process.
- In addition, this worksheet identifies several additional social media platforms and applications that can be used to share and exchange material that can be found online or in other places.
- In addition to the library session, you are advised to investigate and look at these recommended information sharing and management resources, as you might find them useful in different aspects of your studies. http://robwatsonmedia.net/wp-content/uploads/2014/09/TECH1002-18-Workshop-008-Information-Managment-001-2017-11-07.pdf

21   Information Sources

Example: Your friend runs out of the basement yelling "it's flooding!" and is an authoritative source on if the basement is flooding. However, your friend has never read Jane Eyre and gives you his opinion about the book, is not an authoritative source on Jane Eyre.

21.1   WHO: Author

- **Explanation:** Authority exists in many forms such as subject expertise (a professor), societal position (a member of Congress), or special experience (a participant at an event). What are the author's qualifications? What credentials contribute to the author's authority? Many disciplines have acknowledged authorities (e.g., well-known scholars) that are considered "standard" in the field. But even these "standards" can be and have been challenged.

- **Example:** A blog posting by an eye-witness to a riot would be an authoritative primary source on the subject. That same blog posting would not be an authoritative secondary source.

21.2   WHAT: Type of Document & Overall Tone

- **Explanation:** Authoritative content may be any type of media (books, articles, videos, social media, etc.) and come in many different tones (conversational, academic, technical). Authoritative sources are appropriate to the research being done.

- **Example:** Research on Malcolm X would be enhanced by an informal conversation with one of his friends, not by the study of technical reports. Research on structural engineering, however, would be enhanced by the study of technical reports.

21.3   WHERE: Source of Information (Where it Appears)

- **Explanation:** Authoritative content may be in formal (such as a scholarly article) or informal (a blog posting) sources. Many disciplines have acknowledged authorities (publications like scholarly journals or

books) that are considered "standard" in the field. Similarly, there are publishing houses, academic presses, or even certain restricted website domains (e.g., .gov or .edu) that have reputations for providing high-quality information. But even these "standards" can be and have been challenged. It is important to evaluate not only the work but also where you found it.

- **Example:** Authoritative research on fracking produced by the federal government but then re-purposed by a fracking company website, may be authoritative, but should be carefully analyzed in the context of the site on which it was found.

21.4   WHEN: Publication Date & Occurrence that Precipitated Publication
- **Explanation:** Authoritative information may be recently published or very old. Subject and context are all important when asking "when."

- **Example:** Referring to a book published in 1900 for research on the U.S. Civil War (1861-1865) could be very authoritative. Researching stem cell transplantation using a journal article published in 2010 could be out-of-date.

21.5   WHY: Author's Purpose for Writing the Document
- **Explanation:** Bias can exist in any source (newspapers, scholarly articles, blog posts, etc.). When evaluating a source, asking why they wrote the document (and if the work was funded or sponsored, by whom) can help you decide if it is authoritative. Having a bias doesn't mean a source shouldn't be used, rather any information should be examined critically and verified with another source.

- **Example:** Research explaining the benefits of smoking funded by a tobacco company very likely has a bias but could still contain authoritative information if verified by other sources.

21.6   HOW: Author's Method of Gathering & Analyzing Data
- **Explanation:** There are many different ways to gather & analyze information. When gathering data an author may have done their own original study, compiled various outside sources, interviewed people, or be writing from personal experience. Any method can be authoritative, depending on the information need. When analyzing data, the author's use of proprietary, inter-operable (the extent to which systems can exchange, interpret, and share data), or open data formats signals how and if an author intends the data to be used and shared.

- **Example:** Using interviews to support the effectiveness of a new drug is not a sound methodology; however, using interviews to give context to a riot is.

Method adapted from Rachel Radom and Rachel W. Gammons, "Teaching Information Evaluation with the Five Ws: An Elementary Method, an Instructional Scaffold, and the Effect on Student Recall and Application," Reference & User Services Quarterly 53, 4 (2014): 334-47. https://www.ulib.iupui.edu/guides/introduction-library-research-overview-research-process
http://iupui.campusguides.com/c.php?g=463889&p=3171106#s-lg-box-wrapper-11533769

22   Managing Sources
22.1   Which Source Do I Use?
- I need....Scholarly Sources. Then Use....Political Science & Legal Databases, Interdisciplinary Databases, and Books (IUCAT).
- I need....Very Current Information. Then Use...Newspapers, Think Tanks, IGOs & NGOS.
- I need....Data or Statistics. Then Use....Think Tanks, Statistics Databases, Opinion & Poll Databases, IGOs & NGOs.
- I need....Primary Sources. Then Use....Newspapers, Government Sources.

