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Prisoner education and training, and other characteristics: Western Australia, July 2005 to June 2010

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PRISONER EDUCATION and TRAINING, and OTHER CHARACTERISTICS, Western Australia, July 2005 to June 2010

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April 2013



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Acknowledgements

This report is the first of three for the “Labour Market Outcomes of Education and Training during Incarceration” project. The prison training data extraction and preliminary analysis were funded by a 2011 Strategic Research Grant from the Research and Higher Degrees Committee of the Faculty of Business and Law (FBL), Edith Cowan University. The data modelling and linkage preparation were funded by the WA Department of Corrective Services (DCS) and Edith Cowan University (ECU) via an Industry Collaboration grant. Comprehensive analysis and modelling of the linked dataset is being jointly funded by the Criminology Research Advisory Council, ECU and FBL.

The authors of this report acknowledge the support and collaboration of staff at the WA Department of Corrective Services. In particular, Mr Ray Chavez, Coordinator Research and Evaluation, Education and Vocational Training Unit; and Mr Gary Wilmot, Principal Analyst Statistical Systems, Performance and Statistics. The views and interpretations in this report are those of the authors and do not necessarily reflect the views of DCS.

The “Labour Market Outcomes of Education and Training during Incarceration” project was approved by the Research and Evaluation Committee of the WA Department of Corrective Services (September 2010) and the Faculty of Business and Law Ethics Sub-Committee at Edith Cowan University (May 2011).

Reports in this series:

Prisoner Education and Training, and Other Characteristics: Western Australia, July 2005 to June 2010 (this report).

Characteristics of Prisoner Education and Training and Welfare Dependence: Western Australia (expected release 2013).

Models of the Impacts of Prison Education and Training on Welfare Dependence and Recidivism: Western Australia (expected release 2014).

Executive summary

Spending public funds on educating and training prisoners can generate a significant return on investment, because as this report argues, studying in prison can reduce costly recidivism and improve life outcomes for ex-prisoners.

What are the costs of recidivism? Let's start with incarceration. Prisoners cost money - about \$110,000 per prisoner a year. With over 4,000 prisoners in WA prisons at any one time and a turnover of 8,000 prisoners per year, incarceration is a costly business. In addition, there are policing and legal costs related to finding, charging and sentencing alleged offenders; as well as costs to the community in relation to property damage, insurance premium increases, lives lost and harm and trauma to victims of crime. Reducing recidivism alone can therefore bring about huge cost savings to the government and the community.

Then there's the cost of welfare dependence. In the short term, these include payments to families of incarcerated breadwinners and unemployment benefits for ex-prisoners; just two of the many different types of welfare payments administered by Centrelink. In the longer term, intergenerational welfare looms for an increasing number of disenfranchised, unskilled and unemployed workers, including ex-prisoners who are further disadvantaged by having a criminal record. Improving employability and reducing welfare dependence can therefore reduce demand on the public purse, as well as promote more productive lives.

In Western Australia, considerable efforts have been made by the WA Department of Corrective Services (DCS) to reduce recidivism and improve individual and community outcomes. Internal reviews of offending behaviour by the Education and Vocational Training Unit (EVTU), which has provided courses and classes in Western Australia prisons for many years, show proportionately fewer repeat offences by ex-prisoners who studied in prison, compared with those who did not.

Missing from these reviews however is the bigger picture. This research project demonstrates how studying in prison can lead to better labour market outcomes and reduced recidivism, and provides an evaluation of the resulting impact on welfare utilisation.

This report is the first of three and summarises the prison training data. It indicates that the Western Australia prison population is diverse, and as can be seen from the class and course profiles, prisoners have varied education and training experiences.

1 Introduction

Corrective Services departments throughout Australia and in many countries around the world have introduced education and training programs in their prisons, and use course completions and reduced recidivism as measures of success (Nally, Lockwood, Knutson, & Ho, 2012). Importantly, interventions that reduce recidivism rates, such as in-prison study and workplace integrated learning, provide the greatest return to the community in terms of reducing the costs of imprisonment as well as other policing and legal costs. Education and training in prison imparts specific and generic life skills; while workplace integrated learning recognises the importance of and promotes the social aspects of successful reintegration. Both these interventions are offered to adult prisoners in Western Australian prisons, and provide ex-prisoners with the opportunity to successfully participate in both the community and the labour market.

Giles and Le (2009) argue that labour market outcomes could also be used as a yardstick for evaluating the success of prison education and training programs. Giles and Le drew parallels with the university sector in which graduate destination (in terms of employment in their fields of study) is regarded as a measure of graduate success, in addition to whether or not they completed their university course.

This report commences with a review of the relevant literature in Section 2. In Section 3, the two Department of Corrective Services datasets are presented, together with summary statistics for the offence data, as well as merged offence and study data. Section 4 presents preliminary results of the multivariate analyses of factors affecting study choice, recidivism and up-skilling.

2 Literature review

There are two components of the literature review for this study. The first, presented in Section 2.1, is an overview of the Australian and international literature related to prisoner education and training, ex-prisoner labour market and other outcomes, as well as recidivism. The second is the conceptual framework of human capital theory and the dichotomy of education as both consumption and investment, and is summarised in Section 2.2.

2.1 Education and employment, crime and recidivism

Numerous international and Australian studies of correctional education concluded that studying in prison reduces recidivism (see, for example, Anders & Noblitt, 2011; Batchelder & Pippert, 2002; Chavez & Dawe, 2007; Kling & Krueger, 2001; Lochner & Moretti, 2004; Nally *et al.*, 2012; Social Exclusion Unit, 2002). A US study by Steurer *et al.* (2001) found that re-arrest, re-conviction and re-incarceration rates were lower for prisoners who participated in prison study compared with non-participants.

In their study of all-aged US prisoners, Nally *et al.* (2012) found that 29.7% of prisoners who studied while in prison re-offended, compared with 67.8% of prisoners who did not. Another US study of prisoners aged 18 to 25 years reported recidivism rates of 19% and 49% respectively for prisoners who studied and those who did not (Anders & Noblitt, 2011). Moreover, some studies reported that recidivism rates are significantly decreased if offenders attain a higher level of education (up-skilled) during incarceration (Chavez & Dawe, 2007; Nally *et al.*, 2012).

The relationship between improved education and reduced recidivism was summarised simply by Lochner and Moretti (2004) who, in their study of young people, argued that education reduces the propensity to commit crime in two ways. First, education increases the alternatives available to young people and raises the cost of time spent in prison. Second, education makes individuals less impatient and more risk averse. Thus, more educated people have lower discount rates (Riddell, 2006) and individuals with a propensity for crime have higher time discount rates (Torre & Wraith, 2012).

In most cases these studies used justice system data to examine recidivism and its link to prior prison study. Few related reduced recidivism to post-release employment information for ex-prisoners. However, in one such study (Nally *et al.*, 2012) the authors collaborated with corrective services and workforce development public agencies to access post-release employment data (primarily occupation and income) related to a cohort of ex-prisoners, together with the prisoner/ex-prisoner demographic and offence information. These authors were therefore able to report on the links between in-prison study, and both recidivism and post-release employment.

Most studies on the impact of correctional education on recidivism and post-release labour market success or community connectedness, disaggregated in-prison study into broad categories related to level of education. For example, Nally *et al.* (2012) used three categories of study – below high school; high school or General Equivalency Diploma (GED); and college education. No specific courses were mentioned by the authors, although they did discuss whether or not studying in prison represented up-skilling.

These studies generally linked the attainment of skills through in-prison study directly to employability and hence, reduced recidivism. Anders and Noblitt (2011) also argued that there is an indirect link between in-prison study and reduced opportunities for infractions (misbehaviour inside prison), which can jeopardise parole or early release and may also jeopardise opportunities for employment.

Various types of recidivism measures are described in the literature. In its most uncomplicated form, the term refers to the repetition of offending behaviour; including offending, being charged, sentenced and incarcerated. For example, studies that used longitudinal incarceration data may refer to prisoners who reappear in the prison system more than once as “recidivists” and those who do not as “successfully re-integrated into the community”. Some studies suggest a revolving door of offenders leaving and re-entering the prison system as typical of recidivists. Others propose a longer timeframe in which to judge whether or not the offending behaviour has stopped. For example, Petersilia (2009) suggested that reduced recidivism is only achieved after a minimum of seven years of no offending. Most studies however use much shorter timeframes, such as twelve months, eighteen months or three years.

Broader definitions of reduced recidivism include reduced severity of offences by repeat offenders and increased time in the community (so-called “survival time” between offences) (Tripodi, Kim, &

Bender, 2010). This de-escalation of offending behaviour could also be considered a positive outcome of rehabilitation, including correctional education and anti-crime programs.

2.2 Human capital theory

Several Australian and overseas studies have shown that prison populations are characterised by relatively low levels of educational attainment and work experience (see, for example, Giles *et al.*, 2007; Hamlyn & Lewis, 2000; New Zealand Department of Corrections, 2003; Western Australian Department of Justice, 2002). Hence correctional educators argue that there is a need to fill the education deficit during incarceration. For example, a study of the needs of female ex-prisoners found that job training programs in prison can mediate the effects of negative life histories (Arditti & Few, 2006).

Furthermore, labour economists contend that investment in education and training (human capital) is akin to business investment in equipment (physical capital) (Becker, 1964). That is, improved human capital has the potential to propel an ex-prisoner to a higher occupational status or to provide ex-prisoners with more employment options. However, the in-prison study that contributes to this human capital acquisition is not invariant across different courses and types of study; neither are the labour market outcomes of this education and training. A study by Tyler and Kling (2006) examined prison-based GED programs and found that the earnings premium for ex-prisoners who had studied in prison was not consistent across socio-demographic groups, nor was it necessarily sustainable in the medium to longer term.

