

The interrelatedness of formal, non-formal and informal learning: Evidence from labour market program participants

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Definitions, differences and relationships between formal, non-formal and informal learning have long been contentious. There has been a significant change in language and reference from adult education to what amounts to forms of learning categorised by their modes of facilitation. Nonetheless, there is currently a renewed interest in the recognition of non-formal and informal learning internationally and in Australia. This has been evidenced through the New OECD Activity on Recognition of Non-Formal and Informal Learning and recent policy developments in Australia. These developments have implications for the recognition of skills derived from informal and non-formal learning, especially for those disadvantaged in the labour market. This paper reports on

data from a learning grid in a Learning Survey of labour market program participants (n = 172) from northern New South Wales and southern Queensland. We find that life (informal learning) and work experience (non-formal learning) are relatively more important for gaining self-reported skills than formal training/study. We conclude by arguing for a holistic focus on the dynamic interrelatedness of these forms of learning rather than being constrained by a deterministic dichotomy between formality and informality.

Introduction

This study looks at the relativity and interconnectedness between the three forms of learning—formal, non-formal and informal—for self-reported skill sets from labour market program (LMP) participants. LMP participants are considered to be disadvantaged in the labour market but they are a potential source of labour for a market under immense skill and demographic pressures. Despite the recent global financial crisis Australia is experiencing significant skill shortages and will soon feel the effects of the demographic tsunami of the 'baby boomer' generation leaving the workforce en masse. Government policy and funded initiatives to increase workforce participation and address human capital concerns has brought the recognition of non-formal and informal learning (RNFIL) to the forefront of several policy drivers aimed at groups excluded and traditionally disadvantaged in the labour market. Now more than ever, the recognition of informal and non-formal learning will need to be considered to assist these groups and help alleviate some of the labour market pressures being experienced.

There have been three sets of policy drivers behind bringing RNFIL back to the forefront of policy. These include the Social Inclusion agenda, the Council of Australian Governments' (COAG) National Skills and Workforce Development Agreement, and the 2008

Ministerial Declaration on Adult Community Education (ACE). In 2009 COAG established the *Vocational Education and Training—National Skills and Workforce Development Agreement*. This agreement aims to improve the foundational skills of Australia’s working age population to enable effective educational, labour market and social participation and to ensure the Australian working age population has the skills and capabilities for the 21st century labour market and to increase human capital innovation, productivity and utilisation (COAG 2008). The establishment of the Ministry for Social Inclusion and related policy directions from the Australian Government adds another policy dimension to the potential role that RNFIL could play in addressing major issues that emerge from the social inclusion agenda. For example, many of the primary and secondary indicators of social inclusion have direct relevance to the practice of RNFIL and the five key forces (Pierson 2001) that drive the process of social inclusion (poverty and low income; lack of access to the job market; limited social supports and networks; the effect of the local neighbourhood; and exclusion from services).

The Ministerial Council for Vocational and Technical Education announced a new Ministerial Declaration on ACE in 2008 (MCVTCE 2008) which acknowledges the original 2002 Declaration and the role played by the ACE sector in developing social capital, community capacity and social participation. The 2008 Declaration of ACE extends beyond these areas to the ACE sector’s ‘potential to respond to changed industrial, demographic and technological circumstances, and encourages a collaborative approach to ACE to allow the sector to make a greater contribution to...skills and workforce development’ (MCVTCE 2008). Bowman (2009: 1) reports that the 2008 Ministerial Declaration on ACE ‘focuses on optimising the national capacity of ACE providers to deliver vocationally focused programs which lead to further training and/or workforce participation with a particular focus in engaging the disadvantaged in such programs and economic life’. Ultimately, the Declaration provides ACE with a

significant role 'at the interface between the two national agendas of Human Capital Reform and Social Inclusion' (Bowman 2009: 2).

This paper will overview the key literature on informal, non-formal and formal learning, before reporting two studies that have attempted to measure adult learning at a national level (Canada and Australia). The paper will then describe international based initiatives and policy related to RNFIL before presenting the findings from the Learning Survey of labour market participants and the related discussions and conclusions.

Key literature on formal, non-formal and informal learning

A much quoted set of definitions for formal, non-formal and informal learning has been developed by the OECD (2005):

Formal learning: Refers to learning through a programme of instruction in an educational institution, adult training centre or in the workplace, which is generally recognised in a qualification or a certificate.

Non-formal learning: Refers to learning through a programme but it is not usually evaluated and does not lead to certification.

Informal learning: Refers to learning resulting from daily work-related, family or leisure activities. In 1996, the OECD education ministers agreed to develop strategies for 'lifelong learning for all'. The approach has been endorsed by ministers of labour, ministers of social affairs and the OECD Council at ministerial level.

