

An Ethical Waiver for Learning Analytics?

Dai Griffiths

University of Bolton, Deane Road, Bolton, BL3 5AB, United Kingdom
d.e.griffiths@bolton.ac.uk

Abstract. It is argued that education institutions are awarding themselves an implied ethical waiver for learning analytics. This unexamined practice is elucidated as the coming together of two contrasting research traditions academic research and operations research.

Keywords: learning analytics, ethics, nuremburg, operations research,

1 Two Research Traditions

Following the trials of the Nazis after the Second World War, the Nuremberg Code[17] was agreed, to ensure that research would never again establish an abusive or exploitative relationship with its subjects. Article 1 states:

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[17]

The Code was originally conceived in the context of medical research, but became extended to all research involving human subjects. This is the case in all major policies and codes on ethics in the social sciences, including the Common Rule[18] in the USA. For example, the International Sociological Association code of ethics states that “The consent of research subjects and informants should be obtained in advance”[4], while the British Educational Research Association Ethical Guidelines for Educational Research affirms that “The securing of participants voluntary informed consent, before the research gets underway, is considered the norm or the conduct of research” and stipulates “the right of any participant to withdraw from the research for any or no reason”[3] p.6.

In parallel with the expanding influence of the Nuremberg Code in the academic research community, investigations were carried out in businesses and the state sector, with the aim of establishing effective strategies. This work is often referred to as operations or operational research (OR). Pocock states:

Operations Research is a scientific methodology — analytical, experimental, quantitative — which, by assessing the overall implications of various alternative courses of action in a management system provides an improved basis for management decisions.[9]

OR applies scientific methodologies to understand the world, and is therefore ‘research’, but it has not been governed by research ethics procedures equivalent to those of the academic research community. As Picavet (p. 1122) indicates “in operational research, efficiency is not usually viewed as something which conflicts with ethics. Quite simply, it does not refer to the same category of problems.[8]” There has been ongoing discussion of ethics within the OR community over a number of years, see, for example,[5]. However, where ethical codes for OR exist, they make no mention of informed consent or a right to withdraw, for example the code of the OR Society[16].

2 Blurring between OR and academic social science

Computer networks generate huge quantities of information about their users, and vastly increased volumes of data are becoming available to OR researchers. As a result the range of contexts in which OR researchers can offer their services has also expanded dramatically. Consequently “Businesses now possess more social-science data than academics do” [13], for example through loyalty cards [11]. Indeed McFarland et al. state that employment of social scientists “may hinge on their ability to adopt a computer science approach and utilize social science merely as an afterthought...” [7]. The ‘big data’ collection strategy that dominates this research was summarised pithily by Bill Schmarzo, chief technical officer of EMC Global Services: “I’m a hoarder, I want it all And even if I dont yet know how I’ll use that data, I want it ... My data science team might find a use for it” [1]. Informed consent for a specified purpose, required in academic research, is incompatible with such a strategy.

Educational research has followed the same trajectory as the social sciences in general. Educational institutions have always collected and used data about students, but were constrained by the available technology. The analysis which could be conducted on these small data sets was limited, carried out by academic researchers, and published in academic journals or commissioned reports. Rich data is now available from both teaching applications and student information systems, library systems, etc. Analytics on this data informs the decision making of teachers and educational managers, addressing questions which have long been the preserve of academic educational research. For example, the LACE Evidence Hub[6] holds 34 learning analytics papers about learning outcomes. LA also provides new ways to support traditional educational practice, for example by identifying students at risk of dropping out[19]. From this perspective LA is an extension of existing educational practice, and the research community might expect established ethical processes to be applicable. However, LA methods have more in common with OR, and with ‘big data’ analytics. Data is often not gathered for a particular purpose, but rather is accumulated and then interrogated to identify possible correlations. The people who carry out this work may not identify themselves as working within the OR tradition, perhaps preferring to refer to themselves as data scientists, or learning analytics practitioners, but the parallels remain strong. From the perspective of OR, the ethical processes of

academic research seem a straitjacket which prevents them from applying their methods. The universally accepted principle in academic research that consent should be gathered from users before their data is collected, and that this is only valid for specified uses of the data, is particularly remote from OR practice.