The existing literature on the educational attainment of prisoners tends to focus on participation or enrolment in education and training courses during incarceration. There are few quantitative studies on the motivations of prisoners to voluntarily up-skill (invest in their human capital), or the value they place on this investment. This may be due to the lack of data or the lack of access to reliable and relevant data. Moreover, some prisoners may be reluctant to reveal their true intentions to study for fear of being excluded from study or being unfavourably considered during their parole hearings. A cross-sectional survey of adult prisoners in WA metropolitan prisons (Giles *et al.*, 2007) showed that adult prisoners who undertook vocational training whilst in prison, expected better post-release labour market outcomes than those who undertook general education programs or did not study during their incarceration.

3 Data

The overarching project, for which the collation and analysis of DCS offender management and training records for sentenced prisoners is an important first step (Phase 1), will examine the impact of prison education and training experience on the welfare and other labour market outcomes of ex-prisoners. During Phase 2, the DCS data will be linked with Centrelink labour market and welfare benefits data using a unique Linkage Key. This will include some preliminary analysis using bivariate data analytic techniques of the linked dataset. In the final stage (Phase 3) the DCS-Centrelink dataset will be analysed using multivariate techniques to determine, inter alia, the education and training

experience factors that best improve labour market outcomes and reduce welfare dependence for ex-prisoners.

It is therefore important that the DCS data provide an accurate representation of the study experiences of prisoners. Sections 3.1 and 3.2 present the two components of the DCS data: a) the prison term characteristics, including socio-demographic characteristics and b) the prison study characteristics. The former is pertinent to the prisoners and their prison term, and provides records for prisoners who served more than one prison term. The prison study characteristics relate to the classes that prisoners undertook, with multiple records for prisoners who enrolled in more than one class.

3.1 Total offender management system (TOMS) data

The prisoner/offence data were extracted from custodial records kept by the WA Department of Corrective Services (DCS). The sample includes all adult prisoners who were serving sentences in WA prisons during the five year period from 1 July 2005 to 30 June 2010. Some of the prisoners were therefore serving sentences that commenced prior to 1 July 2005 and others were still incarcerated as at 30 June 2010. Some prisoners were also serving more than one sentence during this time period. The total number of prisoners in this sample is 14,643, and the total number of records, including multiple terms for some prisoners, is 22,434. This suggests that adult prisoners in WA prisons served an average of 1.5 terms, and that some prisoners had very high recidivism rates.

Sections 3.1.1 and 3.1.2 present summary data on prisoners (n = 14,643) rather than records (n = 22,434).

3.1.1 Socio-demographics

Table 3.1 illustrates the socio-demographic profile of the prisoner sample and includes gender, age, indigeneity and their most current (last) residential address. The top third of the table shows that the majority (88%) of prisoners were male. The age profile of male and female prisoners differ slightly, with a lower proportion of female prisoners (15%) aged 18 to 25 years compared with male prisoners (19%) ($\chi^2 = 11.601, p=0.001$), and a higher proportion of females aged 26 to 40 years (58%) compared with same-aged male prisoners (55%) ($\chi^2 = 5.715, p=0.017$). There is no difference in mean age, which is 35 years for both males and females.

The middle of Table 3.1 shows that the majority of prisoners (58%) last resided in the WA metropolitan area, 38% in rural WA, and 4.1% were either from interstate or overseas. The ratio of males and females from metropolitan and rural WA is similar, but 93% of those with last residence outside WA, are males.

The profiles of prisoners by gender and indigeneity are shown at the bottom of Table 3.1. Whilst proportionately more female prisoners had Aboriginal or Torres Strait Islander (ATSI) origins (54%), the proportion of ATSI males is lower at 37%. This difference is statistically significant ($\chi^2=184.188, p<0.001$). The average age of ATSI prisoners was 34 years, slightly younger than for non-ATSI prisoners at 36 years. This difference is also statistically significant ($t=13.463, p<0.001$).

Table 3.1: Socio-Demographic Characteristics of Prisoner Sample

Variable	Category	Females		Males		Total	
		%	n	%	n	%	n
Age	18 to 25 years	15.4	268	18.7	2,413	18.3	2,681
	26 to 40 years	57.9	1,010	54.8	7,069	55.2	8,079
	41+ years	26.8	468	26.5	3,415	26.5	3,883
	Total	100.0	1,746	100.0	12,897	100.0	14,643
Last residence	WA metro	60.3	1,052	58.1	7,491	58.3	8,543
	WA rural	37.3	652	37.6	4,854	37.6	5,506
	Elsewhere ¹	2.4	42	4.3	552	4.1	594
	Total	100.0	1,746	100.0	12,897	100.0	14,643
Indigeneity	ATSI	53.5	934	36.6	4,726	38.7	5,660
	Non-ATSI	46.5	812	63.4	8,171	61.3	8,983
	Total	100.0	1,746	100.0	12,897	100.0	14,643

In their 2003 survey of sentenced adult prisoners in Western Australia metropolitan prisons, Giles and Le (2007) acknowledged that their sample under-represented prisoners with ATSI origins (21%) compared with 35% of all adult prisoners being of Aboriginal or Torres Strait Islander descent at the time of the survey. Although analysis of this survey data provided study and work profiles together with labour market expectations for ATSI and non-ATSI prisoners, there was a recognised sample bias towards the experiences of non-ATSI prisoners. A strength of the current study is that it is based on prison population data rather than sample data, thereby eliminating this sample response bias.

3.1.2 Offences and sentences

Table 3.2 presents the prison term characteristics of the prisoner sample. The top panel of the table shows that one third of prisoners had served more than one term (in full or part) during the five year period, and over 13% of prisoners had served three or more terms. The proportion of females (72%) serving a single term is higher than that for males (65%) – this result is statistically significant ($\chi^2=33.443$, $p<0.001$). The proportion of females serving more than one term is consequently lower, but there is no statistically significant difference between the proportion of males and females serving five or more terms.

¹ 1.9% of prisoners (n=276) last resided in other Australian states or territories, and 2.2% (n=318) were from overseas.

Table 3.2: Prison Term Characteristics of Prisoner Sample

Variable	Category	Females		Males		Total	
		%	n	%	n	%	n
Prison Terms Served	Single term	72.4	1,264	65.4	8,438	66.3	9,702
	Two terms	17.9	313	20.8	2,679	20.4	2,992
	Three terms	6.6	115	9.0	1,160	8.7	1,275
	Four terms	1.8	32	3.7	472	3.4	504
	Five or more terms	1.3	22	1.2	148	1.2	170
	Total	100.0	1,746	100.0	12,897	100.0	14,643
Time Served	12 months or less	70.8	1,236	51.7	6,666	54.0	7,902
	13 months - 60 months	27.9	487	42.4	5,464	40.6	5,951
	61 months - 180 months	1.2	20	5.5	706	5.0	726
	181 months - 360 months	0.2	3	0.5	60	0.4	63
	More than 360 months	0.0	0	0.0	1	0.0	1
	Total	100.0	1,746	100.0	12,897	100.0	14,643
Discharged Status	In prison on 1 July 2010	21.9	382	32.5	4,188	31.2	4,570
	Discharged prior to 1 July 2010	78.1	1,364	67.5	8,709	68.8	10,073
	Total	100.0	1,746	100.0	12,897	100.0	14,643

Prisoners serving more than one term in the sample period were also slightly younger on average. The average age of prisoners serving more than one term is 34 years, and for prisoners serving a single term it is 36 years. This age difference is statistically significant ($t=13.202$, $p<0.001$).

The middle of Table 3.2 shows that a higher proportion of females (71%) spent a total of 12 months or less in prison compared with males (52%); a statistically significant difference ($\chi^2=226.010$, $p<0.001$). Consequently the proportion of females serving more than 12 months is lower, but there is no statistically significant difference between the proportion of males and females serving more than 180 months (15 years)². Not shown in the table but calculated from the data, is the median time spent in prison which is 12 months. For males, the median time served is also 12 months, but for females the median is 7 months.

The bottom of Table 3.2 shows that 4,570 prisoners (31% of the sample) were still in custody as at 1 July 2010, with the remaining 69% having been discharged. The proportion of female prisoners (22%) still in custody is lower than the corresponding proportion of male prisoners (32%); a statistically significant difference in proportions ($\chi^2=80.358$, $p<0.001$). Figure 3.1 illustrates the average time served and the proportion of prisoners by number of prison terms and gender.

² Note that total time served is up to 1 July 2010 and only includes sentences which were served in full or in part during the five year sample period. This means that where a prisoner was already serving a sentence on 1 July 2005, time served towards this sentence prior to 1 July 2005 was included, but any sentence that was served in full prior to 1 July 2005 was not included, and recidivism rates in the prisoner sample are therefore under-estimated. In addition, for sentences that were continuing beyond 30 June 2010, the remainder of the time for those sentences was excluded. This means that the time served variable is truncated for those prisoners still inside at 1 July 2010.

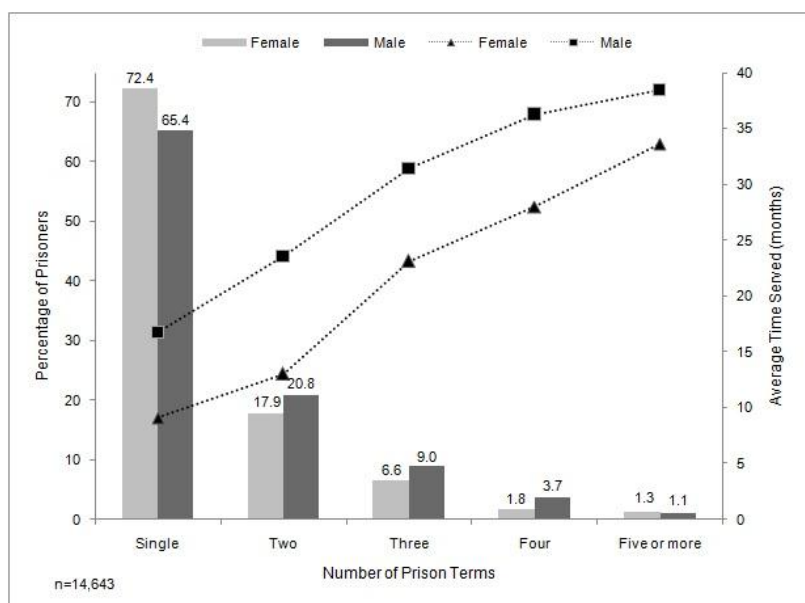


Figure 3.1 Average Time Served and Number of Prison Terms by Gender

Table 3.3 gives a separate breakdown of the prison term characteristics for ATSI and non-ATSI prisoners. The proportion of ATSI prisoners serving more than one term (47%) is almost twice that of non-ATSI prisoners (25%). The proportion of ATSI prisoners serving three or more terms (21%) is 2.5 times that of non-ATSI prisoners (8%). Of the ATSI prisoners, males were more likely to have served more than one term than females; and 49% of ATSI males served more than one term in the sample period, compared with 36% of ATSI females. This result is statistically significant ($\chi^2=57.731$, $p<0.001$).

