The Literacy 4.0 Project

Working Paper1
Literacy Practices in the Gig Economy

31 July 2017

Professor Lesley Farrell
Dr Chris Corbel

Melbourne Graduate School of Education

"…it is through the efforts of everyday writers that the streambed of mass literacy is changing course -- even though this change is going largely unrecognized by the institutions that should most be paying attention." Deborah Brandt (2015, p. 12)

List of Tables

List of Figures

Authors

Professor Lesley Farrell is Acting Dean of the Melbourne Graduate School of Education
lesley.farrell@unimelb.edu.au

Dr Chris Corbel is a Research Fellow in the Centre for Vocational and Educational Policy, Melbourne Graduate School of Education
corbelc@unimelb.edu.au

1 Workplace Literacy in the Fourth Industrial Revolution: The Literacy 4.0 Project

The Literacy 4.0 Project is examining the workforce literacy needs of the workplaces of the future. This Working Paper, on one aspect of Industry 4.0, the Literacy Practices of the Gig Economy, is setting the scene for the project.

Workplaces are said to be in the middle of a 'fourth industrial revolution', following the earlier transformations brought about by steam, electricity and digitisation. This revolution is often referred to simply as 'Industry 4.0'. The emerging 'smart' factories in Industry 4.0 increasingly rely upon automation augmented by artificial intelligence, the crowdsourcing of tasks, and the use of freelance workers engaged in microtasking.

In Industry 4.0 workplaces are changing into workspaces. "They now [form] local nodes of a complex network of people, technologies and practices that constitute a potentially globally distributed workspace. [Workspaces are] dynamic, fluid, often transient, working units defined and bounded by regular, routine information and communications technology routes." (Farrell, 2006, p. 17)

Established industry sectors, such as manufacturing in Australia and globally, have been disrupted by these changes, leading to job losses. There is a need to support transitions for existing workers into new jobs and to prepare new workers for the workplaces and workspaces of the future.

The debate about this support among NGOs, academics, industry and policy-makers has focused on the skills required for these new vocational settings. While there is an acknowledgement of the need to improve literacy, the nature of this literacy is rarely questioned. In the public discourse at least it seems to be assumed that what we need is more of the same.

Yet if industry is undergoing a revolution, might not workplace literacy itself also be undergoing dramatic change? A key issue for success in Industry 4.0 is understanding the nature of the literate practice of contemporary work, and the literacy texts and practices that underpin the skills, knowledge and attributes required in the new workplaces. In other words, if we expect education across the lifecourse to prepare people for Industry 4.0, then we need to understand *Literacy* 4.0.

In this project we are addressing this issue. We want to know to what extent the literacy required in these new workplaces is more or less the same or whether new literate practices are being generated and new literacies required. If so, what are these new literacies, how are they demonstrated, and how can they be learned?

Our aim is to stimulate debate, and ultimately to inform policy and pedagogy, based not on predictions for the future but on a better understanding of what is happening in workplaces and workspaces *now*.

This paper proceeds as follows. In the second section, *Context*, we present the background and rationale for the paper. We examine Industry 4.0 and its implications for skills and literacy, we present a brief history and justification for our preferred approach, Literacy Studies, and we provide an outline of the gig economy. In the third section, *Methodology*, we explain the methods used and the data gathered in this initial desktop survey. In the

fourth section, *Gig economy platforms*, we present our findings concerning the nature and processes of seven gig economy platforms. In the fourth section, *Gig economy texts*, we present our findings on the nature and use of the key text categories required for the platforms. In the sixth section, *Preparation for the gig economy text cycle*, we present some tentative findings concerning the extent to which key educational surveys address the gig economy texts. In the seventh section, *Literacy practices in the gig economy*, summarise what we've done, and what we've found. We conclude with a list of questions raised by this study and outline the further work that needs to be done.

2 Context

2.1 The 4.0 era

The themes of innovation and disruption are prominent in the current discourse of business and economics.[1] In recent years this discourse has coalesced around the notion of an emerging fourth global era, referred to as 'Industry 4.0'.[2] This has implications for what we will call 'Skills 4.0' and 'Literacy 4.0'.

2.1.1 Industry 4.0

The notion that the world economy is undergoing a fourth industrial revolution, based on smart systems and the gig[3], or sharing[4] economy, has become widely influential (Schwab, 2016, World Economic Forum, 2016). This has been accompanied by widespread disruption[5] of industry, with the consequent loss of jobs. The case of manufacturing is an example of disruption in Australia (CEDA, 2014; Farrell, 2016; AMGC, 2016; Scalabre, 2016; Potter & Durkin, 2017).

A key notion is *convergence*. As Farrell puts it:

> When I talk about Industry 4.0 what I'm talking about are the effects of the convergence of the technologies associated with Robotics, the Internet of Things and the Internet of Services. What's revolutionary about it is the convergence. These technologies can, and to some extent already do, operate as integrated networks. That convergence – across time, geographical distance and supply chains – makes smart factories possible. Smart factories are factories where cyber physical systems do more than produce products. They also monitor and modify the entire production process as it goes along. Individual robotic components communicate with each other, and, sometimes, with people to make decentralized decisions on a moment by moment basis. These networks generate vast amounts of data. That data supports self-monitoring quality assurance across a production network. (Farrell, 2016)

The 'gig economy' is part of Industry 4.0, in that, first, it also relies on the increasing capacity of technologies to join up people and systems even when they are globally and temporally distributed, and second, in that new forms of manufacturing (and other industries) rely increasingly on outsourced workers who they can reach and regulate through peer to peer and other software platforms.

---

[1] Such themes are not new - see, for example, Kress (1993).

[2] The point zero is presumably added to emphasise its ongoing technical nature, with its implied reference to version control).

[3] The notion of the 'gig' comes from the traditional employment patterns of musicians, who play one-off shows of a few hours for cash in hand. As a metaphor it captures the essence of the new employment arrangement.

[4] The Productivity Commission (2016) equates the sharing and gig economies. According to Richardson (2015) and Martin (2016) the gig economy can be seen as a subset of the share economy. We think sharing suggests a benign utopianism that is not a reflection of the actuality.

[5] The notion of disruption originated in the work of Joseph Schumpeter, whose reference to gales of creative destruction regularly reinvigorating capitalism gave rise, via the work of Christenson and Rayner (2003), to the current popularity of the word *disruption* in the discourse of business, and now education (Productivity Commission 2016).

The reassuring claim that there will be new types of jobs in Industry 4.0 is prominent in media and industry commentary (CEDA, 2015, 2016). Nevertheless, there remain concerns for the effect on the displaced workforce, especially workers in disrupted industries, their retraining and the implications for the VET system (Leahy, 2016). There is also concern for young peoples' future work and training needs as they position themselves to enter the workforce in the context of the volatility of Industry 4.0 (FYA, 2014, 2015, 2016a,b; Rice, 2017).

There are two types of growth in Industry 4.0 employment. On the one hand there are opportunities for those whose work is augmented by smart systems (Deloitte, 2017; McKinsey, 2017). Members of this group are likely to remain employed by a firm. This type of work is outlined in Farrell (2016).

On the other hand are the opportunities for those whose work is replaced by smart systems, and whose new work is facilitated by the peer-to-peer platforms of the gig economy. Members of this group are increasingly turning to work carried out on a freelance rather than a salaried basis, whether by choice or by necessity. These new "micro-employment" (Martin, 2016) vocational settings are at the heart of what has been called the gig economy. This is the focus of the present working paper.

2.1.2 Skills 4.0

The skills required for Industry 4.0 have been addressed in some responses to Industry 4.0 by NGOs, academic, industry and policy-makers (Hartmann & Bovenschulte, 2013, Durrant-Whyte in CEDA, 2015; CEDA, 2016; AIG, 2016b; Ithaca Group, 2016; Leahy, 2016; Griffin & Care, 2015; Morgan, 2016; Deloitte, 2017, Goedegebuure & Schubert, 2017). These skills debates have focused on STEM skills, foundation skills and personal attributes and attitudes (the so-called 'soft' skills). They are of concern to both the school and the VET sectors (Cameron & O'Hanlon-Rose, 2011).

However there is rarely an explanation or a definition in these documents of *skills*, a word which remains, in a sense, empty. Sometimes lists are given (for example, WEF 2016) but rarely examples. Meaning is instead created through the association of *skills* with other words, either before (*employment skills, soft skills, STEM skills),* or after (*skills gap, skills instability, skills profile*). A particularly frequent, and misleading, collocation of the term *literacy* is with *crisis* (Black & Yasukawa, 2011).These phrases are repeated and recycled as if there is there is a shared meaning, but their very ubiquity hides the absence of one. Corbel (2016) found this process to be characteristic of skills policy in Australia for the past forty years.

