

# Learning Analytics and Policy

Dai Griffiths

Professor of Education, The University of Bolton

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d.e.griffiths@bolton.ac.uk

**Cetis LLP**



Teaching Intensive, Research Informed



# Let's leave to one side the pro's and cons of learning analytics (LA)



# **Assuming we want to use LA, I would like to persuade you that:**

- 1) There are contradictions at the heart of learning analytics, driven by a clash of research cultures**
- 2) The policies which drive successful use of learning analytics are much wider than those of the institution**
- 3) In both these areas there are conflicts that leaders or policy makers need to attend to**



# 'Unlikely friends'



# Unlikely friends?

- **Learning analytics: the offspring of the whirlwind romance between**
  - academic research
  - operations research
- **The couple do not have the same ideas about the rules which apply to their relationship**
- **“They lived together happily ever after...” is not a likely ending**



# Academic research and learning analytics

- **There is a long history of research in**
  - **Distance education**
  - **Educational data mining**
  - **Technology Enhanced Learning**
  - **Programmed learning**
  - **eLearning**
  - **Learning design**
  - **Adaptive learning**
  - ...
- **The results of this work provide the theories to link data and learning**
- **What are the rules governing this research?**





# The Nuremberg Code

- **The Nuremberg Code, developed after trials of Nazis**
- **The Code conceived for medical research, but was extended to all research involving human subjects**
- **“The voluntary consent of the human subject is absolutely essential ...the person involved should ... be able to exercise free power of choice, there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted ...”**

U.S. Government: Trials of War Criminals before the Nuremberg Military Tribunals under Control Council, law No. 10, Vol. 2 (1949)





# Academic research is regulated in the Nuremberg Code tradition

- **Universities have ethics committees which rule on the acceptability of academic research**
- **They insist on**
  - **Informed consent**
  - **The right to withdraw**



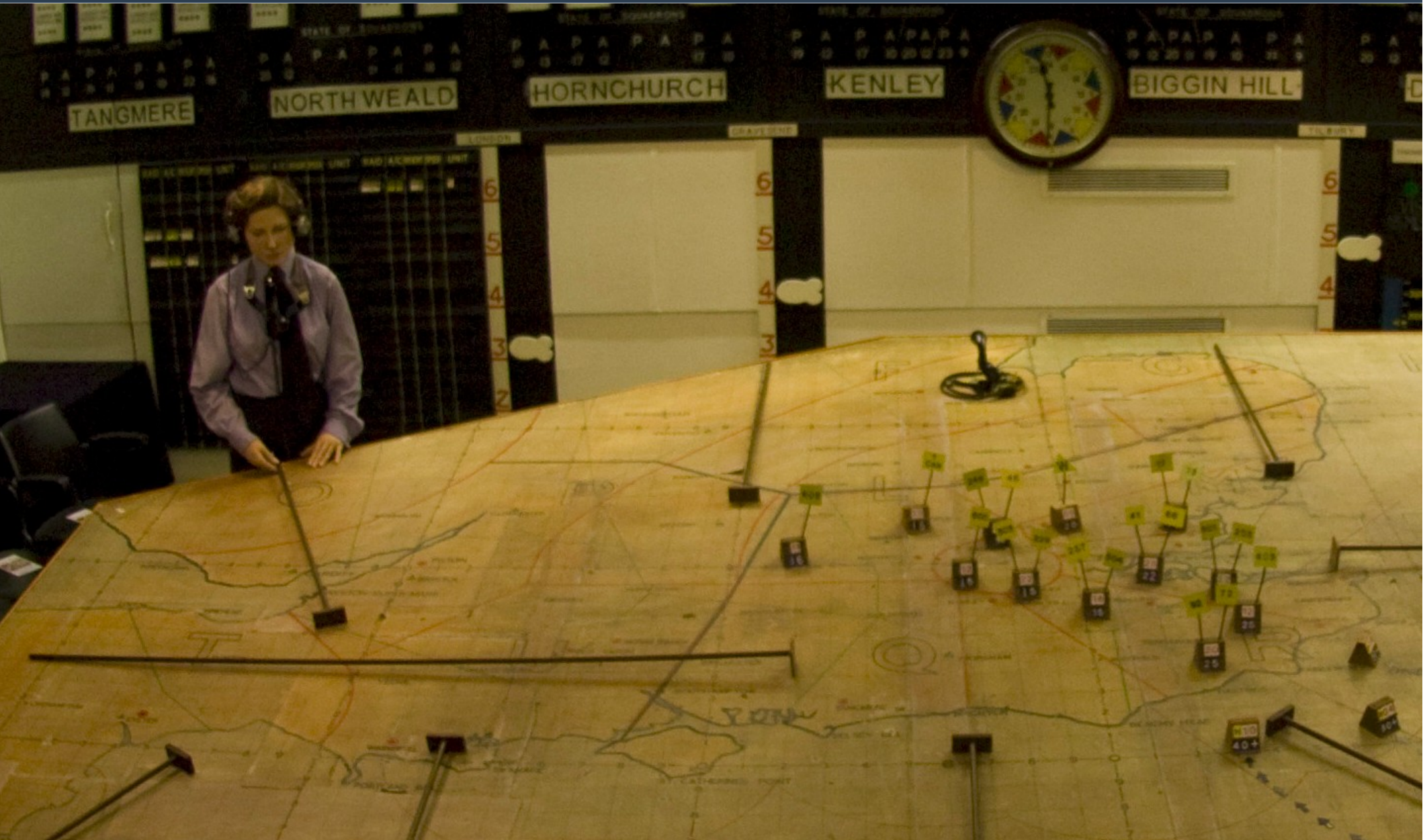
- **For example, OU UK Ethics Principles for Research Involving Human Participants**