The modal categories for total time spent in prison are shown in Table 3.3 as 12 months or less for both ATSI and non-ATSI prisoners. Proportionately fewer ATSI prisoners served 12 months or less (51%) compared with non-ATSI prisoners (56%); a statistically significant difference ($\chi^2=44.612$, $p<0.001$). While the proportion of ATSI prisoners serving more than 12 months but less than 5 years (46%) is higher than that of non-ATSI prisoners (38%) ($\chi^2=95.277$, $p<0.001$), it is notable that fewer ATSI prisoners (4%) served more than 5 years compared with non-ATSI prisoners (6%). Not shown in the table but calculated from the data, is the gender difference between total time spent in prison, which is accentuated for ATSI prisoners. For female ATSI prisoners the median time spent in prison is 6 months, compared with 14 months for male ATSI prisoners.

Table 3.3: Prison Term Characteristics by Indigeneity

Variable	Characteristic	Category	Females		Males		Total	
			%	n	%	n	%	n
ATSI	Prison terms served	Single term	64.1	599	50.6	2,389	52.8	2,988
		Two terms	21.3	199	27.2	1,285	26.2	1,484
		Three or more terms	14.6	136	22.3	1,052	21.0	1,188
		Total	100.0	934	100.0	4,726	100.0	5,660
	Time served	12 months or less	71.8	671	46.3	2,187	50.5	2,858
		13 months - 60 months	27.9	261	49.1	2,322	45.6	2,583
		61 months or more	0.2	2	4.6	217	3.9	219
		Total	100.0	934	100.0	4,726	100.0	5,660
Non-ATSI	Prison terms served	Single term	81.9	665	74.0	6,049	74.7	6,714
		Two terms	14.0	114	17.1	1,394	16.8	1,508
		Three or more terms	4.1	33	8.9	728	8.5	761
		Total	100.0	812	100.0	8,171	100.0	8,983
	Time served	12 months or less	69.6	565	54.8	4,479	56.1	5,044
		13 months - 60 months	27.8	226	38.5	3,142	37.5	3,368
		61 months or more	2.6	21	6.7	550	6.4	571
		Total	100.0	812	100.0	8,171	100.0	8,983

The most serious offences for which prisoners served time during the five year period ending 30 June 2010 was analysed using the Australian National Classification of Offences (ANCO) categories (Australian Bureau of Statistics, 1986). As seen in Table 3.4, the ANCO categories with the highest proportion of prisoners overall were: Offences against People (30%); Property Offences (19%); Offences against Good Order (17%); and Traffic Related Offences (17%).

Table 3.4: Prisoners' Most Serious Offence: ANCO Classification

Variable	Category	%	n
Classification (ANCO)	Offences Against the Person	29.5	4,325
	Property Offences	18.5	2,712
	Offences Against Good Order	17.0	2,485
	Motor Vehicle, Traffic and Related Offences	16.7	2,445
	Drug Offences	8.8	1,294
	Robbery and Extortion	6.3	926
	Other Offences	3.1	456
	Total	100.0	14,643

Figures 3.2 to 3.5 show the proportion of prisoners in each of the broad ANCO categories in decreasing order of total incidence, disaggregated by gender (Figure 3.2), age (Figure 3.3), indigeneity (Figure 3.4) and region of residence (Figure 3.5). In Figure 3.2, differences between the

relative proportions of male and female prisoners are apparent in all the offence categories, although the small difference seen in the Drug Offences category is not statistically significant at the 1% level. Thus, females were less likely to be serving time for the most serious offences including: Offences against People ($\chi^2=112.151$, $p<0.001$), and Robbery and Extortion ($\chi^2=8.246$, $p<0.01$); and more likely to be serving time for Property Offences ($\chi^2=18.083$, $p<0.001$), Offences against Good Order ($\chi^2=42.928$, $p<0.001$), and Traffic Related Offences ($\chi^2=25.755$, $p<0.001$).



Figure 3.2 Offence Characteristics of Prisoner Sample by Gender

Figure 3.3 shows offence categories in terms of three age groups: adult prisoners aged 18 to 25 years; those aged 26 to 40 years; and those over 40 years. There are two points to note. First, for Property Offences, Offences against Good Order and Robbery and Extortion, the proportions decrease with age. In each category, the youngest age group has a significantly higher proportion ($\chi^2=52.478$, $p<0.001$; $\chi^2=10.042$, $p<0.01$; $\chi^2=65.908$, $p<0.001$).

Second, for Offences against the Person, Traffic Offences and Drug Offences, the proportions increase with age. In each category, the youngest age group makes up a significantly lower proportion ($\chi^2=6.747$, $p<0.01$; $\chi^2=16.733$, $p<0.001$; $\chi^2=55.443$, $p<0.001$). However, as illustrated in Figure 3.3, there is no apparent difference between the proportions in the two younger age groups for Offences against the Person, and those of the two older age groups for Traffic Related Offences.

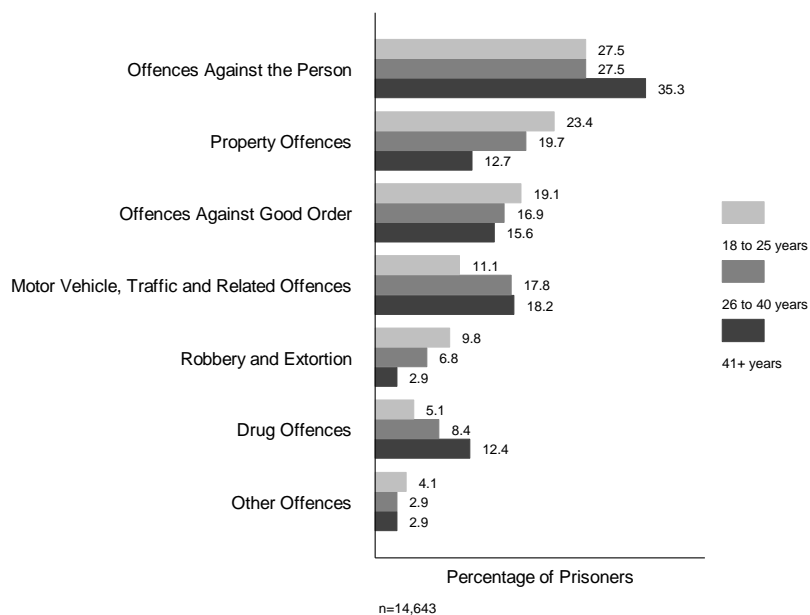


Figure 3.3 Offence Characteristics of Prisoner Sample by Age at 30 June 2010

Indigeneity can be seen to have had little effect on the incidence of Property Offences or Offences against Good Order, but a marked effect on the incidence of Drug Offences and Offences against the Person.

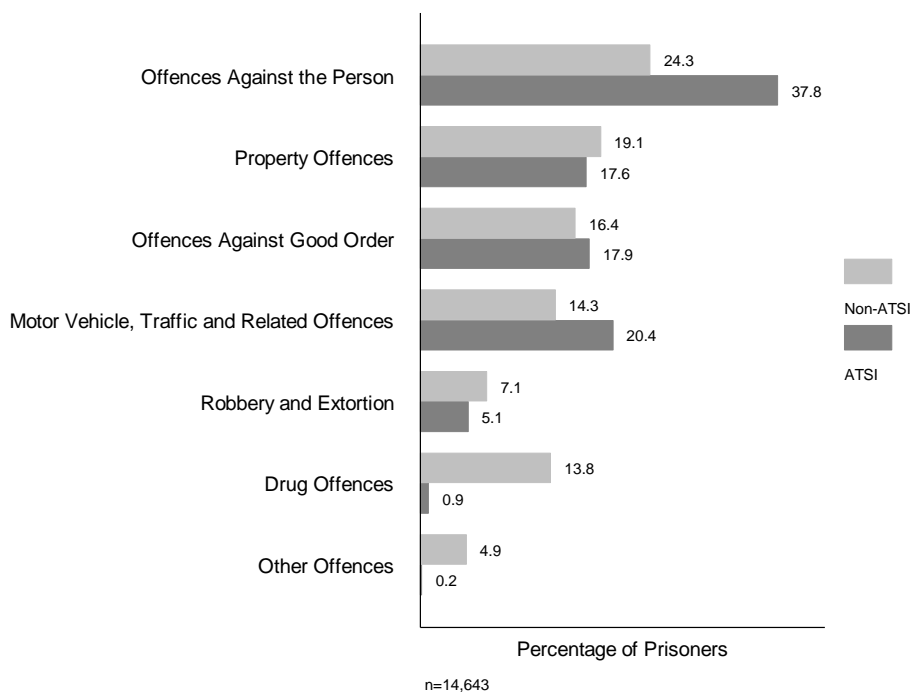


Figure 3.4 Offence Characteristics of Prisoner Sample by Indigeneity

Figure 3.4 shows a notable discrepancy between indigenous and non-indigenous prisoners with respect to Drug Offences: the proportion of non-ATSI prisoners (14%) convicted of drug offences is significantly larger than that for ATSI prisoners (1%) ($\chi^2=717.965$, $p<0.001$). The difference with respect to Offences against People is also notable. The proportion of ATSI prisoners convicted of Offences against the Person was 1.5 times the respective proportion of non-ATSI prisoners ($\chi^2=304.633$, $p<0.001$). In the remaining offence categories, ATSI prisoners were significantly more likely than non-ATSI prisoners to be sentenced for Traffic Offences ($\chi^2=93.191$, $p<0.001$), but significantly less likely to be sentenced for Robbery and Extortion ($\chi^2=23.758$, $p<0.001$).