Although there is frequent reference to new *jobs* in Industry 4.0, there are few examples offered as to what they might be. In fact, the most detailed analyses focus not on jobs but on *tasks* within industry sectors (McKinsey, 2017) and their potential for automation or crowdsourcing[6].

Although Industry 4.0 is the latest manifestation of the knowledge economy[7] there has been little attention to knowledge itself (Farrell & Fenwick, 2007; Brandt, 2009; Gamble, 2016). Where knowledge is mentioned it is usually conceptualised as information and dismissed as

[6] Crowdsourcing is the process of breaking tasks into smaller components and allowing many separate individuals to carry them out.

[7] Although the nature of a knowledge economy is contested we will accept it as a given for our purposes here.

being rapidly out-dated, or simply available online and on demand. AIG (2015, p.15), for example, recommends that there is a need to "ensure all stages of the education process focus on instilling competencies rather than the retention of specific knowledge."

Some insights into Skills 4.0 and its connection to Literacy 4.0 can be gained from the skills *problems* quoted by industry. Poor completion of workplace documents was nominated by industry in Australia as the most common foundational literacy problem (AIG, 2016, p.17). As we argue below this may due to an increasing reliance on writing in workplaces that has not been fully understood. CEDA (2015, p.13) calls for "a broad appreciation for technology needs to be developed across the population so that it is understood and used in a similar way to how the written word is today". We argue that technology and writing have in fact become one and the same thing.

Much of the debate on what skills to teach for Industry 4.0 seems to be about, in effect, more of the same - foundation skills, interpersonal skills, problem solving skills, and so on.[8] Even the current emphasis on coding had its origins half a century ago with the work of Seymour Papert. But if a revolution is taking place in industry, as it's claimed to be, might not a similar revolution be taking place in skills, and underlying skills, in *literacy*?

2.1.3 Literacy 4.0

The term literacy has a wide usage as part of the debates surrounding skills and work. It is often used to refer to a general understanding of an area, such as ICT literacy or science literacy, or as a blanket term covering reading and writing as in NAPLAN. A narrower view of literacy is found in the use of the term as part of the notion of foundation literacy, which is to do with basic reading, writing and numeracy.

Much of this usage conflates skills and literacy, yet it is important to maintain a distinction between these two notions. Literacy underlies skill, and requires investigation in its own right. A key issue for engaging with Industry 4.0, therefore, is the nature of the literacy texts, events and practices that underlie the skills, knowledge and attributes required by Industry 4.0. In other words, we need to understand Literacy 4.0. The literacy practices of Literacy 4.0 need to be investigated and understood to ensure the best policy and pedagogic responses.

2.2 Literacy studies

Understanding the complex interconnections between people and texts in communication is the goal of the field of Literacy Studies, which we draw upon in this paper. There have been three broad focuses in the development of the field.[9] All three focuses, on the individual, the social and the material aspects of literacy, are intertwined in the field today and in the investigative approach we have taken.

2.2.1 Focuses in literacy studies

Individual studies of literacy focus on the psychology of the individual, and are therefore sometime referred to as an 'autonomous' view of literacy (Street, 1993). They draw largely upon cognitive psychology. They underpin everyday notions of reading and writing for many people, including business people and policy makers.

[8] An exception is Durrant-Whyte's (2016) call for "deep" skills, but these only relate to ICT.
[9] These might perhaps be thought of as Literacy 1.0, 2.0 and 3.0!

Social studies of literacy are based on the notion of literacy practices as part of a social 'ecology' (Barton, 1990). These studies focus on literacy as regular, text-mediated *literacy events* that are a part of social *literacy practices*, shared among people in particular settings and communities (Street, 1993; Graddol et al., 1994; Hamilton et al., 1994; Baynham, 1995). This focus on communities is particularly relevant in the light of the focus on community formation in the gig economy platforms examined in this report.[10]

Material studies of literacy seek to understand literacy in relation to physical and virtual objects, from paper and screens (Sellen & Harper, 2002), through to games, social media and interactions with robotic systems (Edwards & Nichol, 2007; Gourlay, 2015; Budach, Kell & Patrick, 2015). Some of this work draws upon actor-network theory (Edwards & Nichol, 2007). A related strand of work seeks to understand new alignments between alphabetic and non-alphabetic multimedia texts and their associated 'multiliteracies" (Cope & Kalantzis, 2000).

2.2.2 What we mean by literacy

We bring elements of all three strands to our understanding of literacy in Industry 4.0. When we talk about literacy in this paper we use the term to mean **appropriate engagement with texts**. *Texts* are manifestations of symbolic systems. These symbolic systems may be alphabetic, numeric, pictorial, visual, aural, or combinations of these.

By *engagement* we mean both production and consumption, that is, both writing and reading. By *appropriate* we mean the texts are created and used in conformity with the *needs* of the individual, in whatever social role, and the *expectations* of others. These will not necessarily be human but may be other computers in cyber-physical systems[11].

We consider individuals' internal states and their external context in this engagement with texts. The external context includes community and technology. Knowledge and skills are manifested in texts. Literacy underlies knowledge and skills and therefore needs to be analysed separately, not conflated into a single entity. In vocational settings, our claim is that literacy isn't just an increasingly important part of workplaces, but that it actually constitutes work*spaces*.

2.2.3 Research on workplace literacy practices

The workplace has long been studied as a key setting for literacy practices (Gee, Lankshear & Hull, 1996; Hull & Zacher, 2007; Gowan xxxx). A focus has been on the effect of changes in reading and writing requirements that have accompanied changes in work practices as workplaces have become more automated and, in Zuboff's terms, "textualised' and "informated" (Zuboff, 1988; Baynham & Prinsloo, 2007; Holkner ,2007; Farrell, 2007, 2009; Brandt, 2005, 2009, 2015). Some early writers within the field of information science also addressed some of the non-technical aspects of emerging online textual practices (Barrett, 1989, Brown & Duguid, 2000).

Deborah Brandt argues that there is in fact a revolution going on in workplace literacy practices as a result of the emergence of the knowledge economy over the past forty years.

[10] For an early treatment of online communities see Rheingold (1994).

[11] While the advent of far more sophisticated voice recognition software might suggest that literacy has passed its use by date, we argue that this is not the case. The line between speech and writing is blurring as people 'chat' by text and texts are transformed from spoken to written and back again through software programs.

Brandt argues that as a result of the knowledge economy there has been what she calls "the rise of writing" at the expense of reading, and that this is redefining mass literacy (Brandt, 2015). For Brandt a key feature of the knowledge economy is that increasingly firms create value by embedding knowledge in written texts as well as goods and services.

Brandt's study focused on professional writing – she acknowledges that she did not look at manufacturing work, where writing may once have been incidental to the work itself but now is central. Now, however, more than ever before, writing is a feature of such workplaces. For example much vocational writing now involves filling in a form on a device. This has benefits in the form of "adaptive case management" (Fisher, 2016). It also causes problems, for example, where reports are framed by templates (Sellen & Harper, 2002; Brandt, 2016; Karlsson & Nikolaidou, 2015).

An abiding concern within literacy studies is on the relationship between workplace changes, literacy, and the formation and framing of individual identity (Zuboff, 1997; Sennett, 1998; Farrell, 2006) though this is beyond the scope of the present paper.

2.2.4 Research on literacy in the gig economy

Most research on literacy in online settings has been done on changing literacy practices in educational and social settings (Pigg et al., 2014; Jaworski, 2015; Messina-Dahlberg & Bagga-Gupta, 2016). Much less research has been done on changing literacy practices in new online *vocational* settings.[12] Although there is work being done about the cultural and legal aspects of labour practices in the gig economy (Aloisi, 2016), there is none to date on *literacy* practices.

Brandt's work on literacy in the knowledge economy (2005, 2009, 2015) examines the changing writing practices of workers over a twenty year period. It takes us up to the beginnings of the new vocational settings of Industry 4.0. Her subjects still worked within companies and called upon them internally for support. Nowadays, as companies shed workers, many people like those Brandt studied are now left to fend for themselves. The textual practices of those now working online and on their own are the focus of this study.

2.3 The gig economy

2.3.1 Definition

Industry 4.0 is typified by the greater use of smart systems and by the gig economy. Smart systems are those in which some form of artificial intelligence is embedded in products and processes, usually based upon information gleaned from vast amounts of data. The gig economy is one in which information about tasks and resources is shared to maximum benefit of owners, producers and users. The key feature of the gig economy is the emergence of online platforms that bring producers and consumers together directly on a peer-to-peer basis. These have emerged in transport (Uber), tourism (Air B&B), resource circulation (eBay) and in work (Mechanical Turk).