Attempts to define formal, informal and non-formal learning are often referred to as problematic, blurred, competing, contested and contradictory (Colley, Hodkinson & Malcolm 2003; Golding, Brown & Foley 2009; Hager & Halliday 2006; Werquin 2007). A research report commissioned by the Learning and Skills Development Agency (LSDA) of England to map the conceptual terrain around non-formal learning (Colley, Hodkinson & Malcom 2003) is one of the most recent and comprehensive conceptual analyses of informality and

formality in learning to date. The report not only synthesises the broad-based literature in this area but also contributes significantly to future development of and research into these aspects of adult learning. The report acknowledges the highly contested and even contradictory nature of these concepts. However, the authors categorise definitional criteria around two dimensions: a theoretical dimension and a political dimension, as follows:

- Differing theoretical approaches to learning (theoretical dimension);
- Contrasting claims about the effectiveness of learning (theoretical dimension);
- Differing claims about the relationship between learning and knowledge (theoretical dimension);
- Attempts to empower underprivileged learners (political dimension); and
- Attempts to harness learning for instrumental purposes, including social inclusion and economic competitiveness (political dimension) (Colley et al., 2003: 64).

These theoretical and political dimensions have influenced the operationalisation of these concepts in very different directions from the earlier writings of adult learning theorists Dewey and Knowles, and represent a significant and theoretically interesting transition.

The stance taken by Golding, Brown and Foley (2009) provides an example of how informal learning is viewed in terms of both a theoretical and a political dimension. The authors refer to the power differential that creates a systematic devaluing of informal learning. They go on to state that the 'very nature of informal learning, particularly its unstructured and organic quality, works to dis-empower a range of adult stakeholders and diminish its value as a meaningful educational pursuit in a system that values highly structured, systematised, outcome-driven approaches to young

people's learning' (Golding et al. 2009: 53). Coffield (2000: 8) also takes a theoretical stance in terms of the relationship between learning and knowledge by arguing for the relative re-valuing of informal learning:

Informal learning should no longer be regarded as an inferior form of learning whose main purpose is to act as the precursor of formal learning; it needs to be seen as fundamental, necessary and valuable in its own right, at times directly relevant to employment and at other times not relevant at all.

In terms of informal learning, McGivney (2002) states there is no unanimously accepted definition. She claims that trying to explain informal learning is like 'trying to grasp jelly', and that it is easier to describe what informal learning is not than to try to describe what it is (McGivney 2002: 102). Nonetheless, the author falls back on the definition which states informal learning is a process by which individuals acquire values, skills and knowledge from daily experience. Livingstone (2000a: 2) defines informal learning as 'undertaken on one's own, either individually or collectively, without either externally imposed criteria or the presence of an institutionally authorized instructor'.

Some authors and commentators have noted problems with the emphasis on differences between forms of learning. Davies (2001:113) has expressed concerns about the division between different types of learning:

I do have some concerns that the notion of formal, non-formal and informal may become fixed as if these are three rooms with high walls around them so that the integrated holistic way in which real people learn and make sense of their world is lost. It may be that while breaking down boundaries between sectors, new boundaries are being constructed around different forms of learning.

Colley, Hodkinson and Malcolm (2004: 3) make a strong connection between informal and formal learning through the notion of attributes:

It is more sensible to see *attributes of informality and formality* as present in all learning situations. Attributes of in/formality are interrelated differently in different situations. Those attributes and their interrelationships influence the nature and effectiveness of learning. Changing the balance between formal and informal attributes changes the nature of the learning.

Marsick (2009), in a guest editorial focused upon a unifying framework to support informal learning theory, research and practice, concludes that, although informal learning is always defined in contrast to formal learning, they interact in important ways.

A discussion on formal, informal and non-formal learning cannot be adequately covered without mentioning the work of Eraut (2000) in relation to non-formal learning, implicit knowledge and tacit knowledge within the workplace. Eraut's research found that a degree of explicitness is needed for improving work-based performance:

...thick tacit versions of personal knowledge coexist with thin explicit versions: the thick version is used in practice, the thin version for describing and justifying that practice...If people's tacit personal knowledge and implicit learning are devalued, their confidence will diminish and their use of, and interest in, more formal knowledge will also suffer (Eraut 2000: 29).

Eraut (2000) developed a typology to explore the full range of learning processes or modes that fall within this domain of 'non-formal learning'.

Similarly, Schugurensky (2000) developed a taxonomy of informal learning by using two main criteria for distinguishing learning: intentionality and consciousness (awareness). These two criteria are then mapped against three forms (types) of informal learning: self-directed learning, incidental learning and socialisation. This

results in self-directed learning at one end of a spectrum of informal learning, the other end occupied by socialisation and incidental learning occurring somewhere in between (Schugurensky 2000: 5). Werquin (2007: 5) proffers a similar mapping exercise with two components used to define the mode of learning: intentional learning, and whether the activity has learning objectives. This mapping exercise produces a set of four types of learning:

- Formal Learning (Type I Learning);
- Non-Formal Learning (Type II Learning);
- Semi-Formal learning (Type III Learning);
- Informal Learning (Type IV Learning).

Semi-Formal Learning (Type III Learning) is defined as learning in which individuals, 'may learn during activities with learning objectives but they learn beyond the learning objectives; this is **semi-formal learning**...Individuals have the intention of learning about something and, without knowing it, learn also about something else' (Werquin 2007: 5).

Recently, Illeris (2009) explored the barriers between different learning spaces so as to bridge the gap between learning that occurs inside schools and outside schools. He identified five main learning spaces in contemporary society:

1. Everyday learning
2. School and educational learning
3. Workplace learning
4. Interest-based learning
5. Net-based learning (Illeris 2009: 139–140).