Figure 3.5 shows the incidence of the various offence types for those prisoners who most recently resided in Western Australia. Prisoners from the Perth metropolitan area were compared with those from rural areas. The data reveal that prisoners from rural areas were less likely to be sentenced for Property Offences ($\chi^2=116.777$, $p<0.001$), Robbery and Extortion ($\chi^2=149.686$, $p<0.001$) or Drug Offences ($\chi^2=184.870$, $p<0.001$), and more likely to be sentenced for Offences against People ($\chi^2=331.780$, $p<0.001$) and Traffic Offences ($\chi^2=101.373$, $p<0.001$).

While there was no significant difference at the 1% level between the respective proportions of rural and metropolitan prisoners convicted of Offences against Good Order, all the other offence categories showed sizeable differences in proportion between the two groups. In most cases, the largest proportion was at least 1.5 times the smallest proportion. The largest difference between the two groups was related to Drug Offences and Robbery and Extortion. The proportion of rural prisoners sentenced for Drug Offences (5%) was less than half that for metropolitan prisoners (11%); and the proportion of rural prisoners sentenced for Robbery and Extortion (3%) was a third of that for metropolitan prisoners (12%). Most prisoners whose last residence was outside Australia ($n = 315$) were sentenced for Other Offences and these were predominantly for People Smuggling (53%) or Fisheries Breaches (28%).

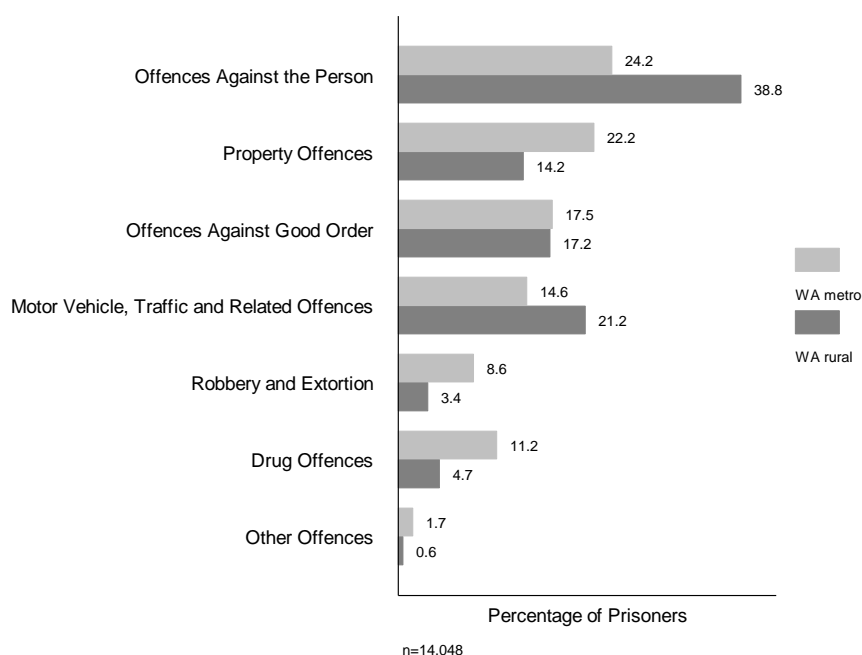


Figure 3.5 Offence Characteristics of Prisoner Sample by Region of Residence in WA

3.1.3 Prisoners with multiple prison terms

As highlighted in Section 3.1.2 approximately one third of prisoners (n = 4,941) were serving two or more prison terms during the sample data period. The following analysis looked at the period of “freedom” (or “gap”) between prison terms for these prisoners.

For those prisoners with three or more terms our analysis was confined to the period between the two most recent prison terms. Measured in months, this period was defined as the most recent gap between prison terms.

Figure 3.6 shows the frequency and cumulative frequency distributions for the most recent gap between prison terms for prisoners with more than one prison term (n = 4,941), including those prisoners who were still serving their sentence at 1 July 2010. Half of these prisoners had a gap between most recent prison terms of 8 months or less, and 80% of prisoners had a gap between most recent prison terms of 20 months or less. Few prisoners with multiple prison terms had long gaps between most recent prison terms.

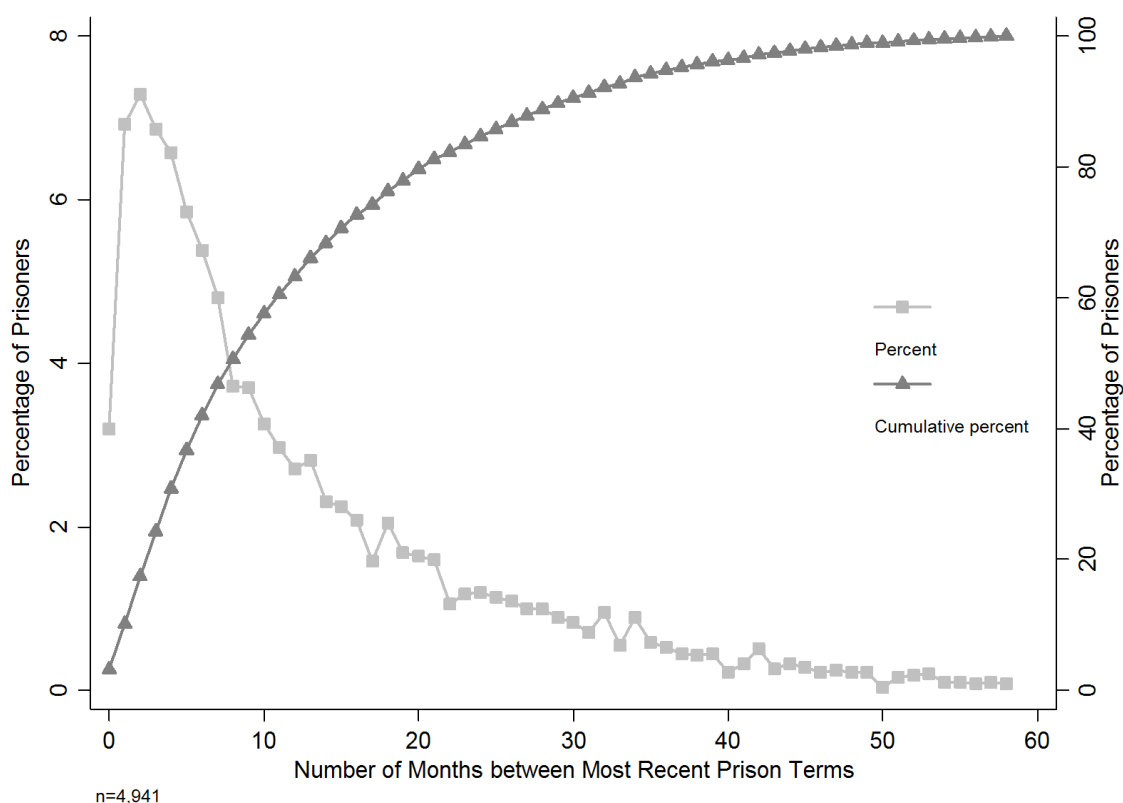


Figure 3.6 Frequency Distribution for Most Recent Gap between Prison Terms

Table 3.5 shows that the most recent gap between prison terms varied by age but not by gender, region of residence or indigeneity. Younger prisoners spent less time between prison terms: the

median value of the most recent gap for those aged 18 to 25 years was 6 months; compared with 9 months for those aged 26 to 40 years, and 10 months for those aged 41 years and over.

Table 3.5: Most Recent Gap between Prison Terms (months) by Socio-demographic Factors

Variable	Category	Median	Mean	n	t-stat	F-stat	p
Gender	Female	9	12.836	482	0.966	-	0.334
	Male	8	12.296	4,459			
Age	18 to 25 years	6	9.179	892	-	2.807	<0.001
	26 to 40 years	9	12.600	3,110			
	41+ years	10	14.525	939			
Last residence	WA metro	8	12.170	2,770	-	1.420	0.020
	WA rural	9	12.574	2,092			
	Elsewhere	7	12.633	79			
Indigeneity	ATSI	8	12.274	2,672	-0.483	-	0.629
	Non-ATSI	8	12.435	2,269			
	Total	8	12.348	4,941			

As expected, given that the study examined the fixed period between 1 July 2005 and 30 June 2010, those with the most prison terms had the shortest gap between terms. Similarly, those prisoners who had spent the most time inside had the shortest gap between prison terms. These relationships are highlighted in the top half of Table 3.6.

