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6. THE DISCOURSES OF PIAAC

Re-Imagining Literacy through Numbers

INTRODUCTION: WHAT IS THE PIAAC AND WHAT IS ITS PURPOSE?

The PIAAC (Programme for the International Assessment of Adult Competencies) is the newest of the OECD's international surveys aiming to organize the notoriously diverse area of adult learning in order to make it tractable to comparative analysis and policy. Such surveys play a significant role in the development of new forms of governance and social regulation, where power is exerted through data and efforts are made to normalize knowledge in line with neoliberal views of the world (see Ozga et al., 2011; Tsatseroni & Evans, 2013). PIAAC has three dimensions: Literacy (L), Numeracy (N) and Problem-Solving in Technology Rich environments (PSTRE). The literacy and numeracy dimensions are directly linked to previous comparative surveys, namely the Adult Literacy and Lifeskills Survey (ALL) and The International Adult Literacy Survey (IALS). They are also linked with the school-aged assessments developed through the Programme for International Student Assessment (PISA). The third dimension, PSTRE, is designed to capture the digital aspects of adult skills and, in the pipeline, are further assessments of personality and social skills that can be added to the mix and will connect the PIAAC with other survey tools (see World Bank, 2014; Kirsch & Lennon, 2017).

Clearly, this is an ambitious program with the potential to shape understandings of the field of adult education across many contexts. Grek (2010, p. 403) claims that PIAAC is a landmark development in international benchmarking in that it is designed to bring together performance measures from all these surveys in order to monitor and promote Lifelong Learning (LLL).

The PIAAC is a program of household sample surveys of adults aged 16–65 years, administered by an interviewer in participants' own homes using a laptop or pen and paper. For each of the L and N assessments, each respondent is assigned a score which is transformed into one of six levels from 'below level 1' to 'level 5' (OECD, 2013, 2016). Results are provided by the OECD both as country averages, and in terms of percentages at the different levels. As with other OECD surveys, a background questionnaire is also completed by each respondent, detailing demographic and attitudinal information including job-related information such as pay; the use of and need for skills at work; education and training record; perceived skills match with employment; educational level of parents; motivation and so on.

This information is used to allocate people to subgroups for analysis and to generate patterns of relationships between the skills tests and social outcomes.

Twenty four countries reported in the first round, and a further nine in round two, the results of which were released at the end of June 2016 and integrated with the earlier survey findings (OECD, 2016).¹

The discourse of the PIAAC presents literacy, numeracy and problem-solving as clearly defined key information processing skills. It offers a simple model of causality in relation to social reality and its logic is seductive. As O’Keeffe says “Situating itself in a tradition of labor force surveys designed to measure human capital, the PIAAC offers an enticing portrait of the adult worker for use by governments, businesses, universities and training providers” (2016, p. 100).

However, from my perspective as a researcher in the field of adult literacy, it is important to pause and think about the known diversity of adult capabilities before we get drawn into the globalizing discourse of the PIAAC. Literacy ethnographies from many countries and historical periods (Street, 2014) as well as educational accounts and first-hand narratives from adult learners (see, for example, Barton et al., 2008) have documented the immense diversity and uneven “spiky” profiles of adult learners. These are constituted through the diverse contexts of their lives and learning trajectories and the variety of meanings and activities that “literacy” takes on within these contexts. There are multiple languages that cannot be fully represented in the survey samples or through the complex translation of test items. There are large, mobile populations travelling across national boundaries by choice or to escape conflict or economic destitution and carrying with them cultural traditions and mixes which are constantly evolving. Also evolving are communicative practices in relation to digital technologies. All of these features make literacy a fast-moving target which defies the necessary methodological constrictions of large-scale surveys.