- **“Except in exceptional circumstances, where the nature of the research design requires it, no research shall be conducted without the opt-in valid consent of participants.”**
- **“Participants ... have a right to withdraw their consent at any time up to a specified date”**

<http://www.open.ac.uk/research/ethics/>



**Also with its roots in the second world war...**



# Operations Research (OR) and learning analytics

- **Operations research (a.k.a. management science) grew from World War II**
- **"a scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control"**

Operational Research in the British Army 1939-1945, October 1947, Report C67/3/4/48, UK National Archives file WO291/1301. Quoted on the dust-jacket of: Morse, Philip M, and Kimball, George E, Methods of Operation Research, 1st edition revised, MIT Press & J Wiley, 5th printing, 1954

- **In 'OR' I include, for example**
  - **Customer relationship management**
  - **Management methods (e.g. use of KPIs)**
  - **The institution and its operating environment**



# Ethical governance of Operations Research

- **OR is clearly ‘research’, but has not been governed by research ethics procedures**
- **The Common Rule in the US explicitly exempts ‘quality enhancement’ work from ethical review**
- **Organisations can research into their own processes with little ethical governance**



# A tension in learning analytics

- **Learning analytics TOPICS** have long been the subject of educational practice and research, e.g.
  - The achievement of learning outcomes
  - Identifying students at risk of dropping out
- **Educational researchers expect ethical oversight of these topics, and deeply concerned if it is missing**
- **Learning analytics METHODS** have more in common with OR
  - Data is often not gathered for a particular purpose, but rather is accumulated and then interrogated to identify possible correlations
- **To data scientists and managers the ethical processes of academic research are a straitjacket which hinders them in applying their methods**



# OU UK policy on learning analytics

- **LA intended to “identify interventions which aim to support students in achieving their study goals” “it is not possible, at present, to have your data excluded”**

<http://www.open.ac.uk/students/charter/essential-documents/ethical-use-student-data-learning-analytics-policy>

- **A PhD doing this with external data would need to obtain explicit consent, and offer withdrawal**
- **The University grants itself an ethical review waiver that it does not offer to its students.**
- **The OU UK are not exceptional in this, and deserve credit for having a policy on LA and making this clear**