[12] An exception is a study of career portfolios (Collin 2011).

2.3.2 Features

As an employment system the gig economy has three main features (Richardson, 2015; Martin, 2016).The first is the use of employment platforms to bring together people who need a task done with others who are willing to do it. These digital platforms mediate between firms, customers and workers through the creation and management of an online 'community'. This community may be local or global, vastly increasing the range of potential customers and competitors for each worker.

The second feature of the gig economy is the employment relationship between firms, customers and workers. Workers are treated as stand-alone entities fully responsible for all aspects of their own working lives. This can be seen as both empowering and limiting for individuals.[13] The third feature of the gig economy is in the structure of the firms. There is the increasing gap between the small core group who develop and manage the platform and the very large number of workers who carry out the tasks. Truelancer, for example, has a core staff of seven for over 250,000 freelance staff (AIG 2016).

2.3.3 Effects

In one sense this pattern of work is not new. It draws upon those whose work has always had a 'freelance' aspect, such as graphic designers. It draws upon some employment features of Industry 1 and 2 that have been successfully challenged in the past by unions. What is new, however, is that it may now attract those displaced by industry disruption, whose work, such as in manufacturing, has not traditionally had these characteristics, or has not had them for some time.

The growth of the gig economy has been rapid (Deloitte, 2016) and may begin to move towards more comprehensive work (Wisskirchen et al., 2017). It is the subject of much promotion (for example, AIG 2016a) and also critiques (for example Grey, 2017; Frase, 2016; Chalmers & Quigley, forthcoming). Much of the media presentation is based on the repetition of phrases such as "40 percent of jobs will be lost to automation" from various industry body and consultancy reports.

It is the needs of these workers, transitioning in mid-career from disrupted industries, who are the driver for this study. The purpose of this study is to understand the literacy practices required for their effective participation in the gig economy and how policy makers, educators, careers advisors and support staff[14] can help prepare them for it.[15]

[13] See Aloisi (2016) and the campaigns for worker recognition by The Independent Workers of Great Britain https://iwgb.org.uk/.

[14] Such as those at Skills and Jobs Centres http://www.education.vic.gov.au/about/programs/pathways/Pages/auto.aspx?Redirect=1

[15] This study has coincided with the closure of the Hazelwood power station in The Latrobe Valley, an area with which both authors have connections. The media reports that have accompanied the closure provide examples of the workers facing this kind of transition. http://www.abc.net.au/news/2016-11-02/hazelwood-workers-latrobe-valley-power-station-future/7946936

3 Methodology

3.1 A literacy audit

Research of online literacy practices may involve ethnography (Garcia et al., 2009) or "netnography" (Kozinets, 2009; Sindhwani & Ahuja, 2014); discourse analysis (Collin, 2011; Richardson, 2015; Martin, 2016); or text mining (Ignatow & Mihalcea, 2017), and the analysis of keywords and their co-text (Corbel, 2016). These approaches were beyond the scope of this initial working paper, however.

In this paper we have carried out a desktop 'literacy audit'. We also undertook a literature review of vocational education and literacy journals and government and business reports based on key terms such as *gig economy, sharing economy, microwork, microtasking,* and *digital labour.* We examined the key texts involved in participation in a sample group of gig economy employment platforms, and how well these texts were represented in three high status education surveys.

3.2 Platforms

In choosing the platforms our starting point was Local Motors, a company located at the intersection of automotive and technology sectors and utilising a software platform to co-ordinate the actions of its employees, community members and outsourced workers. Local Motors was identified by Farrell (2016) as capturing aspects of the future of manufacturing work, a particular concern for Vocational Education and Training in Victoria. From there the search branched out to less specialised platforms and to more text-focused platforms, drawing upon the list in the Productivity Commission's *Labour in the 'gig' economy* (2016 p. 150).

The final seven platforms were chosen based on their apparent reading and writing requirements, which were gleaned by examining each platform as a visitor.

The platforms ultimately selected were Airtasker, Freelancer, CrowdFlower, Local Motors, 99designs, Scripted and SkillShare. Table 1 provides a brief description of the seven platforms.

Table 1 Sample gig economy platforms

Platform's self-description	**Relevance to Literacy 4.0**
Airtasker	
Airtasker is a trusted community marketplace for people and businesses to outsource tasks, find local services or hire flexible staff in minutes - online or via mobile.	Airtasker is easily accessible and has the lowest apparent requirements for writing.
Freelancer	
Hire expert freelancers for your job online. Millions of small businesses use Freelancer to turn their ideas into reality.	Freelancer offers more complex tasks and more text-oriented tasks than Airtasker, aimed at a general and increasingly specialised audience – small businesses as well as individuals.
CrowdFlower	
Our platform combines machine learning and	CrowdFlower focuses on the relationship

humans-in-the-loop in a single platform for data science teams doing sentiment analysis, search relevance, or business data classification.	between humans and AI, with a focus on reading rather than writing, and apparently requiring reasonably educated generalists as workers.
Local Motors	
We refuse to shape the future in mega-factories of the past. Our ideas come to life in Microfactories - the cleaner, smarter and more efficient factory of tomorrow. We do our best thinking and creating behind open doors.	Local Motors focuses on generating ideas for new manufacturing and taking them to development. It has no apparent reading or writing focus.
99designs	
The world's largest online graphic design marketplace. Design is the secret to great business.	99designs focuses on existing (visual) literacy skills of its community. It is similar to Freelancer but more design-focused. It is similar to Scripted, but for a different type of text – visual instead of written.
Scripted	
Scripted does it all: Great marketing requires great writing. Where marketers and writers work together.	Scripted is the most 'print-oriented' platform. It is similar to 99designs but focused on written texts. Print-based texts are the product as well as the process.
Skillshare	
For your career. For your passions. Classes taught by expert practitioners.	Skillshare offers training in skills. Its view of teachers and teaching is that all you need is passion and support. This requires the preparation delivery and promotion of multimedia texts.

3.3 Data

One of the authors joined each of the seven selected platforms as a member, which provided access to more textual material than was available on their public web pages. A second examination of the seven sites was then undertaken, based on a standardised template. The headings of the templates are used to frame the findings in the sections below. The template headings were as follows:

1. The company
    a. Reason for choosing this company
    b. Tagline
    c. Point of difference
    d. Purpose/Beliefs/Values
    e. Statistics
2. How it works
    a. Joining
    b. Participating
    c. Projects

    d. Contests
3. People
    a. Team
    b. Customers
    c. Workers
    d. Other
4. Resources
    a. Blog
    b. Guides
    c. Experts
    d. Other
    e. Literacy tasks

There was no actual participation by the researchers as members of any of the platform communities. Since the audit was restricted to freely available textual material in the public domain, with no engagement with actual community members, no human research ethics clearance was required[16].

Data took the form of notes based on the template and texts or text fragments from the platform sites. These texts were chosen by following links from each platform's splash page, and cross-checking coverage against the site map found at the bottom of most splash pages.

Where texts comprised long pages of items, the first page was saved, and the first item viewed. Texts appearing as complete entities, such as position descriptions, were saved in full. Table 2 shows the range of texts that comprise the data in addition to the template notes. The headings are explained in Section 5. *Gig economy texts*.

Table 2 Texts from platforms

	Process	**Peripheral**	**Product**
Airtasker	Responses to task request How it works	Future of work (blog) Customer Experience Specialist PD Product Designer PD Summit Q&A blog Tips, profile, news Blog	
CrowdFlower	Potential jobs Sample job instructions and questions	Using CF to understand storytelling in science (blog)	Hillier et al 2016 (article)
Freelancer	Research writing jobs Research paper bids Research writers in Australia for hire How it works	How does Freelancer.com work? (Blog) 10 tips for writing an effective bid How to rate an employer	
Local Motors	How it works	Employee spotlight Junior producer (PD) LM introduces Forth	
99 designs		Senior copywriter (PD)	

[16] Melbourne Graduate School of Education Human Ethics Advisory Group [MGSE HEAG] Human Research Ethics 2016 Information Kit Online Version p. 205

Scripted	Writing proficiency test		
Skill Share	Introducing portfolio reviews	Skillshare raises millions Redesigning education for the masses Associate Community Manager PD Sample application	

An examination of the websites of three high profile competence assessment surveys, PISA, PIAAC and NAPLAN, was then undertaken for indicators of the extent to which these surveys addressed the texts required for effective use of the platforms. For each survey the most likely competence domain was chosen, as was the most relevant sample test item from the publicly accessible tasks on the site.