22.2   Types of Sources
- Books = In-depth, detailed coverage of a topic and background information.
- Articles = In-depth, detailed coverage of a topic and background information.

- Scholarly Journals = Up-to-date and highly specific for scholars and researchers.
- Trade Publications = Targeted towards professionals in a discipline or industry.
- Magazines = Broad summaries of issues for a general audience.
- Newspapers = Up-to-date, national and regional information for a general audience.
- Internet = Wide variety of information. Evaluate websites carefully.

http://iupui.campusguides.com/c.php?g=463889&p=3171106#s-lg-box-wrapper-11533769

23   Making Statements

Truth, as any dictionary will tell you, is a property of certain of our ideas. It means their 'agreement,' as falsity means their disagreement, with 'reality.' Pragmatists and intellectualists both accept this definition as a matter of course. They begin to quarrel only after the question is raised as to what may precisely be meant by the term 'agreement,' and what by the term 'reality,' when reality is taken as something for our ideas to agree with.

Pragmatism, on the other hand, asks its usual question. "Grant an idea or belief to be true," it says, "what concrete difference will its being true make in anyone's actual life? How will the truth be realized? What experiences will be different from those which would obtain if the belief were false? What, in short, is the truth's cash-value in experiential terms?" (William James p96).

https://brocku.ca/MeadProject/James/James_1907/James_1907_06.html

24   Drawing Inferences and Challenging Received Views
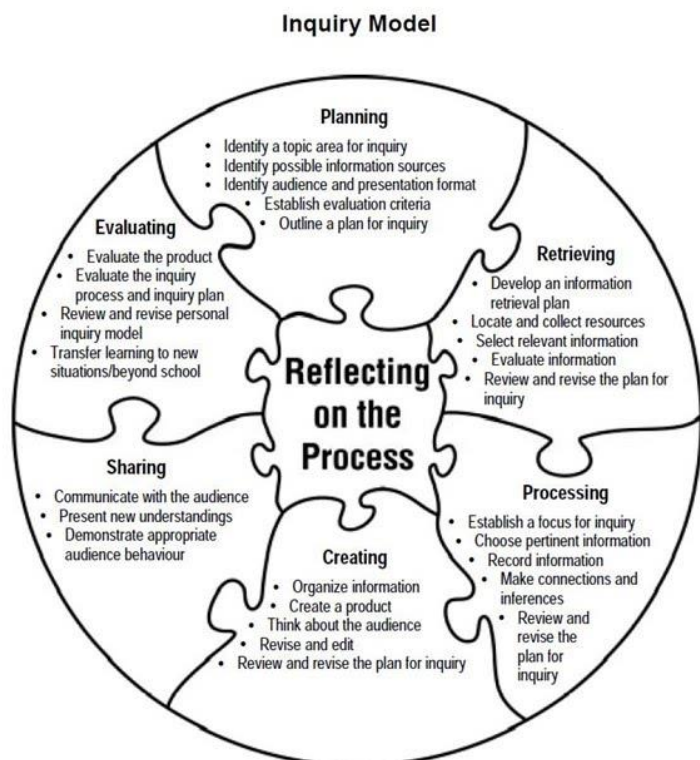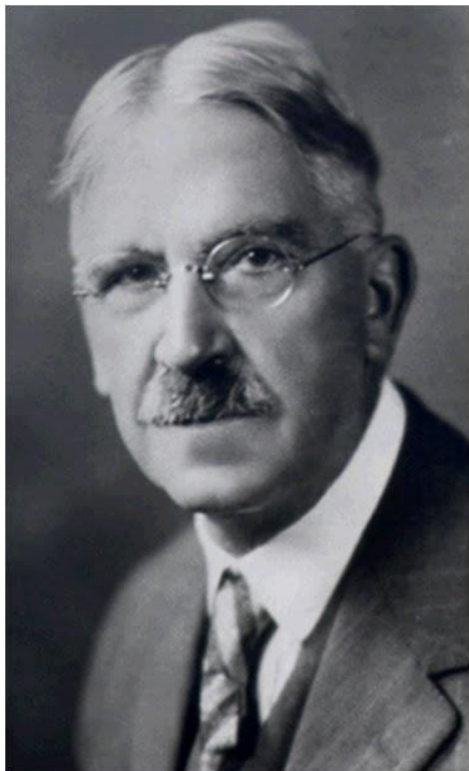
John Dewey, Inquiry-Based Learning, and Democratic Education

"Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends, constitutes reflective thought" (Dewey, 1910 p.6).

"The earlier thought was a belief had because men had not the energy or the courage to question what those about them accepted and taught, especially as it was suggested and seemingly confirmed by obvious sensible facts" (Dewey, 1910 p.5).

25   Drawing Conclusions
"To be a good judge is to have a sense of the relative indicative or signifying values of the various features of the perplexing situation; to know what to let go as of no account; what to eliminate as irrelevant; what to retain as conductive to outcome; what to emphasise as a clue to the difficulty" (Dewey, 1910 p.104).

26   Practical Summary
"Thinking is an ordering of subject-matter with reference to discovering what it signifies or indicates. Thinking no more exists apart from this arranging of subject matter than digestion occurs apart from the assimilating of food" (Dewey, 1910 p.188).

27   Using the Report
"Knowledge belongs to communities. The idea that knowledge is the stuff 'between the ears of the individual' is a myth. We don't learn on our own. We are born into a world already full of knowledge, a world that already makes sense to other people – our parents, neighbours, church members, community, country. We learn by participating in these communities and come to embody the ideas, perspectives, prejudices, language, and practices of that community" (Richard McDermott in Lesser et al., 2000, p. 26).

"Reflection is the mechanism that transforms tacit knowledge into explicit knowledge" (John Storck and Patricia A. Hill in Lesser et al., 2000, p. 76).

27.1   Sharing & Learning
"The shadow face of authority is authoritarianism; that if collaboration peer pressure and conformity; that of autonomy narcissism, wilfulness and isolation. The challenge is to design institutions which manifest valid forms of these principles; and to find ways in which they can be maintained in self-correcting and creative tension" (Heron & Reason, 1997, p. 11).

"The role of open content producers has evolved as well, away from the idea of authoritative repositories of content and towards the broader notion of content being both free and ubiquitous" (Johnson, Levine, Smith, & Stone, 2010, p. 13).

27.2   Collaborative Learning
"Many believe that reward structures that support the sharing of work in progress, ongoing research, highly collaborative projects, and a broad view of what constitutes scholarly publication are key challenges that institutions need to solve. Also to be addressed are reputation systems, peer review processes, and new models for citation of the new forms of content that are likely outgrowths of open content initiatives" (Johnson et al., 2010, p. 13).

"Open content shifts the learning equation in a number of interesting ways; the most important is that its use promotes a set of skills that are critical in maintaining currency in any discipline — the ability to find, evaluate, and put new information to use. Almost as important is that the same set of materials, once placed online and made sharable via the appropriate licensing, can inform a wide variety of learning modalities, not the least of which is learning for the sheer joy of discovery" (Johnson et al., 2010, p. 14).

28   The Bigger Picture
"Collective intelligence refers therefore to the cognitive capacities of a society, a community or a collection of individuals" (Levy, 2013, p. 99).

"Human beings now have many ways to communicate with one another beyond and outside instructionally sanctioned channels, which contributes to a widely shared perception that the average person can make, or at the very least, co-create culture, politics, pedagogy, and economy" (Collective et al., 2013, p. 257).

"The prediction that the World Wide Web would kill libraries ignores another essential role of the public

library in the Internet age. The almost inconceivable variety of information available online is a mixed blessing, as even casual Internet users quickly discover" (Putnam, Feldstein, & Cohen, 2003, p. 48). (Putnam et al., 2003, p. 48).

"The techno-utopian belief that access to unlimited information automatically translates into understanding and knowledge has proved to be false. Trained guides are more important than ever, and libraries provide them" (Putnam et al., 2003, p. 48).

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