# Some big questions are raised institutional policy makers

- **Is learning analytics**
  - An operations research intervention
  - The practice of educational research
  - Where is 'retention' situated
- **Is it possible to keep both sides of the fence happy?**
- **Does the practice of LA shift between research modes**
  - How do we know which mode we are in and when?
- **Who needs to shift their practice, and how?**
- **We should not be surprised if tempers become heated in answering these questions**

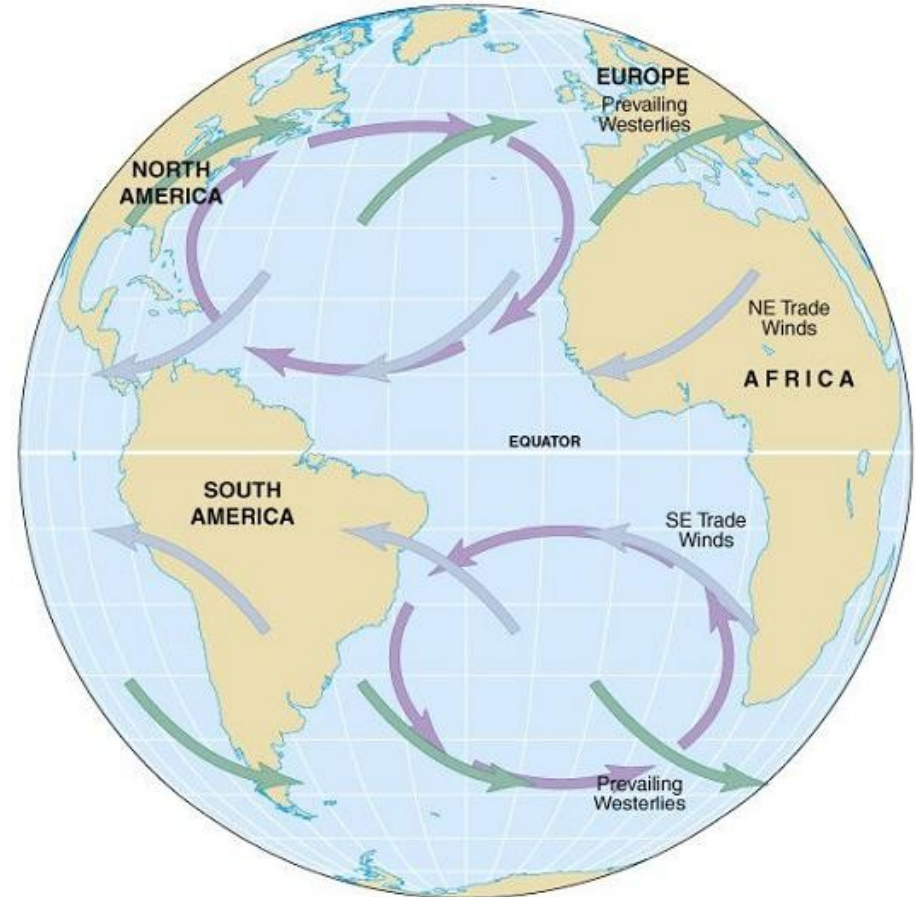




**Once we have decided where to go,  
how can policy get us there?**



# The winds of regulation and the currents of business practice



# A strong westerly current of technology...

- **Bill Schmarzo, chief technical officer of EMC Global Services:**

**“I’m a hoarder, I want it all. And even if I don’t yet know how I’ll use that data, I want it ... My data science team might find a use for it”**

Bertolucci, J.: When Data Hoarding Makes Sense. InformationWeek (2014), <http://www.informationweek.com/big-data/big-data-analytics/when-data-hoarding-makes-sense/d/d-id/1297474>

- **Google’s translation service is built on a corpus of texts collected for other purposes**
- **The economic power and status of ‘big data’ companies encourages adoption of their policies towards data**



# A chilly wind from the North...

- **The USA Common Rule specifically exempts state intelligence agencies from ethical approval processes**
- **The UK Investigatory Powers Act 2016[21] enables government departments to monitor the online activity of citizens, including bulk interception and collection of communications data**
- **If all our data is analysed anyway, why should we worry about ethics and data privacy?**



# Long term climate change: the knowledge society

- **The information or knowledge society is used in education policy to theorise modern societies as “driven by knowledge and technology ... and therefore requiring more education.”**

Gamarnikow, E. (2009). Education in Network Society: Critical Reflections. In International Handbook of Comparative Education (pp. 619–632). Springer.