The inclusion of the last learning space has also been noted by Halliday-Wynes and Beddie (2009: 7–8), although they do not define it as such. They refer to the use of technology or information communication technologies (e.g. websites, blogs, social networking

sites) and how the mass consumption of these new technologies is expanding the hidden iceberg of informal learning. These technologies are facilitating informal learning and connecting the physical spaces of learning to virtual learning spaces through mobile phones and wireless web access.

The definition of learning spaces is not without its controversies and is also a problematic area. Billett (2002: 56) argues that ‘describing workplace learning environments and experiences as “informal” ... constrains understanding about how learning occurs through work’. He argues that this description of learning environments as either formal or informal leads to ‘situational determinism’ instead of viewing learning as ‘inter-dependent between the individual and the social practice’ (Billett 2002: 56). As can be seen from the discussion of the literature, the defining of forms of learning and learning spaces remains an area of conceptual and theoretical dialogue and debate. We argue for a focus on the relativity and interconnectedness of these forms of learning and learning spaces.

International interest in the recognition of non-formal and informal learning

Internationally, the Organisation for Economic Co-operation and Development (OECD) has been researching and promoting the importance of lifelong learning, career development and the recognition of non-formal and informal learning. Several studies have been commissioned by the OECD and other international and European bodies in these areas (Commission of European Communities 2000; European Commission 2001; OECD 2003; The World Bank 2003). The Directorate of Education within the OECD views the recognition of non-formal and informal learning as a crucial part of the lifelong learning agenda:

The recognition of non-formal and informal learning is an important means for making the ‘lifelong learning for all’ agenda

a reality and, subsequently, for reshaping learning to better match the needs of the 21st century knowledge economies and open societies (OECD 2007: 1).

There have been several projects of a cross-country and international nature conducted by international bodies which acknowledge the value of recognising non-formal and informal learning. These include: *Identification, assessment and recognition of non-formal learning in Europe* (Bjornavold 2000); *Transfere TRANSsfer between formal, informal and non-formal education* (Davies 2003); *Making learning visible* (OECD 2007); and the *New OECD activity on recognition of non-formal and informal learning* (Werquin 2010).

Measuring the extent of non-formal and informal learning

The work of Livingstone (2000a, 2000b, 2001), through the first country-wide survey of informal learning practices of adults in Canada, has expanded the notions of learning and work. The National Research Network on New Approaches to Lifelong Learning (NALL) survey was first conducted in 1998, and has found that adults' explicit informal learning is very extensive. Livingstone acknowledges the earlier work of Tough (1978) and the use of the metaphor of the iceberg, where the submerged part of the iceberg represents adults' informal learning activities. The NALL survey found that respondents' formal/informal learning represented a 20/80 percent split. Twenty percent of all major learning efforts were formal, or in other words institutionally organised (e.g. driving lessons, piano lessons). This was usually one-on-one, but involved a professional, formal situation. The other 80 percent were informal. Seventy three percent were planned by the learners themselves, where the learners decided the what and the how of the learning. Three percent were undertaken with a friend, neighbour or co-worker teaching the learner something, and four percent were within a peer group without any kind of professional help. Another finding from the NALL survey was that informal learning is a very social phenomenon and that '...there may

actually be more social interaction in informal learning than there is in classroom learning' (Tough 2002: 3).

A significant finding from the research was the level of surprise NALL survey respondents expressed at the volume of learning they had completed and the variety of methods they had utilised in this learning.

...this is part of the iceberg phenomenon—not only are we as a society (or as educators) oblivious to informal learning, we don't even notice our own. That's right, people don't even notice their own informal learning. So what do we do about this? I think it's really empowering and helpful and supportive to encourage people to look at their own learning (Tough 2002: 7).

In 2007 the Australian Bureau of Statistics (ABS) conducted a survey of *Adult Learning in Australia* (ABS 2007) and found that:

One in eight (12% or 1.3 million) Australians aged 25 to 64 years participated in some form of formal learning in the 12 months prior to interview in 2006–07. Almost one-third (30% or 3.3 million persons) participated in non-formal learning and approximately three-quarters (74% or 8.1 million persons) participated in some form of informal learning...Those employed full-time were more likely to have participated in some form of learning than persons not in the labour force (84% compared to 62%). Unemployed persons had lower participation in non-formal (25% compared to 38%) and informal learning compared to persons employed full-time (71% compared to 79%) (ABS 2007: 3).

The ABS survey also found that the most common form of non-formal learning was work-related courses (78% or 2.6 million persons) followed by arts, crafts or recreational learning (12%). The main fields of non-formal learning were in management and commerce (25%) and health (22%) (ABS 2007: 4–5). For informal learning, the survey found 8.1 million Australians participated in the previous 12 months with relatively even numbers across gender (76% of males and 73% of females). The most common form of informal learning was reading

manuals, reference books, journals or other written materials (75%), followed by using computers or the Internet (71%). Those who indicated they did not participate in any form of learning represented one-fifth of Australians and were more likely to not be in the labour force than those employed full-time or unemployed (38% compared to 16% and 24%). Labouring was the most common occupational group for non-participants (18%) and the most common industry for those who did not participate was the manufacturing industry (14%) followed by the retail trade industry (11%) (ABS 2007: 5).