Given this diversity, my starting assumption for this chapter is very different from those underlying the OECD’s model. I argue that in order to understand adult performance on the PIAAC, we should think in terms of ‘practices’ rather than individual skills: practices which are relational, contested, changing and situated in the flux of day-to-day activities. I use sociomaterial theory to look critically at and beyond the discourse of the PIAAC to see how selected aspects of literacy practices are continually being assembled as part of evolving projects of social ordering. From this perspective human actions are seen as continuous with the material world of objects, technologies and tools, and agency is dispersed across these (Edwards et al., 2015). International surveys can thus viewed as powerful actors in their own right within the field of adult education (Hamilton, 2012).

NARRATIVES OF LITERACY

There are many ways in which people have tried to define and explain how literacy functions in individual lives and in society, asserting its usefulness for the state and for other social and economic institutions. Over time and in different contexts,

literacy education has been imbued with a wide variety of aims: religious, moral, cultural and emancipatory. It has been enlisted to support nation building, wealth creation and universal human rights. As a term, literacy is elastic and slippery and it can be made to carry all kinds of hopes, judgements and expectations presenting heroic stories that result in a heavy burden of expectation on literacy achievement that is not substantiated by the historical evidence (Graff & Duffy, 2008). These narratives about literacy are part of what shapes literacy education in different historical eras and places, affecting our views about who literacy learners are and what should be appropriate curricula. They circulate in many places – in policy documents, in the news and popular media, but also in everyday social interactions in homes and classrooms.

These narratives of literacy present it variously as a moral and symbolic good, as an essential component of nation building, as empowerment for individuals and disenfranchised groups, as a commodified technology for getting things done and for increasing prosperity.

Different interest groups make use of these narratives for their own purposes at particular moments of history and change. Each narrative proposes particular relationships with other factors in individual lives and in society at large. Seen from this perspective, current attempts by international agencies to organize literacy through comparative survey tools are revealed as the partial, though powerful, interventions of particular interest groups.

Situated models using a more complex notion of causation have been developed (see Street & Lefstein, 2007, for an overview). Scholars of literacy studies have concentrated on describing the vernacular, everyday practices of reading and writing, the processes involved as readers and writers use texts embedded in everyday networks and activities and highlight the indeterminate effects of reading and writing, that may be both positive and negative for individuals and societies. They view institutions as selecting and privileging certain practices, and educational policy regimes are one example of this. This social practice approach to literacy demands a different methodology for assessment, based on literacy as a situated, distributed and collective resource, process-oriented rather than an individually possessed skill (Street, 2014).

WHAT IS THE DISCOURSE OF PIAAC?

Like many others (e.g. Tett, 2014), I argue that a technological narrative of literacy predominates in international surveys like the PIAAC whereby literacy is seen as a fixed set of information processing skills, that can be measured and precisely defined by experts, regardless of context. I maintain that the simplistic model of causation that underlies this approach is misleading and unproductive for policy-makers and practitioners alike.

I demonstrate the assumptions of this model through the discourse of PIAAC found in OECD publications – that is, through the ways in which literacy is

discussed and framed using words, numbers and images. As for other international surveys, copious information is offered by the OECD about the PIAAC programme, online, in print and via webinars and videos. There are explanations of how the test is constructed, how the surveys are carried out, the methodological issues arising, findings for individual countries and policy guidance for them, as well as the familiar league tables that show participating countries ranked in order of their populations' achievements in specific subject domains and scores.

As an example, we can look at the press release on the date of publication for the round two PIAAC results, on June 28th 2016 (see Appendix). This is aimed at already interested experts and advocates and is straightforward in its expression of the core features of the survey.

The survey measures adult lifelong skills for employment (*"what people know and how they use their skills at work"*). Thus literacy is defined as an economic and work-related skill while other dimensions of reading and writing are made invisible and only a particular population (*"16–65 year-olds"* who are economically active or potentially active adults) are included.

It is based on an expert technical view of individually tested skills, defined as information processing and based on cognitive psychometric theory. Again, as I explain above, this is only one possible way of viewing literacy but it is built into the survey and thus circumscribes it. It is not possible within this discourse to explore the notion of literacy and numeracy as relational, distributed practices.