3 Is there a Learning Analytics Waiver?

The ethics of LA is in a tangle. Let us take as an example the Open University (OU), because of the praiseworthy clarity of its policies on ethics and LA. The OU FAQs on LA inform students that “it is not possible, at present, to have your data excluded” because the OU wishes to use the dataset as a whole[14]. On the other hand the OUs Ethics Principles for Research Involving Human Participants state that “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.” and that “Participants ... have a right to withdraw their consent at any time up to a specified date”[15]. LA at the OU are intended to “identify interventions which aim to support students in achieving their study goals”[14]. One may suppose that a PhD student addressing this aim with data from an external organisation would need to obtain consent, while the OU itself carries out research on its own students without this constraint. In effect, the University grants itself an ethical review waiver that it does not offer to its students. The OU is not unique in viewing very similar research activities through two different lenses, and many institutions are currently developing LA policies, following the OUs example. This will aid transparency, but there is no evidence that these policies will defuse the contradiction identified above.

Two questions arise. Firstly, should LA be considered an OR intervention, with all that implies for the organisation, its members, and the research which they carry out? Secondly, if the answer is ‘yes’, what does this imply for the ethics of LA, and for educational research in general? Brans and Gallo[2] describe an ethical split in OR. Some view ethical issues as restricted to effective results and lack of bias. Others focus on the effects on society and the nature of the decisions derived from their analyses and models, the values and objectives of clients, and the choice of problems on which to work. If we choose to see LA as a variety of OR, then it is necessary to take a position in this debate, and to be ready to address ethical issues which are perhaps unfamiliar. To take three examples:

Bridge International schools in the Third World enforce detailed teaching scripts, based on analytics carried out in Massachusetts[10]. *What process could determine the ethics of these relationships, and this use of LA to facilitate them?*

The rationale for ethical waivers in medicine is that data generated in the course of normal practice can improve quality of service. A similar argument applies in education. *Can such a waiver apply in education if the data analysed is not incidental, but rather the educational service is itself based on the generation of data, perhaps to the point that it is the main medium of contact with learners?*

Managers, and the regulatory environment exercise “outside social pressure on educational institutions to make substantive reforms and prove their success

with data”[12]. Use of OR methods, in combination with methods such as key performance indicators, are a manifestation of this pressure. *By what process can learning technologists take ethical decisions on consent and withdrawal in LA while exposed to the managerial and economic pressures on education?*

References

1. 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>
2. Brans, J.p., Gallo, G.: Ethics in OR / MS : Past , Present and Future. Annals of Operations Research 153(1), 165–178 (2007)
3. British Educational Research Association: Ethical guidelines for educational research (2014), <https://www.bera.ac.uk/researchers-resources/publications/ethical-guidelines-for-educational-research-2011>
4. International Sociological Association: Code of ethics (2001), <http://www.isa-sociology.org/en/about-isa/code-of-ethics/>
5. Le Menestrel, M., Van Wassenhove, L.N.: Ethics in operations research and management sciences: A never-ending effort to combine rigor and passion. Omega 12, Special Issue on Ethics and Operations Research(009,)
6. Learning Analytics Community Exchange: Evidence hub (2017), <http://evidence.laceproject.eu/>
7. McFarland, D.A., Lewis, K., Goldberg, A.: Sociology in the era of big data: The ascent of forensic social. The American Sociologist 47(1)
8. Picavet, E.: Opportunities and pitfalls for ethical analysis in operations research and the management sciences. Omega 37
9. Pocock, J.W.: Operations Research’, Special Report No. 13, chap. Operations Research: Challenges to Management. American Management Association (1956)
10. Ross, T.F.: Is It Ever Okay to Make Teachers Read Scripted Lessons? - The Atlantic. The Atlantic (October 10th) (2014)
11. Rowley, J.: Reconceptualising the strategic role of loyalty schemes. Journal of Computer Marketing 24(6) (2007)
12. Rubel, A., Jones, K.M.: Student privacy in learning analytics: An information ethics perspective. The Information Society 32(2), 143–159 (2014)
13. Shaw, J.: Big data is a big deal. Harvard Magazine (March-April) (2014)
14. The Open University: Policy on Ethical use of Student Data for Learning Analytics (2014), <http://www.open.ac.uk/students/charter/essential-documents/ethical-use-student-data-learning-analytics-policy>
15. The Open University Human Research Ethics Committee: Ethics principles for research involving human participants. Open University (2014), <http://www.open.ac.uk/research/ethics/>
16. The Operational Research Society: Ethical guidelines for educational research (2017), https://www.theorsociety.com/Media/Documents/Users/CaraQuinton01011978/OriginalDocument/24.06.2011-13_13_17.pdf
17. U.S. Government: Trials of War Criminals before the Nuremberg Military Tribunals under Control Council, law No. 10, Vol. 2 (1949)
18. U.S. Government: Federal policy for the protection of human subjects. Federal Register, 01/19/2017 (2017)
19. West, D.: Learning analytics: Assisting universities with student retention, final report. Australian Government Office for Learning and Teaching (2015)