In consideration of these issues, the present study sought to investigate the combining and relative importance of formal, non-formal and informal learning. In particular, two research questions related to combining forms of learning were addressed:

RQ1: Are skills gained by a single form of learning or by combinations of forms?

RQ2: Are there differences in combining of forms of learning based on demographic factors?

A further three research questions related to the relativity of forms of learning were addressed:

RQ3: Are there differences between the percentages of skills gained from different forms of learning?

RQ4: Are there interactions between the percentage of skills gained from different forms of learning and demographic factors?

RQ5: Is there an interaction between the percentage of skills gained from different forms of learning and category of skill?

Method and sample description

The approach taken in this study was exploratory and utilised data drawn from a broader Learning Survey administered to 247 labour market program participants in various programs run in south east Queensland and northern New South Wales in Australia. The survey

addressed issues across several themes: current training/study; computer access and digital literacy; previous education and training; awareness of recognition of prior learning (RPL); experience with RPL; future intentions for learning; and motivations and influences on learning. The survey was administered by the researcher or by trainers/facilitators of labour market programs to groups of labour market program participants. An aim of the research was to access a sample of people considered to be disadvantaged in the labour market. A major criticism of two large Australian research reports on RPL (Bowman et al. 2003; Wheelahan et al. 2003) was that the research utilised large secondary data sets of existing populations of students within formal learning settings; that is, people already engaged in some form of formal learning with an educational institution. A major aim of this research was to access a sample not engaged in some form of formal learning within the existing educational sectors, along with being disadvantaged within the labour market. It was decided that accessing participants on labour market programs would be an efficient means by which to capture such a demographic. Participants on labour market programs are usually registered as unemployed or seeking employment with Centrelink and/or receiving some form of government benefit or allowance. Labour market programs are usually targeted to certain groups of disadvantaged job seekers in receipt of benefits/allowances. Limitations common to surveys were addressed in the broader study.

The sampling frame for the broader study was those individuals who were currently unemployed and participating in a labour market program. The sampling techniques used were purposeful and snowball sampling where labour market programs were identified through government funding body websites and then by requesting referrals to other similar programs by those organisations funded to conduct the labour market programs. Sample bias occurred when a group attending a course not considered to be a labour market

program was included. This group was engaged in a training course that was full time, fee-paying and at a Certificate III AQF level and was included as they represented those individuals considered hidden unemployed—registered with Centrelink but not receiving unemployment benefits due to the employment status of their spouse. Due to the nature of the sample, the findings are limited to unemployed adults. Valid skills data for the purpose of the present study were provided by 172 of the participants. Sample demographics are provided in Table 1. The sample largely consists of unemployed adults and the highest educational achievement of the sample broadly matches the distribution for unemployed in the *Survey of Education and Training* (ABS 2005).

Table 1: Sample demographics

Gender (n = 169):	
Male	75
Female	94
Age (n = 170):	
15–19	11
20–24	15
25–29	6
30–34	4
35–39	11
40–44	26
45–49	35
50–54	29
55–59	23
60+	10
Employment status (n = 170)	
Employed	18

Unemployed	152
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Length of unemployment (n = 138):	
< 6 months	30
6 months to 1 year	29
> 1 year	79
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Highest education level (n = 166):	
Up to School Certificate/Year 10/equivalent	71
Higher School Certificate/Year 12/equivalent	37
TAFE/College Certificate	33
Diploma	9
Bachelor degree	9
Postgraduate	7
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The Learning Survey included a learning grid for listing and proportioning self-reported skills across forms of learning. More specifically, survey respondents were asked to list up to three of their skills and, for each skill, allocate their learning of that skill across three forms of learning: life experience, work experience and formal training/study. As mentioned earlier in this paper, definitions of formal, non-formal and informal learning are problematic and contested. We do not assume all life experience is informal learning, all work experience is informal or all formal training is formal learning. However, for the purposes of this data collection exercise these three categories were utilised.

Allocations for each of the three categories (life experience, work experience and formal training/study) were percentages, so that for each skill the total across the three forms of learning equals 100%. A total of 460 skills were reported by respondents along with proportions across the three forms of learning. A total of 129 respondents provided data for three self-reported skills,

30 respondents provided data for two skills and 13 respondents provided data for only one skill.

The self-reported skills were coded using the *Australian Standard Classification of Education (ASCED)* (ABS 2001). The 6-digit codes from the ASCED were used in initial coding. Aggregation to 4- and 2-digit codes was later performed using SPSS's recode feature. Coding was undertaken using the following process. First, the authors and a research assistant discussed the coding scheme and as a group coded ten surveys. The research assistant then coded the remaining surveys. However, on instruction, any skills that the research assistant had any doubts over were asterisked and listed on a separate sheet, indexed back to the original survey. When the research assistant completed working through the surveys, the 'asterisked list' was forwarded to the authors, who each considered the skills on the list and coded them. Discrepancies in codes were discussed and agreement reached. It is noted, however, that agreement was evident in the initial coding for the majority of these asterisked skills suggesting a high level of inter-coder reliability.