Nation states (or sometimes selected parts of these as in Jakarta, England and Northern Ireland) are the unit of comparison. *"Governments"* and *"countries"* are the target for policy advice. This invites us to imagine the global world as composed of these units and obliterates other possible views. For example, a language map would look very different, as would a cultural map based on ethnic or religious groupings or even an economic map composed of rich and poor and the distribution and/or control of economic resources by corporations or governments, all of which alternatives could be argued to be relevant.

Additional assumptions underlie this statement and the whole enterprise of comparative testing of adult skills. These are unstated but powerful in shaping our understanding of the topic. The technological model of skills is re-iterated in numerous other communications and in promoting it, the OECD creates what John Law calls *"collateral realities"*:

Practices enact realities including collateral realities ... Collateral realities are realities that get done incidentally, and along the way. They are realities that get done, for the most part, unintentionally. They are realities that may be obnoxious. Importantly, they are realities could be different. It follows that they are realities that are through and through political. (Law, 2009, pp. 1–2)

In the case of international assessments, these collateral realities are not so much unintended as pre-supposed by a specific world view that is not challenged in the discourse. This world view assumes:

- a single dimension and scale of comparison for measuring skills which implies there should be an agreed, universal curriculum (see Seller & Lingard, 2015). This assumption inevitably narrows the range of skills to be tested. As an example, the items used to measure “literacy” only test “reading” despite the fact that respondents themselves report that “writing” is the most frequently used skill at work (OECD, 2016, p. 17).
- a view of the nature of problem-solving and of digital competence as an essential good while presenting a confusion around the issues of print versus digital literacies.
- that large-scale, de-contextualized evidence matters more than situated and local knowledge for understanding literacy and making policy decisions.
- that decisions about development and change should be based on futures imagined by techno-experts and expressed through data rather than drawing from past traditions and existing knowledge/wisdom.

Gorur (2011) outlines the steps by which these assumptions and their underlying values come to be embedded in international assessments like the PIAAC as the experts make crucial decisions about how to operationalize ideas of literacy and other areas of practice in order to carry out the survey. She identifies the significant decision points as: (1) choose items to represent domains of knowledge (2) translate these across cultures and languages (3) choose a sample to represent the population in each national context (4) agree on methods of data collection (5) apply statistical techniques.

As Gorur’s (2011) data shows, the processes of decision-making are often fraught with controversy and involve many compromises which later become invisible. These ‘moments of translation’ relate to the “collateral realities” identified by Law and are the means by which they are achieved.

HOW THE DISCOURSE OF PIAAC CIRCULATES

The OECD’s discourse of PIAAC is picked up and locally interpreted in media and national policy documents. The OECD’s view enters the public domain via the materials it produces and promotes which are aimed primarily at journalists, researchers and government policy makers.

However, the translation of any OECD agenda into national policies is mediated by many actors including the media, research, advocacy and policy communities. The “public” consists of differentiated groups with more or less interest in the survey findings on a given topic. What presence the PIAAC has for general members of the public will depend most heavily on the mass media and that is why media research is of particular interest.

We have shown this through our comparative study of the media coverage of the first round of PIAAC findings, how the OECD Country Notes frame and guide journalists’ writing in the three countries we researched (Yasukawa et al., 2016). We

tracked the media coverage in Japan (a high-ranking country), the UK (median) and France (low). Our findings (apart from the realization of how challenging it is to do such work) can be summarized as follows.

The analysis shows how, in each national case, particular aspects of the PIAAC results were foregrounded, depending not only on the performance measures themselves, but also on how accounts of the results are assembled to extend national cultural narratives and debates around education and social policy. PIAAC acts as a policy intervention initially through framing public awareness of adult skills and persuasively enrolling key national actors. The OECD itself actively mobilizes media responses and offers copious (yet selective) resources to guide public interpretation of the findings. These resources shape media coverage in national contexts, and provide a credible evidence base that is hardly contested in the ensuing media discourse. Importantly, the OECD material summarizing complex data that are otherwise not easy for journalists to quickly access and absorb. It inevitably directs attention to particular facts and issues in a format that is easy to translate into press reports and headline news.