Table 3.6: Most Recent Gap Between Prison Terms (months) by Prison Term Characteristics

Variable	Category	Median	Mean	n	t-stat	F-stat	p
Prison terms served	Two terms	10	14.607	2,992	-	5.755	<0.001
	Three terms	7	9.673	1,275			
	Four terms	6	7.597	504			
	Five or more terms	5	6.753	170			
Time served	12 months or less	11	15.281	1,287	-	4.279	<0.001
	13 – 60 months	8	11.634	3,395			
	61 months or more	5	7.139	259			
Discharged status	In prison on 1 July 2010	9	13.207	2,059	4.380	-	<0.001
	Discharged prior to 1 July 2010	8	11.735	2,882			
Type of crime	Drug, robbery or property offences	7	10.805	2,013	7.755	-	<0.001
	Other	9	13.409	2,928			
	Total	8	12.348	4,941			

The bottom of Table 3.6 shows that the most recent gap between prison terms varied in relation to Discharged Status and Type of Crime. Those prisoners still in custody on 1 July 2010 had a longer gap between terms, although the difference in magnitude was small – the median gap was 9 months, compared with 8 months for those discharged before 1 July 2010. Prisoners convicted of an offence that could be categorised as “economic crime” – that is, those convicted of Robbery, Drug or Property Offences, had a shorter period between prison terms than those convicted of Other Offences.

Table 3.7 presents the prison term characteristics of the 10,073 prisoners who were no longer in prison on 30 June 2010. This excludes those prisoners who had incomplete sentences as at 1 July 2010. The median time spent in prison for this sample was 9 months. The table shows gender differences in terms of number of prison terms as well as length of time served. Three quarters of discharged female prisoners and 71% of discharged male prisoners in the sample served only one term during the period examined. Whilst 64% of all discharged prisoners served 12 months or less on aggregate during the sample period, the proportion of discharged male and female prisoners serving this length of time were 62% and 77% respectively.

Table 3.7: Prison Term Characteristics of Discharged Prisoners in Sample

Variable	Category	Females		Males		Total	
		%	n	%	n	%	n
Prison Terms Served	Single term	75.5	1,030	70.7	6,161	71.4	7,191
	Two terms	16.5	225	19.1	1,663	18.7	1,888
	Three or more terms	8.0	109	10.2	885	9.9	994
	Total	100	1,364	100	8,709	100	10,073
Time Served	12 months or less	77.2	1,053	61.6	5,362	63.7	6,415
	13 months - 60 months	22.2	303	35.8	3,119	34.0	3,422
	61 months or more	0.6	8	2.6	228	2.3	236
	Total	100	1,364	100	8,709	100	10,073

The top half of Table 3.8 shows the frequency of terms served by male and female prisoners who were still serving their sentences at 30 June 2010, and as the table indicates, this was the first prison sentence (no prior sentences) for over half of these prisoners. Only 8% had served three or more prior sentences. Proportionately more female prisoners (61%) were serving their first sentence as compared with male prisoners (54%), and proportionately fewer female prisoners were serving their fourth (or more) sentence (6.3%) compared with 8.4% male prisoners.

Table 3.8: Prison Term Characteristics of Prisoners Still Serving Sentence at 30 June 2010

Variable	Category	Females		Males		Total	
		%	n	%	n	%	n
Previous Terms Served	None	61.3	234	54.4	2,277	54.9	2,511
	One previous term	23	88	24.3	1,016	24.2	1,104
	Two previous terms	9.4	36	13	544	12.7	580
	Three or more terms	6.3	24	8.4	351	8.2	375
	Total	100	382	100	4,188	100	4,570
Sentence Being Served	12 months or less	40.1	153	21.6	905	23.2	1,058
	13 months - 60 months	46.9	179	55.7	2,331	54.9	2,510
	61 months or more	7.9	30	17	710	16.2	740
	Indeterminate/Life Sentence	5.2	20	5.6	233	5.5	253
	Unknown	0	0	0.2	9	0.2	9
Total	100	382	100	4,188	100	4,570	

Using an earliest release date, it was possible to estimate the expected length of the sentence being served by the 4,570 prisoners who were still in prison on 30 June 2010. The bottom half of Table 3.8 shows this breakdown. Few prisoners (5.5%) were serving an indeterminate sentence (including life sentences), that is, where release cannot take place without approval from the executive council. Excluding those prisoners with an indeterminate or unknown sentence, the median length of sentence for this sample was 24 months. Females are over-represented in the first category ($\chi^2 = 66.928$, $p < 0.001$): 12 months or less (40% compared with 22% of males), and under-represented in the second and third categories ($\chi^2 = 10.951$, $p = 0.001$ and $\chi^2 = 21.361$, $p < 0.001$): 13 months – 60 months (47% compared with 56% of males), and 61 months or more (8% compared with 17% of males) respectively. There is no statistically significant difference between the proportions of males and females in the remaining categories.

3.2 Education and training (Pathlore) data

Before introducing discussion of the education and training (Pathlore) data, it is worth noting that, whilst education and training in WA prisons is not compulsory, for those prisoners who choose to study, there are two particular obstacles. First, most prisoners participate in court-mandated courses. Completion of these courses is necessary prior to their enrolment in education and training classes. For example, mandatory courses aimed at reducing substance abuse provide prisoners with the opportunity to combat their addictions and improve their health. A second obstacle is prison transfers, which can interrupt study plans directly or indirectly through the need to acclimatise to new surroundings and prison conditions. Female prisoners are subjected to fewer prison transfers, since different security levels may operate within the one prison. Consequently they have better opportunities to develop rapport with teachers and familiarity with classes, both of which can improve achievement through completing classes and gaining skill competencies.

Prisoners in regional prisons have fewer obstacles to study as there are fewer court-mandated treatment courses and limited prison-industry workshops. In addition, regional prisons have smaller prisoner populations and therefore lower pupil-teacher ratios. In summary, prisoners in regional

prisons may have more opportunities to study and achieve better results (such as class completions) when they choose to do so.

The prison study data contained records for classes that prisoners had undertaken during the period from 1 July 2005 to 30 June 2010. Thus, if a prisoner had one or more sentences and/or was enrolled in more than one class, they generated multiple records in the Pathlore dataset. At most, two prisoners had enrolled in 134 classes over the course of their prison term(s). At least 2,635 prisoners had enrolled in only one class. The Pathlore dataset was merged with the TOMS data to allow analysis of the prisoner characteristics that defined those who studied and those who did not study. The merge was based on a unique prisoner identifier called the Linkage Key (see Appendix A), which looked at the reception date (date of first entry into a prison facility), and for released prisoners, the discharge date. In this way classes were linked to a particular prison term where the start and end dates of the class fell between the prisoner's reception and discharge dates.

The prison study data did not include course completions, and there was therefore no means of constructing a course completion variable from combinations of successfully completed classes. It is for this reason that the analysis of the study experiences of prisoners was based on class information. In recent years, DCS has encouraged structured training through enrolment in sets of classes; however, the 2005 to 2010 data may not reflect this. In addition, changes to national VET policies in 2010 were subsequently incorporated into DCS education and training practices, including changes to the minimum class hours for achieving competencies. Some classes required longer hours and others, shorter hours. For example, the General Education for Adults course was shortened from 80 to 20 hours per unit module. The bivariate and multivariate analyses of the data in Sections 3.3 and 4 respectively, do not adjust for the impact of this change in class enrolments during the first six months of 2010. However, it is unlikely that the results have been substantially compromised by this omission.

The Pathlore data contained several potentially useful fields for classifying the type of course to which any particular class belonged. These were: Accredited Course (code and text description), Event Type (five categories: Adult Basic Education (ABE); Apprenticeship; Tertiary; Vocational Education or Training (VET), and Other), and Qualification Type (thirteen categories³: Advanced Diploma, Apprenticeship, Associate Degree, Bachelor Degree, Certificate, Course, Diploma, Graduate Diploma, Industrial Trainee, Master Degree, Pre Certificate, Pre-Apprenticeship and Traineeship).

Due to unresolved data anomalies, we decided to use the accredited course text description from the Pathlore data to construct three new variables for categorising the courses and qualification types:

- Course Type: VET or other education
- Course Level: 1 (Prisoner Employment Program) to 16 (Masters degree)
- Course Content: from university level arts and accounting degrees to first aid courses.

Values for these variables were determined by initially extracting the distinct course descriptions from the data and then manually allocating an appropriate value to each variable based on the text of the description.

³ After allowing for anomalies due to case and spelling there were thirteen distinct values for the Qualification Type field.

3.2.1 Course type

There were two broad course types: Vocational Education and Training (VET) and Other Education (OE). VET classes include federally-funded Technical and Further Education (TAFE) Certificate or Diploma courses which may be delivered by TAFE or DCS (Education and Vocational Training Unit). They also include other work-related courses (such as Safety Awareness Training) and the Prisoner Employment Program. The vast majority of classes in the sample (95%) were undertaken as part of a VET course. These had fewer prerequisites and tended to be at lower AQF levels (see Section 3.2.2), a reflection of the prisoner education profile which shows poor prior schooling achievement (see, for example, Giles *et al.*, (2007)). Only 5% of classes in the sample were not part of VET courses and these were categorised “Other Education”. The top panel of Table 3.9 illustrates this VET/Other Education dichotomy for all classes.

Table 3.9: Classes by Course Type

Variable	Category	Category %	n	% of All
		(i)	(ii)	(iii)
All classes				
Course Type	VET	94.8	93,005	100.0
	OE	5.2	5,101	100.0
	Total	100.0	98,106	100.0
Successful classes				
Course Type	VET	93.0	58,949	63.4
	OE	7.0	4,423	86.7
	Total	100.0	63,372	64.6
Repeated classes				
Course Type	VET	94.1	3,450	3.7
	OE	5.9	215	4.2
	Total	100.0	3,665	3.7
Incomplete classes				
Course Type	VET	98.5	30,606	32.9
	OE	1.5	463	9.1
	Total	100.0	31,069	31.7

The slightly lower proportion of VET-type classes amongst successful classes (93%) as shown in the second panel of Table 3.9 is indicative of a lower successful completion rate for VET classes compared with other education classes. Column (iii) of the second panel shows that successful VET classes make up 63% of all VET classes, whereas successful Other Education (OE) classes comprise 87% of all OE classes.

The total number of classes taken by all prisoners who studied during their most recent prison term was 98,169. However, 63 classes in the sample had no course details recorded and were therefore excluded from subsequent analysis. Consequently, the total number of classes included in the course content analysis is 98,106.