Table 2 presents the frequency and percentage of self-reported skills falling into each of the 2-digit level classifications in descending frequency order. The table also includes examples of the skills represented in each category. Management and commerce skills represent the highest percentage (41%) of self-reported skills and all other 2-digit classifications represented 10% or less of all reported skills. Very few respondents reported skills related to natural and physical sciences (2 mentions), information technology¹ (6 mentions), health (8 mentions) and education (11 mentions). Examination of the examples in Table 2 indicates that most are low level skills, as would

1 'Computer skills' was commonly mentioned, however this was classified under management and commerce, which includes a code (080905) for 'Practical Computing Skills'. This was considered more relevant for general computer skills than the computer science orientation captured by the Information Technology 2-digit classification.

be generally expected from this sample. For example, 33% of the skills reported in the engineering and related technologies category, which made up 10% of all skills reported, related to cleaning.

Table 2: Self-reported skills

2-digit classification	n	%	Examples
Management & Commerce	188	40.9	Sales; secretarial and clerical; practical computing
Engineering & Related Technologies	46	10.0	Cleaning; automotive; mechanical
Mixed Fields	42	9.1	Social and interpersonal; work practices
Creative Arts	38	8.3	Arts and crafts; music; writing
Food, Hospitality & Personal Services	37	8.0	Cooking; bar service; waiting; driving; massage
Society & Culture	33	7.2	Sport and recreation; child and aged care
Architecture & Building	28	6.1	Building; painting; laboring
Agriculture, Environmental & Related	21	4.6	Gardening; mowing; animal husbandry
Education	11	2.4	Teaching; training
Health	8	1.7	Nursing; first aid
Information Technology	6	1.3	IT; programming; technician
Natural & Physical Sciences	2	0.4	Maths; chemistry
Total	460	100	

Given the prevalence of management and commerce skills reported by the sample, these are broken down further in Table 3. Practical computing skills made up the largest number of skills in this category at 37%. The next most common type of management and commerce

skill reported was sales. All other categories represented less than 10% of mentioned management and commerce skills.

Table 3: Management and commerce skills

	n	%	Examples of respondents' wording
Practical computing skills	69	36.7	Computer, word processing, Microsoft Office
Sales	42	22.3	Customer service, cashiering, sales, retail
Secretarial and clerical	15	8.0	Reception, secretarial, clerical
Office	12	6.4	Office admin, record keeping,
Accounting	10	5.3	Accounting, bookkeeping, budgeting
Business and management	10	5.3	Supervisory, manager, change management
Purchasing, warehousing and distribution	10	5.3	Packer, courier, truck driving, forklift, stores
Keyboard skills	7	3.7	Typing
Marketing	5	2.7	Marketing, promoting
Human resource management	3	1.6	Human resources, recruitment
Public relations	2	1.1	Public relations
Public and health care admin.	1	0.5	Clinical coding
Real estate	1	0.5	Real estate sales
Tourism	1	0.5	Tourist industry
Total	188	100.0	

The statistical analysis methods employed to address the research questions are outlined in the next section as the relevant findings are presented.

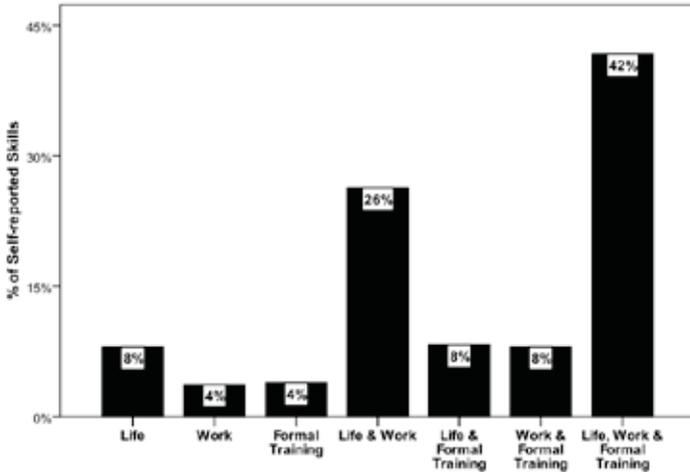
Findings

Combining forms of learning

We first examined whether respondents reported that skills were gained by a single form of learning or by combinations of forms in order to address Research Question 1. For this examination, we used the data for all 460 validly reported skills. Figure 1 presents the results.² Only small proportions of all self-reported skills were learnt by drawing upon one form of learning (that is, life experience only, work experience only or formal training/study only). In total, only 16% of the self-reported skills were learnt using a single form of learning, leaving the vast majority (84%) of skills being learnt using some combination of forms of learning. Therefore, the majority of skills reported by respondents were learnt using a combination of learning forms.

2 Figure 1 was also generated using only the first-listed skill in the matrix by each respondent. The percentages for the different forms and combinations of learning were essentially the same and so are not reported here. We also controlled for skill by including only those skills in the largest category (management and commerce) and again the pattern was very similar.