- **In ‘the knowledge society’ there is “a perceived need to move away from a curriculum based on a central canon of information towards learning that develops skills and competencies. This implies a need for ongoing analytics that can support the development of dispositions such as creativity and curiosity, collaboration skills and resilience.”**

Shum, S.B. & Ferguson, R., 2012. Social Learning Analytics. Educational Technology & Society, 15(3), pp.3–26.

- **Policies which promote the ‘knowledge society’ create fertile ground for analytics**



# Fierce winds of competition (blowing from the English world)

- **Fierce competition for students and resources**
- **Gareth Williams identifies three beliefs**
  - **The private sector can relieve governments of some of the cost burden.**
  - **Many of the benefits of higher education accrue to private individuals and they should be prepared to pay for them.**
  - **Both external and internal efficiency improve if government buy services from universities rather than make grants.**

Cited in Brown, R., & Carasso, H. (2013). Everything for Sale?: The Marketisation of UK Higher Education, p.10.

- **“It is envisaged that education systems that do make the transition towards data-informed planning, decision making, and teaching and learning will hold significant competitive and quality advantages over those that do not.”**

Siemens, G., Dawson, S. & Lynch, G., 2013. Improving the Quality and Productivity of the Higher Education Sector: Policy and Strategy for Systems-Level Deployment of Learning Analytics., Canberra, Australia. Available at: [https://129.78.32.124/projects/SoLAR\\_Report\\_2014.pdf](https://129.78.32.124/projects/SoLAR_Report_2014.pdf).

- **Marketisation of education creates opportunities for LA (but is not a necessary condition).**



# Powerful gusts of accountability

- **In 2013 the Obama White House announced ‘an ambitious new agenda’ to:**  
**“measure college performance through a new ratings system so students and families have the information to select schools that provide the best value. And after this ratings system is well established, Congress can tie federal student aid to college performance so that students maximize their federal aid at institutions providing the best value”**
- **Analytics of KPIs is the key means whereby college performance is established**



# So, if we like it or not...

- **Learning analytics is enmeshed with controversial policies, including**
  - **Big data practice and data privacy**
  - **Government surveillance**
  - **The Knowledge Society**
  - **The marketisation of education**
  - **The evidence-based accountability agenda**





# Portability of LA practice and infrastructure

- **I have worked on interoperability for many years**
  - **LACE Learning Analytics Community Exchange**
  - **CETIS is currently working with Jisc on Learning Analytics, developing xAPI recipes**
- **I believe this is important in enabling us to share practice and infrastructure, and I am sure that ICDE would agree**
- **This is hard if we don't understand how the policy context causes LA to fly in one place and crash and burn in another**



# My conclusions (1)

- **Institutional and governmental policies for LA are important, but do not operate in a vacuum**
- **LA policy is enmeshed with major policy debates. LA policy makers and leaders should follow them carefully.**
  - **Ethics and privacy, and the General Data Protection Regulation**
  - **Funding of education**
  - **Curricula**
- **LA policy makers and leaders should contribute to the debates**



# My conclusions (2)

- **If our LA policy is not aligned with our position on wider issues, it will be incoherent, and probably ineffective**
- **If we want to adopt LA practices and infrastructure from other countries, we must understand the mix of policies which have driven their success**
- **If we do not want to immitate other countries policies, we must reinvent their learning analytics**



# The LAP initiative

- **As one of a group of colleagues around the world, I have initiated a comparative study of policy environments and their consequences for LA**
  - **Learning Analytics and Policy (LAP) Workshop at LAK 2017**
  - **Special issue proposal**
  - **Bilateral projects**
- **There are many open questions**
- **Please get in touch if you would like to collaborate! [d.e.griffiths@bolton.ac.uk](mailto:d.e.griffiths@bolton.ac.uk)**