Digital media offer new channels for communicating about the PIAAC such as Twitter but equally important, they also enable interested audiences to interact with the data online to produce their own selection of findings and to craft their own tables and infographics for use in national contexts. While the expressed motivation for producing such a plethora of information is to make the data transparent and accessible to the OECD's many partners, the result can also be seen as contributing to a totalizing discourse of adult skills which powerfully colonize our understandings of literacy and the other domains of learning that are tested. Moreover, the apparent freedom to analyze the data is itself controlled and limited, not least by the statistical methods and algorithms used to produce and present the data (see O'Keeffe, 2017).

The interactive manipulation of data and training workshops offered to researchers around this, actively entangle audiences in this discourse and the logic of the surveys and is facilitating a veritable industry of secondary analysis which consumes increasing volumes of research time and resources. (A Google scholar search on "PIAAC" in April 2018 gives over 7500 results.)

The policy prescriptions consistently offered by the OECD outline the key features of educational and training systems that policy makers should attend to and their task is presented as that of achieving these reforms by adapting to their local context of education and employment. Beiber et al. (2015, p. 168) summarize this policy advice as being "composed of political measures such as introducing measurable standards in relation to students' reading literacy, and promoting school autonomy in terms of financing, curricula, and personnel" (see also foreword to OECD, 2016, and the press release reproduced in the Appendix to this chapter which offers further advice related to adult skills development).

IMAGINING LITERACY THROUGH WORDS, NUMBERS AND IMAGES

I have argued in various publications (Hamilton, 2012, 2014) that the use of numbers to imagine and measure literacy significantly contributes to the high credibility of the technological narrative promoted through the international assessments such as PIAAC, despite its flaws. I use analytical resources from Van Leeuwen (2008), Lemke (2005) and O'Halloran (2008) to support this argument, who are some of the few discourse researchers to take up the challenge of analyzing multimodal discourse including numbers. In summary, their approach suggests that as a mode of communication, numbers have affordances that fit with the commodification of literacy because they de-contextualize and objectify the objects and people they describe. They enable qualities (such as being functionally literate) to be isolated and to stand in for individual people. O'Halloran shows how the system of mathematical semiosis or meaning making conceived by Descartes was explicitly designed to "banish human context, experience and sensuality from truth" in order to offer unique analytic powers in place of these (O'Halloran, 2008, p. 46).

The power of numbers is to make possible precise description and manipulation of continuous relations between entities in time and space in a way that natural language is not so well-equipped to do. Numbers make it possible to present reality as amenable to prediction and control.

Numerical data facilitate the process of making comparisons through processes of aggregation and classification. In this process, they render value judgements invisible and offer an illusion of technical precision which is welcome to policy – in the words of Latour (2004, p. 231) they render "matters of concern" as "matters of fact". Research suggests that the power of numbers is amplified if modes are skilfully combined for communicating messages. Each mode (words, images and numbers) interacts with the others resulting in expansions of meaning.

The most traditional form of numerical presentation is the use of the matrix or table which Lemke (2005) suggests offers a very dense and succinct form of meaning-making which also displays relationships and patterns in a visual way. Presentations of international assessment data frequently use these kinds of display and web-based interactive applications allow audiences to select and shape their own tables, so seemingly taking control of the information.

Increasingly such tables are combined or transformed into creative visualizations and infographics which, arguably, enable audiences to absorb information about literacy from the surveys while by-passing the numbers it is based on. Primitive forms of these visualizations are in the form of bar charts, scatterplots, graphs and time series, but color, movement and spatial features are now being used to develop narratives from the findings (Williamson, 2016).