Figure 1: Forms of learning as a percentage of self-reported skills



Two forms of learning were used for 42% of the self-reported skills. The most common combination of two forms was life and work experience, relevant to 26% of skills. This finding indicates that non-formal and informal learning, represented by life and work experience respectively, in combination represent a significant basis for learning the lower level skills so prevalent amongst those disadvantaged in the labour market.

Despite this, by far the most common combination, at 42%, was some mix of all three forms of learning. This result indicates that formal learning is relevant to lower level skills and people disadvantaged in the labour market but not in isolation, as indicated by the low percentage of skills gained entirely through formal learning (4%). Hence a combination of formal learning with other forms of learning seems prevalent and demonstrates the interrelatedness of the three forms of learning in skill development.

We addressed Research Question 2 by examining whether there were differences in combining forms of learning based on demographic

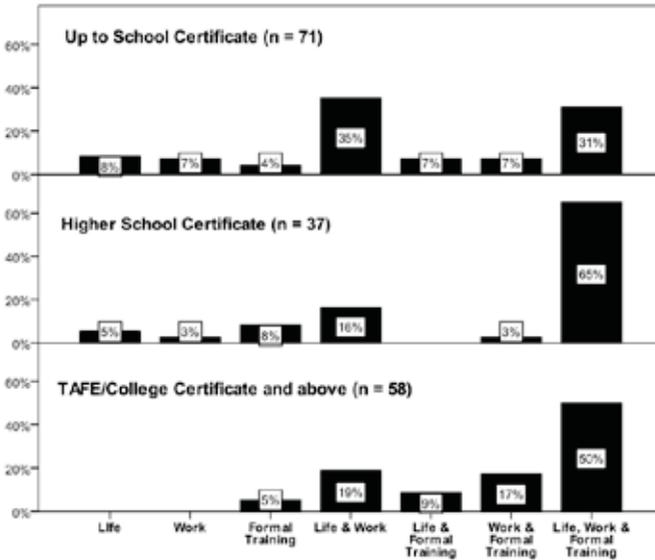
factors. The findings reported here are based on analyses of only the first mentioned skill by each respondent. It is noted, however, that these findings were essentially the same as those using all skills. It was considered more appropriate, however, to report findings using only the first-mentioned skill because demographic factors at the skill level are not necessarily independent.

A Mann-Whitney U-test indicated no difference between males and females in the mean ranking of the number of forms of learning used ($U = 3343$; $Z = -0.628$; $p = 0.530$). However, testing indicated differences based on the demographic factors of age and education. A Kruskal-Wallis Rank test indicated that the mean ranking of the number of forms of learning used differed across age groups ($\chi^2 = 6.825$; $df = 2$; $p = 0.033$). To determine which of the three age groups (15–29 years; 30–44 years; 45+ years) differed, multiple comparison tests using Mann-Whitney U were carried out with Bonferroni adjustment in interpreting probability values. This indicated that the 30–44 years group had a significantly higher mean ranking of the number of forms of learning used than the 45+ age group ($U = 1492$; $Z = -2.515$; $p = 0.12$).

Similarly, a Kruskal-Wallis Rank test indicated that the mean ranking of the number of forms of learning used differed across groups defined by highest level of education ($\chi^2 = 10.915$; $df = 2$; $p = 0.004$). The three education groups were (1) up to school certificate, (2) higher school certificate (HSC), and (3) TAFE/college certificate or above. Multiple comparison tests indicated that those with a highest education level up to school certificate had significantly lower mean ranking of the number of forms of learning used than both the HSC ($U = 924.5$; $Z = -2.719$; $p = 0.007$) and further education ($U = 1538$; $Z = -2.707$; $p = 0.007$) groups. Figure 2 presents a more detailed picture of these differences. The distribution across single and combined forms of learning for those with up to school certificate education is shown in the upper panel, while the middle panel shows

the distribution for those with a HSC and the lower panel for those with a TAFE/college certificate or above. The figure shows that a lower percentage of up to school certificate respondents combine all three forms of learning.

Figure 2: Forms of learning as a percentage of first-mentioned skills, by education



Relativity of forms of learning

Next, to address Research Question 3, we performed an overall test of difference in labour market program participants' percentage of skills learning through the three forms of learning: life experience, work experience and formal training/study. The mean percentage of skills learning from each form of learning was calculated for each respondent, giving an overall measure (across skills) of the relative importance of each form of learning for each respondent. This data was then analysed using a single group repeated measures ANOVA.³

3 In all analyses the reported F statistic and degrees of freedom are based on multivariate tests with Pillai's criterion.