3.2.2 Course level

The course level variable was designed with reference to the ten Australian Qualifications Framework (AQF) levels which link school, vocational education and training, and higher education qualifications in Australia (Australian Qualifications Framework Council for the Ministerial Council for Tertiary Education and Employment, 2011). The levels are an indication of both the depth and complexity of the course and provide an ordinal scale, or ranking, for relative comparison. A significant proportion of the study undertaken by prisoners however, fell below the lowest level on the AQF scale. This implies that many prisoners do not possess sufficient literacy and numeracy skills to undertake AQF-defined courses or participate successfully in a modern workforce. Consequently the constructed course level variable used sixteen levels of training or education to better fit the range of courses found in the Pathlore data. Table 3.10 provides details of these course levels and their relative position in the AQF structure.

Table 3.10: Course Levels and Associated AQF Levels

Course Level	Level Description	Equivalent AQF level
1	Prisoner Employment Program (PEP)	n/a
2	Short Course	n/a
3	Year 11	n/a
4	Year 12	n/a
5	Certificate I	1
6	Certificate II	2
7	Certificate III	3
8	Certificate IV	4
9	Diploma	5
10	Advanced Diploma	6
11	Associate Degree	6
12	University Preparation Course (UPC)	n/a
13	Bachelor Degree	7
14	Graduate Certificate	8
15	Graduate Diploma	8
16	Masters Degree	9

The course levels are exclusive to either VET or OE course types with the exception of “Level 2 Short Course” and “Other,” which can be ascribed to both VET and OE.

The top half of Table 3.11 shows the number and proportion of all classes for VET courses: successful classes, repeated classes and incomplete classes at each level. It also shows the relative success rates, repeat rates and incomplete rates for each level. The frequency distributions of “all” and “successful classes” are similar, with both skewed towards the lower levels: 49% (46%) of all (successful) classes were Certificate I level; 34% (36%) were Certificate II level; and 8% (7%) were Certificate III level. Similarly with incomplete classes, 50% were Certificate I, 34% were Certificate II and 9% were Certificate III. The distribution of repeated classes was even more skewed towards the

lower levels, with 77% of repeated classes at Certificate I level, 13% at Certificate II level and 5% at Certificate III level.

The bottom half of Table 3.11 presents the number and proportion of all successful classes, repeated classes, and incomplete classes for OE courses at each level. It also shows the relative success rates, repeat rates and incomplete rates for each level. In this instance 73% of all classes, 79% of successful classes, and 97% of repeated classes are evident at the lowest level viz. Short Course. This level also had the highest success rate (94%) as well as the highest repeat rate (6%). By contrast, only 7% of incomplete classes were in Short Courses, and the proportion of incomplete Short Courses was less than 1%. The highest rate of incompletion was for UPC courses (level 12) at 71%. The course level with the next highest frequency after Short Course was Bachelor Degree. 15% of all OE classes were part of a Bachelor Degree course; the success rate for which was 66% and the incompletion rate was 34%. Some classes (n = 405) could not be classified by the constructed course level hierarchy and are shown as "Other" in Table 3.11.

Table 3.11: Classes by Course Level and Course Type

Category	-----All-----		-----Successful-----		-----Repeated-----		-----Incomplete-----	
	%	n	%	n	%	n	%	n
VET								
PEP	0.0	16	0.0	11	0.0	0	0.0	5
Short Course	5.3	4,952	6.6	3,893	3.4	117	2.4	942
Certificate I	49.0	45,623	46.5	27,408	60.1	2,669	5.9	15,546
Certificate II	34.1	31,722	35.7	21,017	66.3	448	1.4	10,257
Certificate III	7.8	7,275	7.4	4,357	59.9	175	2.4	2,743
Certificate IV	3.3	3,084	3.5	2,033	65.9	36	1.2	1,015
Diploma	0.3	302	0.4	216	71.5	5	1.7	81
Advanced Diploma	0.0	6	0.0	0	0.0	0	0.0	6
Other	0.0	25	0.0	14	56.0	0	0.0	11
Total	100.0	93,005	100.0	58,949	63.4	3,450	3.7	30,606
OE								
Short Course	73.2	3,735	79.0	3,495	93.6	209	5.6	31
Year 11	0.8	43	0.4	17	39.5	0	0.0	26
Year 12	0.4	19	0.2	9	47.4	0	0.0	10
Associate Degree	1.8	91	1.6	69	75.8	0	0.0	22
UPC	0.7	38	0.3	11	28.9	0	0.0	27
Bachelor Degree	14.7	751	11.2	495	65.9	4	0.5	252
Graduate Certificate	0.1	5	0.1	4	80.0	0	0.0	1
Graduate Diploma	0.1	6	0.1	3	50.0	0	0.0	3
Masters Degree	0.7	33	0.5	21	63.6	1	3.0	11
Other	7.5	380	6.8	299	78.7	1	0.3	80
Total	100.0	5,101	100.0	4,423	86.7	215	4.2	463

3.2.3 Course content

In order to analyse the types of courses within each course level, the course content variable was constructed to categorise course content without reference to the course level or qualification type. This was done by amalgamating courses with similar but distinct titles. Thus the course content variable used 236 distinct values. Tables 3.12 to 3.14 show details of particular courses where the relative frequency is at least 1%.

The various course levels were divided into 3 distinct categories to examine course content by course level: Tertiary Courses; National VET Certificates – Diploma level courses; and Other. Tertiary Courses comprised the six highest course levels: Associate Degree (11) through to Masters Degree (16) as listed in Table 3.10. National VET Certificates – Diploma level courses comprise the six next highest course levels: Certificate I (5) through to Advanced Diploma (10). Other Courses included the four lowest levels: PEP (1); Short Course (2); Year 11 (3); and Year 12 (4); as well as all courses categorised with a course level of “Other”.

Table 3.12 looks at successful classes and gives the relative frequencies for each course content description within the broad course level category. All courses where the number of successful classes was less than one percent of the total successful classes for that course level category have been combined with a description of “Other”.

The top panel of Table 3.12 shows that over 60% of successful Tertiary classes were undertaken as part of an Arts discipline course. By contrast, the proportion of successful classes which were part of a Business/Commerce/Accounting course was around 13%. Success rates varied. For example, classes in Accounting/Professional Accounting, Legal Studies and Communications had a success rate of 80% or more, while classes in Commerce and Indigenous University Orientation had noticeably lower successful completion rates of below 40% for the former, and below 30% for the latter.

The centre panel of Table 3.12 shows that almost one quarter of successful National VET Certificates – Diploma level classes were at a basic or entry level. Moreover, General Education for Adults classes, which made up almost 20% of all National VET Certificates to Diploma level classes, had a low success rate of just over 40%. Information Technology (6% of all) and Visual Arts and Contemporary Craft (3.5% of all) also had low success rates of around 40%. Around 12% of all National VET Certificates to Diploma level courses were Business or Business Management courses, and these had higher than average successful class completion rates of over 65%.

The bottom panel of Table 3.12 provides details of Other Level classes; that is, classes with the lowest four course levels as well as other classes that did not fit into the 16 categories shown in Table 3.10. Most had high successful class-completion rates, which is to be expected given that these were low level courses. For example, both Food Handler Training (which made up 35% of all Other Level classes) and Safety Awareness Training (which made up 28% of all Other Level classes) had successful class completion rates of over 90%. One exception is Introduction to General Education for Adult Learners, which had a lower successful class completion rate of 30%.

Table 3.12: Successful Classes by Course Level and Course Content

Course Content description	-----All-----		-----Successful-----		
	%	n	%	n	% of All
1. TERTIARY LEVEL					
Accounting	1.1	10	1.3	8	80.0
Arts (not specified)	12.7	117	10.5	63	53.8
Arts (Art)	35.2	325	41.1	248	76.3
Arts (History)	1.2	11	1.8	11	100.0
Arts (Psychology)	1.8	17	2.2	13	76.5
Arts (Public Policy and Management)	1.4	13	1.7	10	76.9
Arts (Social Science)	1.3	12	1.2	7	58.3
Arts/Laws	2.9	27	2.7	16	59.3
Business	7.6	70	7.6	46	65.7
Commerce	5.0	46	3.0	18	39.1
Communications	3.4	31	4.5	27	87.1
Indigenous University Orientation	3.7	34	1.5	9	26.5
Legal Studies	1.4	13	1.8	11	84.6
Professional Accounting	0.9	8	1.2	7	87.5
Social Science	0.8	7	1.2	7	100.0
Technology and Management	1.0	9	1.5	9	100.0
Other	18.8	174	15.4	93	53.4
Total	100.0	924	100.0	603	65.3
2. NATIONAL VET CERTIFICATE - DIPLOMA LEVEL COURSES					
Asset Maintenance (Cleaning Operations)	3.7	3,284	4.2	2,290	69.7
Business	9.6	8,431	11.2	6,144	72.9
Business (Small Business Management)	1.7	1,487	1.8	974	65.5
Community Services Work	2.0	1,728	2.3	1,240	71.8
Conservation & Land Management	1.3	1,103	1.7	923	83.7
Construction	1.7	1,449	2.2	1,228	84.7
Engineering	3.6	3,205	3.8	2,089	65.2
Entry to General Education (EGE)	4.2	3,700	5.0	2,755	74.5
Furniture Making	1.9	1,652	2.2	1,195	72.3
Gaining Access to Training & Employment (GATE)	3.7	3,233	3.9	2,139	66.2
General Construction	6.8	5,939	8.5	4,696	79.1
General Education for Adults	19.4	17,099	12.7	6,976	40.8
Horticulture	7.2	6,368	7.7	4,239	66.6
Hospitality	3.5	3,120	3.8	2,115	67.8
Industrial Skills (Entry Level Training)	1.4	1,203	1.7	911	75.7
Information Technology	6.4	5,638	4.3	2,362	41.9
Laundry Operations	1.3	1,120	1.7	908	81.1
Metalliferous Mining	1.0	861	1.5	826	95.9
New Opportunities for Women (NOW)	1.0	885	1.2	685	77.4
Small Business Management	1.0	870	1.1	593	68.2