The developing specialism of data journalism makes sophisticated use of such visualizations. The well-known appeal of visual images and their capacity to promote emotionally powerful messages in headline form are useful where audiences are

unwilling or unable to engage in a sustained way with the numbing detail of complex tables or narratives about the intricacies of the skills assessments.

Both Lemke (2005) and Gorur (2011) warn about the dangers of such disengagement and the importance of opening up the black boxes of numbers if we are to be able to develop useful evaluations and critiques of survey findings that can be applied in policy. Such critiques are essential to recover the situated detail, dynamics and relationships that shape literacy practices in all their variety and which are crucial to making effective decisions in policy and practice for adult learners.

CONCLUSION

The use of numbers to imagine and measure literacy significantly contributes to the high credibility of the technological narrative of literacy and other adult skills, despite its limitations (Hamilton, 2012). Uncritical enthusiasm for Big Data is pervasive across many social policy domains and my argument thus has significance far beyond literacy and lifelong learning.

Despite their appearance of technical factuality the metrics on which surveys of adult skills are based are laden with value assumptions about the nature and meanings of literacy and the goals of adult education. These assumptions are made by a narrow range of experts, mainly based in the global north and are hidden by numbers which are hard for lay users to question. Peoples' own experience and meanings of literacy are devalued by this power grab. One of the urgent tasks for research and practitioners alike is to make visible and to challenge these assumptions which are colonizing the discourse of adult education, and to demystify the numbers that veil them. If the power of big data in adult education remains unchallenged, the result will be a narrowed and impoverished version of literacy learning that will do little to equip us for the demands of life in a complex and unpredictable world.

NOTE

- ¹ First round countries were: Netherlands; Finland; Japan; Flanders (Belgium); South Korea; Austria; Estonia; Sweden; Czech Republic; Slovak Republic; Germany; Denmark; Norway; Australia; Poland; Canada; Cyprus; Northern Ireland; France; Ireland; England; Spain; Italy; United States (also Russian Federation).

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APPENDIX

OECD Press release (<http://www.oecd.org/newsroom/improve-skills-to-build-fairer-more-inclusive-societies.htm>). See also <https://youtube/2fLIGLr8RQs>

Improve skills to build fairer, more inclusive societies

28/06/2016 – Poor skills severely reduce a person’s chance of a better-paying and more-rewarding job, and have a major impact on how the benefits of economic growth are shared within societies. In countries where large shares of adults have poor skills, it is difficult to introduce productivity-enhancing technologies and new ways of working, which stalls improvements in living standards, according to a new OECD report.

“Without the right skills, people will languish on the margins of society, technological progress will slow and countries will struggle in the global economy,” said Andreas Schleicher, OECD Director for Education and Skills, launching the report in Singapore. “Governments must improve their education system and work with business and unions to develop fair and inclusive policies so that everyone can participate fully in society.”

As part of its ongoing work to measure and improve adult skills around the world, the OECD has tested the skills of more than 50,000 16 to 65 year-olds in Chile, Greece, Indonesia (Jakarta), Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey. The assessments of reading, numeracy and problem-solving abilities measure what people know and how they use their skills at work. This builds on the 2013 Survey which tested the skills of more than 150,000 adults in 24 countries.

Skills Matter: Further Results from the Survey of Adult Skills finds clear evidence that developing and using skills improves employment prospects and quality of life as well as boosting economic growth. There was a strong link between a country’s performance in the survey and in the OECD Programme for International Student Assessment (PISA) for 15 year-olds, suggesting that high quality initial, compulsory education is essential for countries to build a highly skilled work force.

The Survey also shows that proficiency continues to improve over time, and that developing and maintaining skills over a lifetime is affected by participation in work and training. High-quality career guidance services, complemented with up-to-date information about labour-market prospects, are needed, together with effective active labour-market measures, such as counselling, job-search assistance and temporary hiring subsidies for low-skilled youth.