The findings of the audit are presented in the following three sections, which focus on the work of the Platforms, the Texts that are embedded in this work, and the Preparedness required for successful engagement with the texts.

4 Gig economy platforms

4.1 Features

We sought to identify characteristics and commonalities in the features of the seven platforms that were identified from a visitor and (inactive) member perspective. We considered the expressed platform brand essence, value proposition, goals and values, size, and scope. All text in the tables if from the platforms.

4.1.1 Brand essence

Each platform has a tagline on its splash page. These are intended to capture the brand essence.

Table 3 Platform brand essences

Platform	Tagline
Airtasker	Airtasker is a trusted community marketplace for people and businesses to outsource tasks, find local services or hire flexible staff in minutes - online or via mobile.
CrowdFlower	Our platform combines machine learning and humans-in-the-loop in a single platform for data science teams doing sentiment analysis, search relevance, or business data classification.
Freelancer	Hire expert freelancers for your job online. Millions of small businesses use Freelancer to turn their ideas into reality.
Local Motors	We aren't here to build vehicles. We're here to reinvent them. We do our best thinking and creating behind open doors. We like our ideas big and our footprint small. We're Local Motors. And the world is full of tech companies nothing like us.
Scripted	Great marketing requires great writing. Scripted does it all.
99designs	Design is the secret to great business. Whether you have 1 employee or offices around the world, everyone deserves access to great design.
SkillShare	For your career. For your passions. Classes taught by expert practitioners. Unlimited access to over 14,000 classes.

Each brand has its own hyperbolic variation of 'greatness'. Only CrowdFlower seems somewhat restrained.

4.1.2 Value proposition

Each platform seeks to distinguish itself in a global marketplace by emphasising its point of difference and value proposition.

Table 4 Platform value propositions

Platform	Point of difference
Airtasker	Choose the right person for the task and get more done.
CrowdFlower	Start with your business process described in plain English, finish with a viable AI solution blending humans and machines.
Freelancer	For the freelancer or service provider, Freelancer.com offers a constant source of part-time to full-time work opportunities, without the trouble and expenses of advertising and self-promotion.

Local Motors	We refuse to shape the future in mega-factories of the past. Our ideas come to life in Microfactories - the cleaner, smarter and more efficient factory of tomorrow.
Scripted	Where marketers and writers work together.
99designs	The world's largest online graphic design marketplace
SkillShare	Skillshare is an online learning community where anyone can discover, take, or even teach a class.

These vary in distinctiveness. Some, like Airtasker and Freelancer, are in broad categories and have competitors. CrowdFlower and Local Motors appear genuinely different. CrowdFlower makes a commitment to plain English.

4.1.3 Goals

Each platform is explicit about its goals and purpose.

Table 5 Platform goals

Platform	Purpose
Airtasker	Get more done. Do stuff that matters. Walk the talk. Stay open. Be human. Live community first. Play hard.
CrowdFlower	Humans and Machines, Better Together. Machines cannot confidently replace humans, but they can effectively augment humans.
Freelancer	Freelancer.com strives to provide a safe, simple, and affordable environment for cooperation between freelancers and employers around the world.
Local Motors	…an online co-creation community with more than 60,000 active members from around the globe. This network of inspired innovators routinely confronts the world's most formidable challenges.
Scripted	We realize that improving the quality of writing on the internet is a lofty goal, which is why we need a great team to do it.
99designs	Design always finds a way. Design doesn't do borders. Design can come from anywhere. Including you. Design loves a good cause. Design is supposed to be fun. Design draws a crowd.
SkillShare	We started Skillshare to close the professional skills gap and provide universal access to high-quality learning. By teaching the skills needed in tomorrow's world, Skillshare empowers people to advance their careers, improve their lives, and pursue the work they love.

SkillShare says it has a "mission", and all platforms focus on improving the community, whether local or global. They emphasise the life-enhancing aspect of their work, even, as with 99designs, giving it agency.

4.1.4 Core values

These are usually expressed as part of an invitation to apply for employment.

Table 6 Core employment values on the platforms

Platform	Employment
Airtasker	Take your skills to the next level, where every employee helps to build a product that people use every day. We are here to make people's lives

	better. We keep things positive We believe in the power of the local community.
CrowdFlower	CrowdFlower's culture is about our four core values: Honesty, Humility, Grit, and Performance. We have a quirky, hard-working group dedicated to building a great platform, making our customers happy, and making our employees feel at home.
Freelancer	Build products that change lives. Start an exciting career with Freelancer.com, a data-driven and product-focused technology company where every employee directly influences, impacts, and builds the business. Share Our Values: Take Charge, Continually Improve, Be Data Driven, Be The Best & Hire The Best, Change Lives
Local Motors	Working at Local Motors is unlike any other job you've had before. It's not easy to revolutionize the way people get around, but we're up to the challenge… so if you thrive at the bleeding edge of innovation, we welcome you.
Scripted	We realize that improving the quality of writing on the internet is a lofty goal, which is why we need a great team to do it. At Scripted you'll be a key part of a talented team, and we'll rely on you every day to keep this goal alive.
99designs	99designs is changing the way world creates design. Your contributions will help more than a million designers from 192 countries connect with customers worldwide. That's a big stage. You're ok with paparazzi, right?
SkillShare	Join our Mission-Driven Team. If you want to work someplace fun, entrepreneurial, and creative — where your work truly matters — Skillshare could be your next great adventure.

All platforms share a commitment to having fun and changing the world.

4.1.5 Size and scope

Platforms vary in the amount of statistical information they provide.

Table 7 Size of the platform communities

Platform	Statistics
Airtasker	Over 950,000 trusted people. Over $116m worth of jobs created. Over $10.8m jobs available per month.
CrowdFlower	Not available
Freelancer	Freelancer.com is the world's largest freelancing and crowdsourcing marketplace by number of users and projects. We connect over 23,149,460 employers and freelancers globally from over 247 countries, regions and territories.
Local Motors	The heartbeat of Forth is an online co-creation community with more than 60,000 active members from around the globe.
Scripted	Over 80,000 users
99designs	39,071 designs made daily and over $150M USD paid to our community, 313,146 projects created 3,420,212 designs delivered 240 free design contests, value of $118,000 in 57 countries 364,571 happy customers, 1.42 million talented designers

SkillShare	2+ million students. $5+ million paid to teachers. Over 14,000 classes

The sites that depend on breadth and volume provide most data (Airtasker, Freelancer, 99designs, SkillShare) and have very large numbers of members. The more specialised have fewer, but similar numbers (Local Motors, Scripted).

4.2 People

Each platform community has three core roles - Worker, Customer, and Team member. As was seen in the size and scope of the platforms (Table 7), there are vastly more workers than team members (see Figure 1 below). The platform itself replaces the mid-level administrative and clerical work that would have once been managed by employees of the firm.

Figure 1 Structure of a platform firm

Names of the community roles vary to some extent across the platforms.

Table 8 Names of participants on the platforms

Platform	Workers	Customers	Team member
Airtasker	Worker	Poster	Team member
CrowdFlower	Contributor	Customer	Team member
Freelancer	Freelancer	Employer	Team member
Local Motors	Thinker, Tinkerer, Solver	Customer	Employee
Scripted	Writer	Customer	Team member
99designs	Designer	Customer	Team member
SkillShare	Teacher	Student	Team member

The most consistently used terms for the top tier is team member. The different names reflect the focus, values and business model of the platforms. [17]

4.2.1 Workers

The platforms need to entice workers to join them. Work is presented as fun and joining is straightforward in most cases. Workers can then engage in the creation and curation of their individuality on the platform through fine-tuning their profiles, giving feedback, undertaking training, entering for awards. Workers can improve their employment chances

[17] The terminology is not neutral, and may intentionally obfuscate the legal status of the workers. See https://www.theguardian.com/commentisfree/2017/apr/06/the-guardian-view-on-corporate-speak-offboarding-the-jargon

by improving their level (as in game play - see below) and status through competitions such as the Airtasker Community Summit. All involve a least a minimum of low level writing. Such processes are familiar to users of social media.

4.2.2 Customers

The extent of involvement by customers varies, and hence so does their requirements for textual activity. Some platforms focus on their customers (CrowdFlower, SkillShare). Most assist customers to prepare their job posts. Some provide templates to assist in writing tasks like bidding.

Some platforms, such as Airtasker, treat workers and posters identically - being a worker or a poster is interchangeable, and the roles can easily be switched. Some platforms separate them completely (Local Motors, CrowdFlower). Participating in the gig economy therefore involves not just workers learning to work with customers, but customers learning to work with freelancers (Deloitte, 2017).