PRISONER EDUCATION AND TRAINING, AND OTHER CHARACTERISTICS: WESTERN AUSTRALIA,
JULY 2005 TO JUNE 2010

Course Content description	-----All-----		-----Successful-----		
	%	n	%	n	% of All
Transport and Distribution (Warehousing & Storage)	1.0	859	1.5	818	95.2
Visual Arts and Contemporary Craft	3.5	3,117	2.3	1,245	39.9
Other	13.2	11,661	14.0	7,680	65.9
Total	100.0	88,012	100.0	55,031	62.5
3. OTHER LEVEL					
Construction Industry 'Green Card' Common Safety Induction	6.2	567	7.2	558	98.4
First Aid Certificate	1.2	113	1.4	111	98.2
Food Handler Training Program	35.2	3,229	38.9	3,008	93.2
Food Sense Course	3.9	359	4.5	350	97.5
General Safety Induction	1.3	120	1.5	119	99.2
General Safety Induction (Mining and Resource Industry)	2.0	184	2.4	182	98.9
Introduction to Construction	1.9	172	1.6	124	72.1
Introduction to General Education for Adult Learners	12.4	1,136	4.3	335	29.5
New Opportunities for Women (NOW)	2.8	257	2.4	182	70.8
Safety Awareness Training	27.6	2,535	30.7	2,376	93.7
Wider Opportunities for Work (WOW)	1.1	98	1.2	94	95.9
Other	4.4	400	3.9	299	74.8
Total	100.0	9,170	100.0	7,738	84.4

Table 3.13 provides details about repeated classes and gives the relative frequencies for each course content description within the course level category. All courses where the number of repeated classes was less than one percent of the total number of repeated classes for that course level category have been combined with a description of “Other”. Ignoring small frequency classes, it is evident that the number of different courses for repeated classes was relatively small by comparison with successful classes. Almost one third of all repeated classes were undertaken by prisoners studying for one of the Certificates in General Education for Adults, which can be categorised as Adult Basic Education. One in five repeated classes were part of a Business course and these were largely National VET Certificates – Diploma level courses.

Table 3.13: Repeated Classes by Course Level and Course Type

Course Content description	-----All-----		-----Repeated-----		
	%	n	%	n	% of All
1. TERTIARY LEVEL					
Arts (Art)	35.2	325	40.0	2	0.6
Business	7.6	70	40.0	2	2.9
Professional Accounting	0.9	8	20.0	1	12.5
Total	100.0	924	100.0	5	0.5
2. NATIONAL VET CERTIFICATE – DIPLOMA LEVEL COURSES					
Asset Maintenance (Cleaning Operations)	3.7	3,284	2.0	68	2.1
Business	9.6	8,431	22.1	737	8.7
Construction	1.7	1,449	2.4	79	5.5
Entry to General Education (EGE)	4.2	3,700	2.8	93	2.5
Furniture Making	1.9	1,652	1.5	51	3.1
Gaining Access to Training & Employment (GATE)	3.7	3,233	1.8	59	1.8
General Construction	6.8	5,939	5.8	192	3.2
General Education for Adults	19.4	17,099	36.5	1,217	7.1
Horticulture	7.2	6,368	3.2	107	1.7
Hospitality	3.5	3,120	2.5	83	2.7
Industrial Skills (Entry Level Training)	1.4	1,203	1.3	43	3.6
Information Technology	6.4	5,638	7.2	239	4.2
Sport (Coaching)	0.3	260	1.0	34	13.1
Other	30.3	26,636	9.9	331	1.2
Total	100.0	88,012	100.0	3,333	3.8
3. OTHER LEVEL					
Construction Industry 'Green Card' Common Safety					
Induction	6.2	567	1.2	4	0.7
Food Handler Training Program	35.2	3,229	62.1	203	6.3
Food Sense Course	3.9	359	1.8	6	1.7
Safety Awareness Training	27.6	2,535	32.4	106	4.2
Other	27.0	2,480	2.5	8	0.3
Total	100.0	9,170	100.0	327	3.6

Table 3.14 examines incomplete classes and shows the relative frequencies for each course content description within the course level category. All courses where the number of incomplete classes was less than one percent of the total number of repeated classes for that course level category, have been combined with a description of “Other”.

Panel one of Table 3.14 shows that about one half of all incomplete Tertiary classes were part of an Arts discipline course. Notably high rates of incompleteness are seen for both Commerce (61%) and Indigenous University Orientation (74%). This complements the low success rates for these courses noted above in Table 3.12. Similarly, in panel two, above average incompleteness rates can be seen for General Education for Adults (52%) and Information Technology (54%); two courses that were noted for having low success rates. In panel three, the very low (less than 1%) incompleteness rate for classes

in Food Handler Training supports the high success rate for this type of course, whereas the high incompleteness rate of classes in Introduction to General Education for Adult Learners helps to explain the very low success rate noted above in Table 3.12.

Table 3.14: Incomplete Classes by Course Level and Course Type

Course Content description	-----All-----		-----Incomplete-----		
	%	n	%	n	% of All
1. TERTIARY LEVEL					
Arts (not specified)	12.7	117	17.1	54	46.2
Arts (Art)	35.2	325	23.7	75	23.1
Arts (Psychology)	1.8	17	1.3	4	23.5
Arts (Social Science)	1.3	12	1.6	5	41.7
Arts (Sociology)	0.8	7	1.9	6	85.7
Arts/Laws	2.9	27	3.5	11	40.7
Business	7.6	70	7.0	22	31.4
Commerce	5.0	46	8.9	28	60.9
Communications	3.4	31	1.3	4	12.9
Forensic Psychology	0.7	6	1.9	6	100.0
General Studies	0.9	8	1.6	5	62.5
Indigenous University Orientation	3.7	34	7.9	25	73.5
Occupational Medicine Health and Safety	0.8	7	1.6	5	71.4
Safety Science	0.4	4	1.3	4	100.0
Science (Mathematics and Statistics)	0.9	8	1.3	4	50.0
Social Science (Indigenous Studies)	1.3	12	2.5	8	66.7
Other	20.9	193	15.8	50	25.9
Total	100.0	924	100.0	316	34.2
2. NATIONAL VET CERTIFICATE – DIPLOMA LEVEL COURSES					
Asset Maintenance (Cleaning Operations)	3.7	3,284	3.1	926	28.2
Business	9.6	8,431	5.2	1,550	18.4
Business (Small Business Management)	1.7	1,487	1.7	500	33.6
Community Services Work	2.0	1,728	1.5	455	26.3
Engineering	3.6	3,205	3.7	1,100	34.3
Entry to General Education (EGE)	4.2	3,700	2.9	852	23.0
Furniture Making	1.9	1,652	1.4	406	24.6
Gaining Access to Training & Employment (GATE)	3.7	3,233	3.5	1,035	32.0
General Construction	6.8	5,939	3.5	1,051	17.7
General Education for Adults	19.4	17,099	30.0	8,906	52.1
Horticulture	7.2	6,368	6.8	2,022	31.8
Hospitality	3.5	3,120	3.1	922	29.6
Information Technology	6.4	5,638	10.2	3,037	53.9
Meat Processing (Abattoirs)	1.0	850	1.3	391	46.0
Music Industry (Foundation)	0.5	408	1.0	303	74.3
Rural Operations	0.6	540	1.1	320	59.3
Sport and Recreation	1.0	865	1.0	302	34.9

Course Content description	-----All-----		-----Incomplete-----		
	%	n	%	n	% of All
Visual Arts and Contemporary Craft	3.5	3,117	6.2	1,845	59.2
Other	19.7	17,348	12.6	3,725	21.5
Total	100.0	88,012	100.0	29,648	33.7
3. OTHER LEVEL					
Distance Education Year 11	0.5	43	2.4	26	60.5
Food Handler Training Program	35.2	3,229	1.6	18	0.6
Introduction to Construction	1.9	172	4.1	45	26.2
Introduction to General Education for Adult Learners	12.4	1,136	72.2	798	70.2
Miscellaneous Aboriginal Short Courses	0.5	45	2.8	31	68.9
New Opportunities for Women (NOW)	2.8	257	6.8	75	29.2
Safety Awareness Training	27.6	2,535	4.8	53	2.1
Other	19.1	1,753	5.3	59	3.4
Total	100.0	9,170	100.0	1,105	12.1

3.3 Merged DCS data

As the Pathlore data contain only study information, the discussion that follows relies on the socio-demographic information contained in the TOMS data and therefore in the merged DCS dataset.

Table 3.15 presents a summary of study information by socio-demographic characteristics. Firstly, it is evident that over 80 percent of prisoners in the sample studied at some point during their incarceration. Proportionately more male prisoners studied compared with female prisoners ($\chi^2=25.640$, $p<0.001$), and those aged between 26 and 40 years were more likely to undertake education and training classes than those aged younger or older ($\chi^2=8.133$, $p=0.004$). Secondly, Table 3.15 shows that prisoners whose last residence was in rural WA were more likely to have studied than those from metropolitan WA or outside WA ($\chi^2=6.828$, $p=0.009$).

Finally, Table 3.15 shows that non-ATSI prisoners were less likely to have studied than prisoners of ATSI origin ($\chi^2=14.920$, $p<0.001$). However, this result is being driven by gender distinctions, that is, whilst non-ATSI male prisoners were less likely than ATSI male prisoners to have studied or be studying (80% compared with 84%: $\chi^2=33.375$, $p<0.001$), non-ATSI female prisoners were more likely than female prisoners of ATSI origin to have studied or be studying (78% compared with 74%: $\chi^2=5.207$, $p=0.023$).