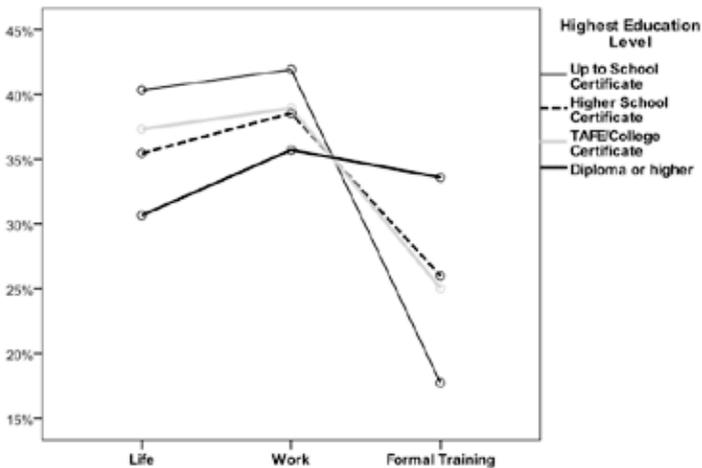
There was a significant effect of form of skills learning ($F_{(2,172)} = 20.071, p < 0.001$). Pairwise comparisons undertaken with Bonferroni adjustment indicated significant differences between life experience and formal training/study ($p < 0.001$) and between work experience and formal training/study ($p < 0.001$). There was no significant difference between life experience and work experience ($p = 1$). The means for life experience (37.8%) and work experience (39.1%) are significantly higher than the mean for formal training/study (23.2%), indicating that the latter form of learning is relatively less important for gaining skills.

We then explored any between-subject interaction effects associated with age, gender and highest level of educational attainment in order to address Research Question 4. Due to small cell sizes for a full multivariate model, each demographic variable was considered separately. Therefore, the results here should be considered only tentative because interactions between demographic factors were not taken into account, only interactions with form of learning.

Gender did not have a significant interaction with form of skills learning ($F_{(2,168)} = 0.397, p = 0.673$). Hence gender does not influence the relative importance of the forms of learning. Surprisingly, age also had no significant interaction with form of learning ($F_{(4,338)} = 1.728, p = 0.143$). Therefore, age does not influence the relative importance of the forms of learning. In contrast, highest education level had a significant interaction with form of learning ($F_{(6,328)} = 1.984, p = 0.067$) at the 0.10 level. Note that for greater clarification in this analysis we used four, rather than three, education groups by splitting the 'TAFE/college certificate or above' group into two: (1) TAFE/college certificate and (2) Diploma or higher. However, the analysis using three groups also had a similarly significant interaction ($F_{(4,330)} = 2.296, p = 0.059$). Profiles of the four education levels across the forms of learning are shown in Figure 3. The figure shows that the relative importance of formal training/study increases at

higher education levels. In particular, the relative importance of formal training and study to those with a diploma level or higher qualification (mean = 33.6%) is greater compared with those with up to school certificate (mean = 17.7%). Consequently, and not surprisingly, those with up to school certificate rely more heavily on life and work experience for their skill development.

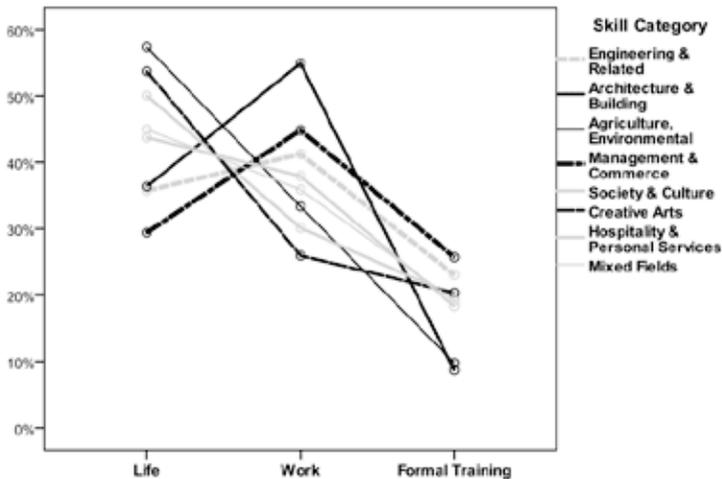
Figure 3: Profiles of percentage of skill gained from forms of learning for education levels



The final analysis involved exploring whether the percentage of skills gained from each form of learning differed by type of skill in order to address Research Question 5. Skills were classified according to two-digit ASCED codes. Due to low numbers of skills falling in the natural and physical sciences, information technology, health and education categories, these were excluded from the analysis. A repeated measures analysis with form of learning as the repeated measure and skill category as the between-subjects factor was undertaken. The multivariate tests for form of learning and the interaction of form of learning and skill category were significant (respectively,

$F_{(2,424)} = 51.441, p < 0.0005$ and $F_{(14,850)} = 4.056, p < 0.001$). The forms of learning differed in the same way as the previously reported analysis (that is, the means for life experience and work experience, overall, were greater than the mean for formal training/study). The interaction effect between form of learning and skill category indicated that the relative weighting given to form of learning depends on skill category. Figure 4 shows the profiles of the skill categories across the forms of learning. It shows that formal training and study is relatively less important for developing architecture and building, and agriculture and environmental skills. Architecture and building skills appear to draw more upon work experience than other skills. Architecture and building, management and commerce and engineering and related skills seem to rely less on life experience than other skills categories.

Figure 4: Profiles of percentage of skill gained from form(s) of learning for skill categories



Conclusion

The reported findings address each of the identified five research questions. Conclusions about each of the questions are presented before overall conclusions are drawn.