4.2.3 Team members

Some sites give indications of the numbers of team members (i.e. actual employees)[18]. Some provide profiles of team members. There are very few employees relative to workers and customers. Each platform advertises positions in its central management team. Team members are expected to reflect core company values (see Table 6 above). Platforms make employment by the company appear fun and attractive.

An examination of the position descriptions available suggests team members are mainly in technical development and customer relations. Position descriptions rarely specify actual qualifications as requirements, though experience with certain products is helpful. The following is a typical requirement:

> Curiosity, creativity, and ambition. Expensive diploma or not, true talent isn't always something that can be taught in school. Ideally you would have done similar work formally or informally; but maybe you're gifted, self-taught or have been freelancing for years. If you think you have what it takes let us know.

This is for a Product Designer at Airtasker, a technical role, but it could just was well be for the other main employee category, customer service.

4.3 Processes

The work of the platform is the creation and maintenance of a community of workers, customers and employees. Each platform provides a description of the how it gets these things done. These are summarised below.

4.3.1 Getting on board

Getting on board involves the following steps.

- Register as a worker, customer or simply as a community member, which covers both. This may require additional actions, such as a proficiency quiz (Scripted)

[18] We are using the platforms' distinction between employees and members. See Aloisi (2016) for the debate as to whether workers are actually employees.

- If you're a worker describe yourself. This can be as short or long as you like. You may be able to attach work samples.
- If you're a customer describe your needs. You may be guided through this process with a template.

4.3.2 Getting a job done

Doing a tasks involves the following steps.

- Customers describe the job (task) they want done. This can be brief or extended.
- Workers may interact with the customer to clarify the job. Some platforms allow and encourage interaction between workers and customers, others don't.
- Workers make an offer to do the job. Other bids may be displayed to potential bidders.
- Workers and customers may give feedback once the job is complete.

4.3.3 Projects and contests

Several platforms allow the customer to present the job as a project or a contest. The use of contests as well as projects introduces a *gamification* element that blends other genres of online activity into a mixture of work and play (Fuchs et al., 2014).

4.3.4 Community

The notion of community is central to membership. Airtasker members are encouraged to "hang out" on the platform between gigs. Hanging out involves making use the various textual and communication resources on the platform. Membership is not transferable to other communities.

4.4 Resources

Resources include a range of texts which support, frame and develop the work of the community. These texts focus on communication and information.

All platforms have blogs that include tips for workers, community news, and external news reports. Members can write and leave comments and can write blog entries. Some platforms provide access to expert workers and/or team members. This usually takes the form of a written chat.

All platforms provide written guides concerning how to get the best out of membership. These are usually written by team members, but may also by be supplemented by workers in blogs. Freelancer provides explanation of how the site works from both the team and the members, suggesting that in some cases members resort to the crowd (other workers) rather than the elite (team) for guidance.

5 Gig economy texts

5.1 The gig as a literacy event

A literacy event is a recognisable, identifiable, everyday activity in a particular community that involves reading and writing. In the gig economy carrying out a gig is a literacy event. From the data we identified three categories of text in a gig - core texts, peripheral texts and product texts. The gig literacy event text categories are presented in Figure 2.

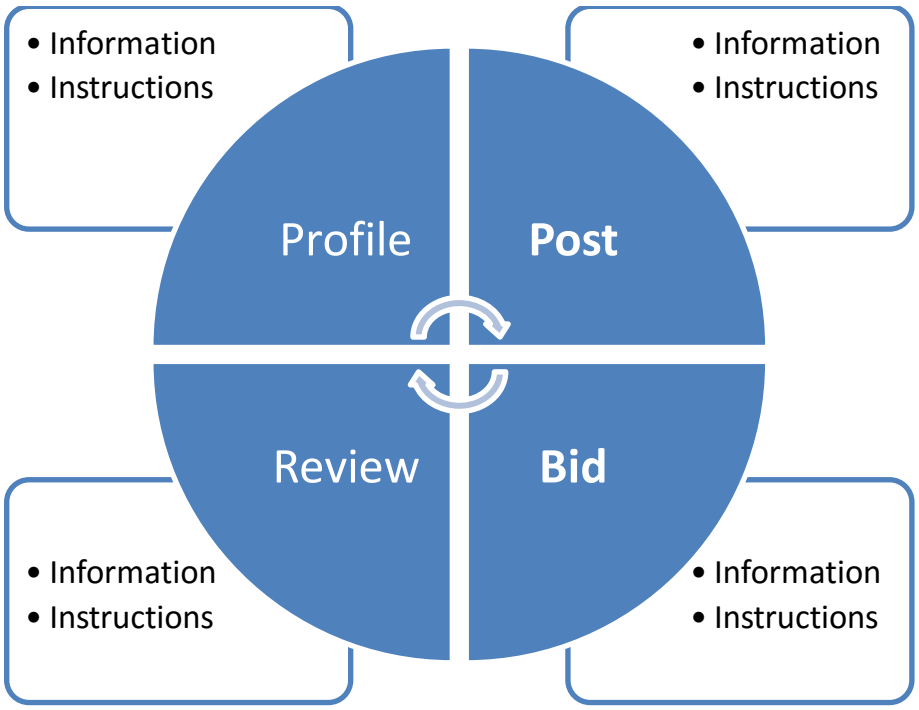

Figure 2 The basic gig economy literacy event text categories

Core texts are those involved in accessing and using the platform. They are essential to getting a job done. Process texts form a continual cycle of which posting jobs and bidding for jobs are core. Providing reviews or updating profiles are optional.

Peripheral texts are not central to the work of the platform, but provide information and support for the platform community to carry out their jobs.

Product texts are those which are the actual outcome of a job.

These are explained in detail below.

5.2 Core texts

There are four process texts - profiles, posts, bids and reviews. These texts form the basic textual cycle of the gig economy. Posts and Bids are required for anything to happen. Profiles and Reviews are to some extent optional, but required for anything other than subsistence on the platform. The text cycle focuses on writing but reading is embedded in the cycle in the form of browsing, skimming, scanning and searching associated texts.

5.2.1 Profiles

Profiles are a requirement for becoming a member of the platform's community as a worker. They range from a few words to detailed documents including sample of work. Profiles can be readily accessed by visitors and customers. They are always a work in progress. Workers are encouraged to continually modify their profile, just as they are in other areas of social media. In so doing they develop both their identities and their relationships.

Profiles can be enhanced by contributing to the community in the form of feedback, responses to blogs and articles. As in computer game play moving up levels helps build the profile. This can be done through improving your metrics on job completion, or by undertaking internal training courses, for which you may have to pay.

5.2.2 Posts

Posting of descriptions (briefs) of jobs (tasks) are the customer's responsibility.
They range from a few words to completed templates provided by the platform.
Jobs may be displayed to potential workers according to each worker's status. The worker browses the list and selects a job to bid for. There may be a competitive element between writers and a time limit imposed.

5.2.3 Bids

The worker bids for a job. The bid is a written text and requires the workers to distinguish themselves from many other bidders. Some platforms offer advice on how to become a successful bidder. It's not always based on price - some claim it's the quality of the writing that matters.

5.2.4 Reviews

Customers and workers are encouraged to review each other and give feedback. Giving and receiving feedback is seen as a way to build profiles and trust within the community. However giving and receiving feedback is a sensitive process and some platforms provide guidance on how to do it.

5.3 Peripheral texts

These texts are linked to the required texts and are activated as necessary at points in the basic text cycle.

5.3.1 Informational texts

Informational texts are in the form of documents, blogs and chats.

Documents include Guides, press releases, press reports, position descriptions and articles. They are written by members of the team or expert members of the community.

Blogs are regularly updated sites managed by team members or expert members of the community. They cover technical and social elements likely to be of interest to the community. Some are for members only, while others are accessible to any visitor to the platform. Most have opportunities for posting comments.

Chats may occur between customers and writers during the bidding process. Chats between workers and customers are typically to clarify a task. Evidence of the need for this is shown

in the Airtasker Q&A blog where workers ask the team to improve the customers' framing of the jobs, that is, improving the bid text. Chats are also possible between workers and team members or designated experts.

Chats are a written form of spoken conversation without the visual feedback that face-to-face communication provides. Jointly creating such texts in real time is a complex task, particularly since the relationships between community members may not be well-developed.

