

## **Critical Education and Digital Cultures**

Jeremy Knox

University of Edinburgh, Edinburgh, Scotland, UK

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### **Algorithmic Cultures**

In response to an exclusive focus on community and culture that renders technology passive and invisible, emerging areas of research are attempting to account for the influence of technology itself, and also more nuanced understandings of the co-constitutive relations between humans and non-humans in education. *Algorithmic cultures* in education can be understood as one such area, focussing specifically on the operation of web algorithms, and the ways these automated, non-human agents influence contemporary educational practices.

This phase draws from a growing interest in the field of Internet Studies, which is concerned with tracing the ways culture is not only being shaped by its human constituents, but also by the pervasive algorithms of the web that are increasingly involved in the arranging, cataloguing, and ranking of people, places and knowledge. Well-known examples include the Google search algorithm, which has become hugely influential in prioritising and privileging certain knowledge, and the Amazon recommendation algorithm, which has significant sway over our buying habits. Alongside such everyday examples, and intentionally hidden from our gaze and attention, algorithms are becoming increasingly ubiquitous actors in the global economy, as well as our social and material worlds.

Critical research, sometimes associated with the burgeoning field of Software Studies, has sought to examine and question such algorithms as guarantors of objectivity, authority and efficiency. This work is focussed on highlighting the assumptions and rules already encoded into algorithmic operation, such that they are considered always political and always biased. From this perspective, algorithms *produce* worlds rather than objectively account for them, and are considered as manifestations of power. Questions around what kind of individuals and societies are advantaged or excluded through algorithms become crucial here.

Moreover, because these systems often enmesh automated, individual, and communal decision making in highly complex, and usually hidden ways, the results cannot easily be reduced to the intentional agency of any one identifiable human person (whether user or programmer), or non-human algorithm. It is precisely this orientation that has sometimes drawn researchers to theories of distributed and relational agency, such as Actor-Network Theory, or sociomaterial theory, in order account for the complex layers of activity involved.

Where education has embraced digital networks, the practice of teaching and learning can be understood to be increasingly enmeshed in algorithmic operations. Such automated processes are highly appealing to education, which viewed from the perspective of neoliberalism, tends to privilege objective logic, precision and transparency as routes to further efficiency, productivity and accountability. It is notable that algorithms, assumed to provide objectivity and exactitude, are frequently used in areas of high risk and security, and this is precisely where the most prominent example can be found in education: the use of the Turnitin plagiarism detection service at the point of assessment.

However, a digital cultures perspective provides the means to critically engage with this developing educational trend, rather than assume the transparency and necessity of automation. This critical

lens has the capacity to reveal, not only the range of assumptions and limitations that are built-in to the algorithmic operations of plagiarism detection, but also the broader cultural and political tendencies that are enfolded in the drive for efficiency that pervades institutional education. Looking to the future of education and digital cultures, work is turning to the ways that algorithms not only censor educational content, but also work to construct learning subjects, academic practices, and institutional strategies. Perhaps most importantly, this signals a shift away from the centrality of individual or social concerns in education, and towards the complex relations between the human and non-human agencies that proliferate in our digitally networked educational activities.

## **Conclusions**

*Algorithmic cultures* described a current phase in which automated computer operations process data in such a way as to significantly shape the contemporary categorising and privileging of knowledge, places and people. Critical perspectives on this 'cultural work' included the questioning of objectivity and authority assumed of algorithms, and sought to emphasise the ways that educational institutions, practices and subjects are constructed through these highly complex computational routines.

*Algorithmic cultures* signals a shift away from exclusively social and human concerns, and the attempt to account for the non-human agency of technology in educational practices. Rather than technology being framed as simply the passive instrument of predefined educational aims, here the algorithm represents a much more complex relationship between humans and non-humans in education, pointing towards an increased entanglement of agencies in the production of knowledge and culture.