The first two research questions are concerned with combining forms of learning and the factors that may impact on this. Research Question 1 asked, *Are skills gained by a single form of learning or by combinations of forms?*. The findings of the study indicate that for people in labour market programs most skills are gained by combinations of forms of learning; in particular, combinations of:

- life experience and work experience, representing non-formal and informal learning; and
- life experience, work experience and formal training/study, representing non-formal, informal and formal learning .

Research Question 2, which asked, *Are there differences in combining of forms of learning based on demographic factors?*, subsequently builds on Research Question 1 by investigating whether demographic factors are relevant to understanding the combining of forms of learning. The study found no differences based on gender but there were some differences based on age and highest level of education; in particular:

- those between 30 and 44 years age tend to combine more forms of learning than their older peers; and
- those with up to school certificate level education are less likely to combine all three forms of learning than those with a higher level of education.

On the whole, however, it can be concluded that demographics do not neatly distinguish the way in which forms of learning are combined by people in labour market programs. These complexities need to be recognised when using demographics to target sub-groups in the development and implementation of labour market policies.

The final three research questions are concerned with the relative importance of the different forms of learning and the factors that may impact on this. Research Question 3 asked, *Are there differences between the percentages of skills gained from different forms of learning?* The findings of the study indicate that there are differences. In particular, the percentages of skills gained from life and work experience were higher than the percentage of skills gained from formal training/study. This supports the literature, indicating that recognition of informal and non-formal learning is important as a means of recognising non-credentialed skill sets, or what Tough (2002) referred to as the submerged part of the adult learning iceberg. Industries and the business community are experiencing major HRM challenges and the recognition of these significant forms of learning could be the first step in tapping into a potential pool of workforce applicants traditionally viewed as semi or unskilled.

Research Question 4, which asked *Are there interactions between the percentage of skills gained from different forms of learning and demographic factors?*, builds on Research Question 3 by investigating whether differences in the importance of forms of learning vary across demographic factors. Such interactions were not found for gender or age. Although age provides more opportunity to learn skills through life experience it also allows more time to learn through work experience and to undertake formal training and study. Hence, the *relativities* of forms of learning are not likely to be affected simply because one becomes older. Conversely, highest level of educational attainment was found to interact with the importance of forms of learning. Specifically, gaining skills through formal training and study is more important than life and work experience for those with a high level of education compared to those with only a basic level of education. This finding confirms the obvious, but addresses to the authors' knowledge the previously untested assumption that informal and non-formal learning is relatively more important for people with less education and training. However, with respect to

Research Question 4 overall, it can be concluded that demographics do not have a large impact on the relative importance of forms of learning for people in labour market programs.

Research Question 5 asked, *Is there an interaction between the percentage of skills gained from different forms of learning and category of skill?* The study found evidence of such an interaction, indicating that different skill categories show different patterns of the relative importance of the three forms of learning. Formal training and study is relatively less important for learning the architecture, building, agriculture and environmental skills held by labour market program participants. Instead, work experience is more important than other forms of learning for architecture and building skills. These skills, along with those related to management, commerce and engineering, also rely less on life experience than other skill categories.

The results are particularly interesting in the context of the sample examined in this study; that is, those disadvantaged in the labour market who are mainly unemployed and reported mainly lower level skills. Overall, the results suggest that combining forms of learning is the norm and that non-formal and informal learning are particularly important. This suggests RNFIL has potential application to this sample and other similar people in labour market programs.

The study was exploratory and has highlighted the significance of informal and non-formal learning in the acquiring of skills which may be relevant in assisting in gaining employment. A study by Golding, Marginson and Pascoe (1996) used a somewhat similar method with a sample of students who had moved from higher education to TAFE to show that even people with tertiary (TAFE & university) backgrounds attributed most of their skills to combinations of home, family and work (and occasionally school). At a definitional level, we noted the change in language and reference from adult education to what amounts to forms of learning categorized by their modes of

facilitation and the current theoretical and political dimensions of these concepts.

The study could be extended to further investigate skill sets for those considered disadvantaged in the labour market. For instance, those groups targeted by welfare reforms aimed at increasing workforce participation tend to be considered semi or unskilled. Further research could investigate specific skill sets and gauge the levels of informal and non-formal learning that inform these skills sets for the purposes of skills recognition. Many industries are facing immense HR issues in terms of the ageing workforce, skill shortages and lowering rates of workforce participation. This study has implications for future practices in terms of the enactment of policies at the interface of human capital development and social inclusion.

Due to the nature of the sample, the findings are limited to unemployed adults. Despite this, the paper has highlighted the importance and extent of the interrelatedness of informal, non-formal and formal learning, especially for those considered disadvantaged in the labour market. The study has identified areas for further research in relation to the configurations attached to the relativity and interconnectedness between informal, non-formal and formal learning for specific self reported skill sets and has significant implications for the recognition of skills learned through non-formal and informal learning. We argue for a reframe from the focus on the differences between forms of learning to a focus on the connections, relationships and interrelatedness between these learning forms. We assert this will provide a much richer and fuller picture of the variables and contextual influences at play when individuals and groups engage in learning across a diverse range of learning spaces and across time. This reframe recognises the fluid and dynamic nature of the complex interplay that is learning.

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