5.3.2 Instructional texts

Instructional texts include documents, FAQs, and templates. All platforms have a document or section called something like "How it works", which sets out the basic text chain described above. Instructions are usually written by team members, though some worker contributions to blogs also serve this function. This is an example of what was previously the work of professional technical writers (Barrett, 1993) becoming shared with non-specialists.

Guides of various types, other than in relation to the basic text chain, are written by team members and workers. These are often in the form of FAQs and other relatively unstructured texts, rather than in the form of a hierarchically structured text such as those traditionally associated with hardware and software in the past.

Templates are sometimes provided to assist customers and workers to complete the texts involved in the core text cycle of profile, post, bid and review.

5.4 Product texts

Product texts are those which are the typical outcomes of jobs.

The extent to which texts are outcomes of a job rather than part of the process varies across the platforms, broadly according to how generalised or specialised their services are. Generalist platforms like Airtasker and Freelancer offer text preparation as one of a wide range of offerings. These platforms are perhaps not highly concerned with all aspects of these texts, since they are relatively low status texts. However, there are many requests for higher status texts such essays to be written, a matter of concern for education regulators (Cook, 2017).

Specialist platforms provide higher levels of control, whether in the forms of restrictions on entry (Scripted), or highly visible outputs (99designs and Skillshare). Each of the three specialist platforms focuses on a particular textual mode. The most complex alphabetic texts are on Scripted. The most complex graphic texts are on 99designs. The most complex multimedia texts are on Skillshare.

The number and nature of Product texts varied greatly between platforms, from very low (Airtasker) to very high (Scripted). They range from blog entries to complex written reports and multimedia teaching materials. Product texts are beyond the scope the present study.

Although all platforms required a basic level of literacy the seven platforms varied in complexity broadly in line with the complexity of the product texts and worker specialisation required.

Table 9 Complexity of product texts in the platforms

High					*SkillShare* (Vocational teaching)
Complexity of textual products			*Scripted* (Written marketing texts)	*99designs* (Graphic design)	
		Freelancer (A wide range including texts)			*Local Motors* (Engineering)
	Airtasker (Local, mainly physical tasks)	*CrowdFlower* (Reading tasks for educated generalists)			
Low	**Complexity of knowledge and skill required**				**High**
Low					

The seven platforms varied broadly along two broad continuums - complexity of textual product and complexity of knowledge and skills. Complexity increases from bottom left to top right. Increasing textual complexity reflects more complex written genres, and more complex multimedia texts.

6 Preparedness for texts in the gig economy

6.1 Surveys

Three competence assessment surveys were examined for indications of how well they address the textual demands of the platforms. The surveys were examined to see which of their domains best addressed the gig economy text cycle, either directly or indirectly. The domains chosen were those that involved being online, collaborating, and problem solving in some way.

A sample assessment task was chosen from each domain for further examination. The sample tasks were examined for evidence of the texts identified in the platform analysis. The surveys, domains and tasks are listed in Table 10.

Table 10 Surveys, domains and sample tasks

	Domain	**Sample task**
PIAAC	Problem Solving in Technology -Rich Environments [19]	Job Search[20]
PISA	Collaborative Problem Solving[21]	The Visit[22]
NAPLAN	NAP- ICT Literacy[23]	The Battle of the Bands[24]

6.2 PIACC

PIAAC is "(an) international survey … conducted in over 40 countries (which) measures the key cognitive and workplace skills needed for individuals to participate in society and for economies to prosper." [25] It has a vocational, post-school focus.

A search of the conceptual framework for PIACC (OECD, 2016b) found no occurrences of the terms *gig*, *share* or *4.0*. The domain ultimately chosen was Problem Solving in Technology-Rich Environments. The Task chosen was Job Search, which involves an individual using a job search site to find a job with certain requirements. "This item involves a scenario in which the respondent takes the role of a job seeker. Respondents access and evaluate information relating to job search in (a) simulated web environment. This environment includes tools and functionality similar to those found in real-life applications."(OECD, 2016b)

There were two ways in which the sample task aligns with the gig texts. Firstly, problem solving in the sample test item is similar to the process of becoming a member of a gig platform community. Secondly, the sample test item is essentially a reading task, similar to the browsing required of writers examining potential jobs posted by customers.

[19] Domain: Problem Solving in Technology -Rich Environments. http://www.oecd.org/skills/piaac/Summary%20of%20assessment%20domains%20in%20the%20Survey%20of%20Adult%20Skills.pdf

[20] Sample task: Job Search http://www.oecd.org/skills/piaac/Problem%20Solving%20in%20TRE%20Sample%20Items.pdf

[21] Domain: Collaborative Problem Solving (OECD, 2015, p. 49-50).

[22] Sample task: The Visit (OECD, 2015, pp. 51-89)

[23] Domain: NAP- ICT Literacy (ACARA 2014 pp 120-121).

[24] Sample task: The Battle of the Bands (ACARA 2014 pp. 35 - 38

[25] http://www.oecd.org/skills/piaac/

6.3 PISA

"The Programme for International Student Assessment (PISA) is a triennial international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students."[26] It focuses on schools.

After an examination of the PISA conceptual framework the domain chosen was Collaborative Problem Solving. The sample task was The Visit. The premise for this unit (task) is that a group of international students is coming to visit a school. The student must collaborate with three teammates and a faculty advisor to plan the visit, assign visitors to guides, and respond to an unexpected problem that arises.

The sample task aligns with the gig economy texts in three main ways. It contains chats similar to the chats involved in task clarification in bidding. The unit also requires chat-based tasks between group members. However, on platforms this would possibly be with customers. Although not aimed at online literacy as such, doing the test online recreates a gig platform textual practice. However, all task activity involves selecting options, not creating texts. Reading is in fact used as a test of writing.

6.4 NAPLAN

"NAPLAN is an annual assessment for all students in Years 3, 5, 7 and 9. It tests the types of skills that are essential for every child to progress through school and life. The tests cover skills in reading, writing, spelling, grammar and punctuation, and numeracy."[27] It focuses on schools in Australia.

The domain chosen was NAP- ICT Literacy. "The definition of ICT literacy adopted by MCEETYA for use in the National Assessment Program is: *The ability of individuals to use ICT appropriately to access, manage and evaluate information, develop new understandings, and communicate with others in order to participate effectively in society.* (MCEETYA, 2005)

This definition, together with an elaboration through a set of six key processes and a broad description of progress according to three strands, form the basis of the NAP – ICT Literacy Assessment Domain (MCEETYA, 2005) which consistently describes the foundation of the work across the four cycles of NAP – ICT Literacy" (ACARA, 2016, p. 3). NAPLAN appears to use literacy to mean knowledge and skills e.g. science literacy, ICT literacy, though, given the format of the test, perhaps it is just knowledge that is addressed.

The sample task chosen was The Battle of the Bands. In this task three students have formed a music band that has won a talent contest and been invited to enter an interstate competition. Students were asked to help the band by completing the online registration for the competition, promote the band's next gig through social media and set up a crowd-funding web page to raise money (ACARA, 2016).

None of the sample test modules directly matched the gig platform text cycle. The description of the domain refers to the creation of *information products*. This reflects a focus away from communication and process, both of which are integral to gig platform literacy practices.

[26] http://www.oecd.org/pisa/
[27] https://www.nap.edu.au/

7 Literacy practices in the gig economy

7.1 Summary of the investigation

Our intention in this Working Paper has been to lay the groundwork for an understanding of Literacy 4.0. In this paper we have examined seven typical gig economy platforms, and identified the textual cycle of the core gig economy literacy event. We have examined a sample text task in each of three high stakes surveys of competence.

This Working Paper is descriptive, rather than analytical or critical. There has been no actual participation as worker or customer and no engagement with workers or customers. None of the external reviews and debates surrounding the platforms has been included. These are numerous and extremely mixed, though, it has to be said, mainly negative. The broader implications of what Zuboff (2015, drawing on Orwell) calls "Big Other: Surveillance capitalism and the prospects of an information civilization", are also beyond the scope of this paper.

This section concludes the paper by summarising our work and findings so far, what we still want to know, and what we still need to do to find out about 'gig literacy' as an element of Literacy 4.0.

7.2 Summary of the findings

7.2.1 The platforms

The platforms share a strikingly consistent view of the world and the role of platforms, customers and workers in it. References to changing the world for the better are almost interchangeable. Each seeks to create a community of like-minded souls to help bring about fundamental changes and have fun on the way.

Communication remains key in this workspace. However, most of that communication, including that which once was done in person in the workplace, is now done through written texts mediated by platforms. The study thus supports Brandt's view that writing is central to the new mass literacy required by the knowledge economy.

However, the gig economy has heightened the precariousness of employment identified by Brandt, and put the onus on the worker, with support from the platform community, not the employer, who is now out of the picture. Support for writing, if it is to be found, comes from the platform team and the community.

The opportunities on the platforms for mid-career workers in fields such as manufacturing are limited. There are very few positions in the team, and the role of worker may not be sustaining. The tone and outlook, rather than the processes, of the platforms may be hard for mid-career workers to engage with. Notwithstanding claims made on the platforms, the chances seem low of participation becoming anything more than what SkillShare calls a "side hustle". This impression is supported by debates outside the platforms[28].

[28] For examples search "review of [platform name]".

7.2.2 The texts

Textual entry to the gig economy is simple. However, thriving rather than simply surviving may require a much more complex engagement with texts. There is a need to establish status and reputation textually and constantly 'curate' it.

There is a need to address four core text types - profiles, posts, bids and reviews. Core text types are simple and alphabetic rather than multimodal, but the complexity of product rather than core texts varies greatly. In all text categories, language matters. Members comment on it, and in some cases emphasise their perceived 'native speaker' advantage.

7.2.3 The surveys

International competence surveys are addressing some aspects of gig literacy. The three sample tests and their conceptual domains can be seen to be broadly addressing the textual practices of the gig economy in that as they require elements of working online, collaborating and problem solving.

The surveys have three limitations. The first limitation, acknowledged by the surveys themselves, is that they do not actually require participants to write. They work with but do not create the kinds of alphabetic texts, such as bids and chats, that exemplify the gig economy textual practices. Their increasingly online character may require the same textual skills that they are yet to formally assess. Secondly, they focus on information texts rather than collaborative texts such as chats. Thirdly, the element of competition, which lies at the heart of the gig economy, is missing. Tests need to reflect worker-customer and worker-worker collaboration and *competition* as well.

7.3 Further questions

7.3.1 Literacy practices

We have seen some initial examples of the connections, or ligatures, between texts (profiles, posts and bids, between roles (worker, customer, team member) and between text formats (print, multimedia). We have seen that new text types such as chats are important. We have seen the almost total dominance of *writing* in arranging gigs. We now need to ask: What are the literacy practices of cyber-physical (software and people) systems? What are the ligatures that link the textual components of these systems? How are they created?

7.3.2 Human expertise

We have seen that there is a loss of physicality in the new workspaces. But expertise in the community can only be demonstrated through written texts, not observable performance. How then can we demonstrate or perform our expertise? And does it matter? We have seen that passion rather than qualifications are valued. We have seen claims of "human in the loop" and human "augmentation". We have also seen that expertise is found in the platform community, and in the machines themselves as well as in individuals and occupations. We now need to ask: What is the nature of human expertise in these literacy settings and events? How is it constituted, requested, demonstrated? What are its proxies?

7.3.3 Workplace knowledge and skills

We have seen that the foundation skills of reading, writing and numeracy are important but are they enough to deal with new text types like chat? There are frequent references to problems with non-native speakers as workers and customers - language use still matters.

We have seen that there is a focus on collaboration and teamwork in the surveys of competence, yet the platforms themselves are based on competition between workers. The collaboration required in gig work is between customers and workers, not between workers.

We have seen the valorisation of attributes, such as passion, commitment, rather than knowledge or skills. We now need to ask: What are the implications for workplace knowledge and skills?

7.3.4 Managing transitions

We have seen that the flat company structure of platforms means that anyone transitioning out of an existing firm has far more opportunities as a worker than as a team member. We have seen that platforms provide guidance and support for new workers, but that there is an assumption about certain attributes and world views that not all will bring. We saw that PIAAC reflects this to some extent. We now need to ask: How can we manage the transitions to these practices from current practices? What resources do people bring?

7.3.5 Implications for education

We have seen that there are three roles - workers, customers and team members. Each has to learn their role, not just workers, but customers as well. Learning to be a customer involves learning how to give clear instructions and collaborate on tasks. PISA and NAP-ICT reflect these to some extent. Young people may have facility with the new text types and text attitudes. The reality is though that not everyone can be a team member. We now need to ask: What educational content, processes and settings will enable appropriate and effective participation in these practices?

7.4 Next steps

Answering these questions requires collaboration rather than competition. Literacy practices are more than texts and literacy events. Literacy practices locate texts and events in a wider, contested social context. Although this Working Paper is entitled Literacy Practices, in reality, it really only scratches the surface of the gig economy. Nor does it even begin to address that other key element of Industry 4.0, the smart factory.

To understand the literacy practices of Literacy 4.0 we need not only a more thorough analysis of the texts and events involved, but a proper engagement with the people who use them, and the involvement of the policy makers, employers, agencies and educators with responsibility for their work in Industry 4.0. We invite those with an interest and a stake in these issues to join us to help progress the Literacy 4.0 project.

8 References

Advanced Manufacturing Growth Centre (AMGC). (2016). *Sector competitiveness plan 2017*: Australian Government Department of Industry, Innovation and Science

Aloisi, A. (2016). Commoditized workers: Case study research on labour law issues arising from a set of "on demand/gig economy" platforms. *Comparative Labor Law & Policy Journal, 37*(3), 653-690.

Australian Curriculum Assessment and Reporting Authority (2015). *National Assessment Program - ICT Literacy years 6 and 10 Report 2014 (NAPLAN)*. Sydney: Australian Curriculum, Assessment and Reporting Authority.

Australian Industry Group (AIG). (2016a). *Emergence of the gig economy*: AIG Group Workforce Development.

Australian Industry Group (AIG). (2016b). *Workforce development needs survey report*: AI Group.

Barrett, E. (Ed.). (1993). *The society of text: Hypertext, hypermedia and the social construction of information*. Cambridge, Mass: The MIT Press.

Barton, D. (1994). *Literacy studies: An introduction to the ecology of written languages*. Oxford: Blackwell Publishers.

Baynham, M. (1995). *Literacy practices: Investigating literacy in social contexts*. London: Longman.

Baynham, M., & Prinsloo, M. (2009). *The future of Literacy Studies*. Basingstoke: Palgrave Macmillan.

Black, S., & Yasukawa, K. (2011). A tale of two councils: Alternative discourses on the 'literacy crisis' in Australian workplaces. *International Journal of Training Research, 9*(3), 218-233.

Brandt, D. (2005). Writing for a living: Literacy and the knowledge economy. *Written Communication, 22*(2), 166-197.

Brandt, D. (2009). Writing after reading. In M. Baynham & M. Prinsloo (Eds.). *The future of Literacy Studies*. Basingstoke: Palgrave Macmillan.

Brandt, D. (2015). *The rise of writing: Redefining mass literacy*. Cambridge UK: Cambridge University Press.

Brown, J. S., & Duguid, P. (2000). *The social life of information*. Boston, Mass: Harvard Business School Press.

Budach, G., Kell, C., & Patrick, D. (2015). Objects and language in trans-contextual communication. *Social Semiotics, 25*(4), 387-400.

Cameron, R., & O'Hanlon-Rose, T. (2011). Global skills and mobility challenges for VET: A cross_border cross-sectoral case study. *International Journal of Training Research, 9*(1-2), 134-151.

Chalmers, J., & Quigley, M. (forthcoming). *Changing jobs: The fair go in the new machine age*. Melbourne: Black Inc.

Christensen, C., & Raynor, M. (2003). *The Innovator's Solution: Creating and Sustaining Successful Growth*. Boston: Harvard Business School Press.

Collin, R. (2011). Selling the self: career portfolios and the new common-sense of immaterial capitalism. *Social Semiotics, 21*(5).

Committee for Economic Development of Australia (CEDA). (2014). *Advanced manufacturing: Beyond the production line*. Melbourne: Committee for Economic Development of Australia.

Committee for Economic Development of Australia (CEDA). (2015). *Australia's future workforce*. Melbourne: Committee for Economic Development of Australia.

Committee for Economic Development of Australia (CEDA). (2016). *VET: Securing skills for growth*. Melbourne: Committee for Economic Development of Australia.

Cook, H. (2017, 2 January). Cheating rife in sharing economy, *The Age*.

Corbel, C. (2016). *Keywords and key phrases in vocational education policy in Australia: A lexical semantic analysis of knowledge and skills* PhD, University of Melbourne, Melbourne. Retrieved from http://hdl.handle.net/11343/90868

Deloitte Development LLC. (2016). *The new organization: Different by design - The gig economy: Distraction or disruption?* Deloitte University Press. www.deloitte.com

Deloitte Development LLC. (2017). *Rewriting the rules for the digital age - The future of work: The augmented workforce*. Deloitte University Press. www.deloitte.com

Durrant-Whyte, H. (2015). Future skills in IT. In CEDA (Ed.), *Australia's future workforce*. Melbourne: Committee for Economic Development of Australia.

Edwards, R., & Nicoll, K. (2007). The ghost in the network: Globalization and workplace learning. In L. Farrell & T. Fenwick (Eds.), *Educating the global workforce: Knowledge, knowledge work and knowledge workers*. Oxford: Routledge.

Farrell, L. (2006). *Making knowledge common: Literacy and knowledge at work.* New York: Peter Lang.

Farrell, L. (2009). Texting the future: Work literacies and economies. In M. Baynham & M. Prinsloo (Eds.), *The future of Literacy Studies*. Basingstoke: Palgrave Macmillan.

Farrell, L. (2016). *Workplace literacy and factories of the future*. Melbourne Graduate School of Education Dean's Lecture, 31 May. http://education.unimelb.edu.au/news_and_activities/events/upcoming-events/past/2016/dean_lecture_series/workforce-literacy-and-factories-of-the-future

Farrell, L., & Fenwick, T. (Eds.). (2007). *Educating the global workforce: Knowledge, knowledge work and knowledge workers*.

Fisher, L. (Ed.). (2016). *Best practice for knowledge workers: Innovation in Adaptive Case Management*. Lighthouse Pt , FLA: Future Strategies Inc.

Foundation for Young Australians (FYA). (2014). *How young people are faring in the transition from school to work*. fya.org.au.

Foundation for Young Australians (FYA). (2015). *The new work order: Ensuring young Australians have skills and experience for the jobs of the future, not the past*. fya.org.au.

Foundation for Young Australians (FYA). (2016). *The new basics: Big data reveals the skills young people need for the New Work Order*. fya.org.au.

Foundation for Young Australians (FYA). (2016a). *The new work mindset: 7 new job clusters to help young people navigate the new work order*. fya.org.au.

Frase, P. (2016). Four Futures: Life After Capitalism review - will robots bring utopia or terror?; , BOOKS.

Fuchs, M., Fizek, S., Ruffino, P., & Schrape, N. (2014). *Rethinking gamification*: Meson Press, University of Lüneburg, Germany.

Gamble, J. (2016). From labour market to labour process: finding a basis for curriculum in TVET. *International Journal of Training Research, 14*(3), 215-229.

Garcia, A. C., Standlee, A. I., Bechkoff, J., & Cui, Y. (2009). Ethnographic approaches to the internet and computer-mediated communication. *Journal of Contemporary Ethnography, 38*(1), 52-84.

Gee, J. P., Lankshear, C., & Hull, G. (1996). *The New Work Order: Behind the Language of the New Capitalism* St. Leonards, N.S.W: Allen & Unwin.

Goedegebuure, L., & Schubert, R. (2017). Vocational education and the innovation agenda: Towards the creation of effective innovation eco-systems. In R. James, S. French & P. Kelly (Eds.), *Visions for Australian Tertiary Education*: Melbourne Centre for the Study of Higher Education, The University of Melbourne.

Gourlay, L. (2015). Posthuman texts: nonhuman actors, mediators and the digital university. *Social Semiotics, 25*(4), 484-500.

Graddol, D., Maybin, J., & Stierer, B. (Eds.). (1994). *Researching language and literacy in social context*. Clevedon, Avon: Multilingual Matters.

Grey, S. (2017). Four myths about the "Freelancer Class". *Jacobin*. 19 May. https://www.jacobinmag.com/2015/05/freelance-independent-contractor-union-precariat/

Griffin, P., & Care, E. (Eds.). (2015). *Assessment and Teaching of 21st Century Skills: Methods and Approach*. Dordrecht: Springer.

Hamilton, M., Barton, D., & Ivanic, R. (Eds.). (1994). *Worlds of literacy*. Clevedon, Avon: Multilingual Matters.

Hartmann, E., & Bovenschulte, M. (2013). *Skills Needs Analysis for "Industry 4.0" based on Roadmaps for Smart Systems.* Paper presented at the Using Technology Foresights for Identifying Future Skills Needs, Moscow.

Holkner, B. (2007). Social technologies at work. In L. Farrell & T. Fenwick (Eds.).

Hull, G., & Zacher, J. (2007). Identity formation and literacy development within vocational education and work. In L. Farrell & T. Fenwick (Eds.).

Ignatow, G., & Mihalcea, R. (2017). *Text mining: A guidebook for social sciences*. Los Angeles: Sage.

Ithaca Group. (2016). *Everybody's core business: Research into the non-technical capabilities needed for successful participation in work or further study: Final report*: Australian Government Department of Education and Training.

Jaworski, A. (2015). Globalese: a new visual-linguistic register. *Social Semiotics, 25*(2), 217-235.

Karlsson, A.-M., & Nikolaidou, Z. (2016). The textualization of problem handling: Lean discourses meet professional competence in eldercare and the manufacturing industry. *Written Communication, 33*(3), 275-301.

Kozinets, R. (2010). *Netnography: Doing ethnographic research online.* Thousand Oaks, CA: Sage Publications.

Kress, G. (1993). Participation and difference: the role of language in producing a culture of innovation. In A. Luke & P. Gilbert (Eds.), *Literacy in contexts: Australian perspectives and issues*. St Leonards NSW: Allen and Unwin.

Leahy, M. (2016). *Vocational education for the future*. Unpublished submission.

Martin, C. J. (2016). The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism? *Ecological Economics, 121*, 149-159.

McKinsey and Company. (2017). *A future that works: automation, employability and productivity*: McKinsey Global Institute.

Messina-Dahlberg, G., & Bagga-Gupta, S. (2016). Mapping language in digital spaces: Literacy practices at borderlands. *Language Learning and Technology, 20*(3), 80-106.

Morgan, C. (2016). Testing students under cognitive capitalism: Knowledge production of twenty-first century skills. *Journal of Education Policy, 31*(6), 805-818.

OECD. (2015). *PISA 2015 Released Field Trial Cognitive Items*. https://www.oecd.org/pisa/test/PISA2015-Released-FT-Cognitive-Items.pdf

OECD. (2016a). *Skills Matter: Further Results from the Survey of Adult Skills (PIAAC)*. Paris: OECD Publishing.

OECD. (2016b). *The Survey of Adult Skills: Reader's Companion (PIAAC)* (2nd ed.). Paris: OECD Publishing.

Pigg, S., Grabill, J. T., Brunk-Chavez, B., Moore, J. L., Rosinski, P., & Curra, P. G. (2014). Ubiquitous writing, technologies, and the social practice of literacies of coordination. *Written Communication, 31*(1), 91-117.

Potter, B., & Durkin, P. (2017, February). Factory workers of the future. *AFR Boss*.

Productivity Commission. (2016). *Digital disruption: What do governments need to do?*

Rheingold, H. (1994). *The virtual community: Finding connection in a computerized world*. London: Martin Secker and Warburg Limited.

Rice, S. (2017). Social justice in career guidance: A Fraserian approach. In T. Hooley, R. Sultana & R. Thomsen (Eds.), *Career guidance and the struggle for social justice in a neo-liberal world*. London: Routledge.

Richardson, L. (2015). Performing the shared economy. *Geoforum, 67*, 121-129.

Scalabre, O. (2016). The next manufacturing revolution is here. *TED Talk*. https://www.ted.com/talks/olivier_scalabre_the_next_manufacturing_revolution_is_here

Schwab, K. (2016). *The Fourth Industrial Revolution*. Geneva: World Economic Forum.

Sellen, A. J., & Harper, R. (2002). *The myth of the paperless office*: Cambridge, Mass. : MIT Press, c2002.

Sennett, R. (1998). *The corrosion of character: the personal consequences of work in the new capitalism*. New York: W.W. Norton & Company.

Sindhwani, P., & Ahuja, V. (2014). A study of online co-creation strategies of Starbucks using Netnography. *International Journal of Online Marketing, 4*(1).

Street, B. (1993). Introduction: The new literacy studies. In B. Street (Ed.), *Cross-cultural approaches to literacy*. Cambridge: Cambridge University Press.

Wisskirchen, G., & al, e. (2017). *Artificial Intelligence and Robotics and Their Impact on the Workplace*. London: International Bar Association Global Employment Institute.

World Economic Forum. (2016). *The future of jobs: Employment, skills and workforce strategy for the Fourth Industrial Revolution*.

Zuboff, S. (1988). *In the age of the smart machine*. New York: Basic Books.

Zuboff, S. (1997). *Life on the screen: Identity in the age of the internet*. London: Phoenix.

Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology, 30*, 75-89.