To some extent these results reflect recognised deficits in schooling for boys (Coates & Draves, 2006), children growing up in rural and remote areas (Diaz-Serrano & Llop, 2012) and aboriginal children (Liddell, Barnett, Roost, & McEachran, 2011).

Table 3.15: Prisoners: Study by Socio-Demographic Characteristics

Variable	Category	No study		Study		Total	
		%	n	%	n	%	n
Gender	Female	24.1	420	75.9	1326	100	1,746
	Male	18.9	2,442	81.1	10,45	100	12,89
Age	18 to 25 years	21.2	568	78.8	2,113	100	2,681
	26 to 40 years	18.7	1,511	81.3	6,568	100	8,079
	41+ years	20.2	783	79.8	3,100	100	3,883
Last residence	WA metro	19.9	1,698	80.1	6,845	100	8,543
	WA rural	18.5	1,016	81.5	4,490	100	5,506
	Else	24.9	148	75.1	446	100	594
Indigeneity	ATSI	18.0	1,016	82.0	4,644	100	5,660
	Non-ATSI	20.5	1,846	79.5	7,137	100	8,983
	Total	19.5	2,862	80.5	11,78	100	14,64

There are considerable differences between the study experiences of prisoners who had served or were serving only one term and those who had served prior prison terms. These are presented in the top half of Table 3.16. The more times prisoners had been incarcerated, the more likely they were to have enrolled in at least one class, so whilst 73% of prisoners with only one prison term had studied, 95% of those with more than one prison term had studied during at least one of those prison terms ($\chi^2=978.464$, $p<0.001$), indicating that recidivists were more likely to have enrolled in education and training courses in prison than first-time offenders. This may be because repeat offenders are given longer sentences (see, for example, Bahn, 2011, p. 411) which gives them more time to complete classes and more incentive to enrol in classes, compared with first-time prisoners who may have earlier releases and shorter sentences. The latter may be discouraged from enrolling if they think they will be unable to complete the class.

Table 3.16: Prisoners: Study by Prison Term Characteristics

Variable	Category	No study		Study		Total	
		%	n	%	n	%	n
Prison Terms Served	Single term	26.9	2,606	73.1	7,096	100	9,702
	Two terms	7.5	223	92.5	2,769	100	2,992
	Three or more terms	1.7	33	98.3	1,916	100	1,949
Time Served	12 months or less	33.3	2,635	66.7	5,267	100	7,902
	13 months - 60 months	3.1	186	96.9	5,765	100	5,951
	61 months or more	5.2	41	94.8	749	100	790
	Total	19.5	2,862	80.5	11,781	100	14,643

The bottom half of Table 3.16 shows mixed results. Whilst 67% of prisoners with less than one year of time served had studied, a much greater proportion (97%) of those with one year or more time served had studied ($\chi^2=2079.028$, $p<0.001$). Yet for prisoners who had been incarcerated for a total of more than five years, 95% had studied or were studying, compared with 97% of those with between one and five years served ($\chi^2=9.133$, $p=0.003$). The latter result may reflect the limited availability of classes offered in prisons prior to 2005, which had changed by 2010 with the introduction of a greater variety of classes targeting particular skill outcomes.

Approximately two thirds of prisoners with short prison terms (12 months or less) were studying, as compared with around 80% of all prisoners. Of the studying prisoners, 45% had short prison terms, compared with almost 54% of all prisoners (as shown in Table 3.2). Both these results support the notion that longer sentences give prisoners more time to complete classes and therefore more incentive to enrol.

3.3.1 Study types, course levels, course types and classes

The Pathlore dataset contained considerable detail on the study choices of prisoners. As mentioned in Section 3.2, each record in this dataset pertained to one class enrolment for a prisoner. Consequently, a prisoner who had studied in prison could have multiple records (enrolled classes) in the Pathlore dataset. These records also showed the course that the class belonged to and whether or not the class had been successfully completed. Constructed variables for whether or not the class represented study in a vocational education or training course (VET) or another education course (OE), and the level of study (from Short Course through to Masters Degree), were appended to each record.

In order to summarise the study experiences of prisoners with more than one study record (class), some basic assumptions were made. Firstly, class records were categorised according to whether they represented a successful (Completed) or unsuccessful (Incomplete) attempt at a class. Those class records with statuses other than successful or unsuccessful were ignored.⁴ The first successful completion of a class, indicated by the class end date, was viewed as the original class and any subsequent successful completions of the same class were viewed as repeats. The classes undertaken by a prisoner were then grouped according to course. For each distinct course a prisoner had undertaken during a particular prison term, the following summary variables were constructed:

- Total number of successfully completed classes (ignoring repeats) = A1;
- Total number of class repeats = A2;
- Total number of unsuccessful/incomplete classes = A3;
- Total number of classes = $\sum_{i=1}^3 A_i$

Prisoners could enrol and complete the same class of study within the same or consecutive prison terms for a number of reasons. First, mandatory certification for occupational health and safety as well as first aid, requires re-enrolment in particular classes. Second, completion of a class does not necessarily imply achievement of the ascribed competency. Hence continuous enrolment (repeated

⁴ Classes categorised as "Success" had an enrolment status in the Pathlore data of "Successful" or "Completed Non-assessable Unit". Those classed as "Incomplete/Unsuccessful" had an enrolment status of "Escaped", "Exit to Freedom", "Unsuccessful" or "Withdrawn". All other enrolment statuses were classed as "Other" and excluded from further analysis. These were "Credit Transfer", "Recognition of Current Competency", "Recognition of Prior Learning", "Removed From Wait List", "Wait Listed" and "Wait Listed Pending Confirmation".

classes) offered prisoners the opportunity to learn and complete a unit of study in the time required, rather than the time allocated, to achieve the prescribed learning outcomes or competency. This recognised the learning deficiencies of most prisoners.

After excluding statuses other than successful/complete or unsuccessful/incomplete, there were 140,532 class records for the 11,781 studying prisoners in the dataset. Figure 3.7 illustrates the relative proportion of these classes in each of the Successful, Repeat and Incomplete categories.

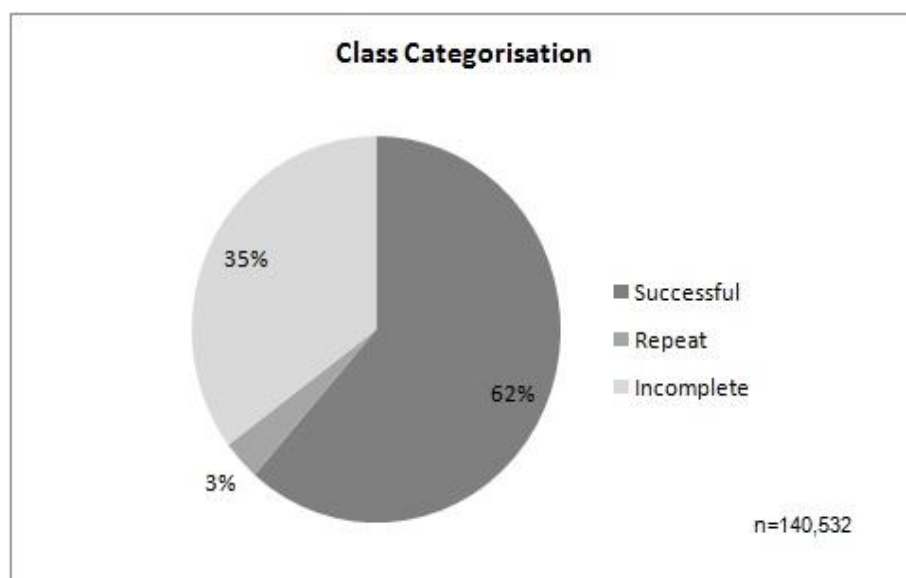


Figure 3.7 Categorisation of Class Records across All Prison Terms

Turning now to total courses and classes per studying prisoner rather than total class records, Table 3.17 gives course summary statistics for the classes undertaken by the 11,781 prisoners who studied during their time in prison.

Table 3.17: Course and Class Statistics for Studying Prisoners

Variable (per prisoner)	All Prison Terms			Most Recent Prison Term		
	mean	median	range	mean	median	range
Number of Courses	4.680	4	(1 - 28)	3.806	3	(1 - 28)
Total number of classes	11.929	7	(1 - 134)	9.363	4	(1 - 134)
Total number of unsuccessful/incomplete classes	4.195	1	(0 - 65)	2.963	1	(0 - 65)
Total number of repeated classes	0.401	0	(0 - 17)	0.350	0	(0 - 17)
Total number of successes	7.332	4	(0 - 121)	6.050	2	(0 - 121)
n	11,781			10,485		

As seen in Table 3.17 prisoners who had been incarcerated for five years or more were more likely to have studied at some time during their incarceration. However, in cases where a prisoner had served multiple prison terms or had a long prison sentence, it could be argued that the most recently studied courses had the greatest relevance to labour market and welfare outcomes after release from prison. To this end, the right hand panel of Table 3.17 gives course summary statistics for all classes

undertaken by the 10,485 prisoners who studied during their most recent prison term. The right and left hand columns of Table 3.17 show that the average number of classes for prisoners who chose to study was about 12 overall and 9 during their most recent prison term. The total number of classes undertaken by prisoners ranged from 1 to 134 in each case, and the total number of successful classes ranged from 0 to 121 in each case. The frequency distributions are therefore highly skewed, with most prisoners undertaking few classes and a small number of prisoners undertaking a large number of classes. The median number of classes reflects this observation with the median number of successfully completed classes at 7(4) over all prison terms, and 4(2) for the most recent prison term.

Figures 3.8 and 3.9 present the overall categorisation of classes undertaken during the most recent prison term; and the number of classes attempted, successfully completed, not completed and repeated, respectively. Figure 3.8 illustrates how all classes taken by all prisoners who studied in their most recent prison term were divided into successfully completed classes (excluding repeated classes), unsuccessful/incomplete classes, and repeated classes. This division is very similar to that presented for all prison terms in Figure 3.7.

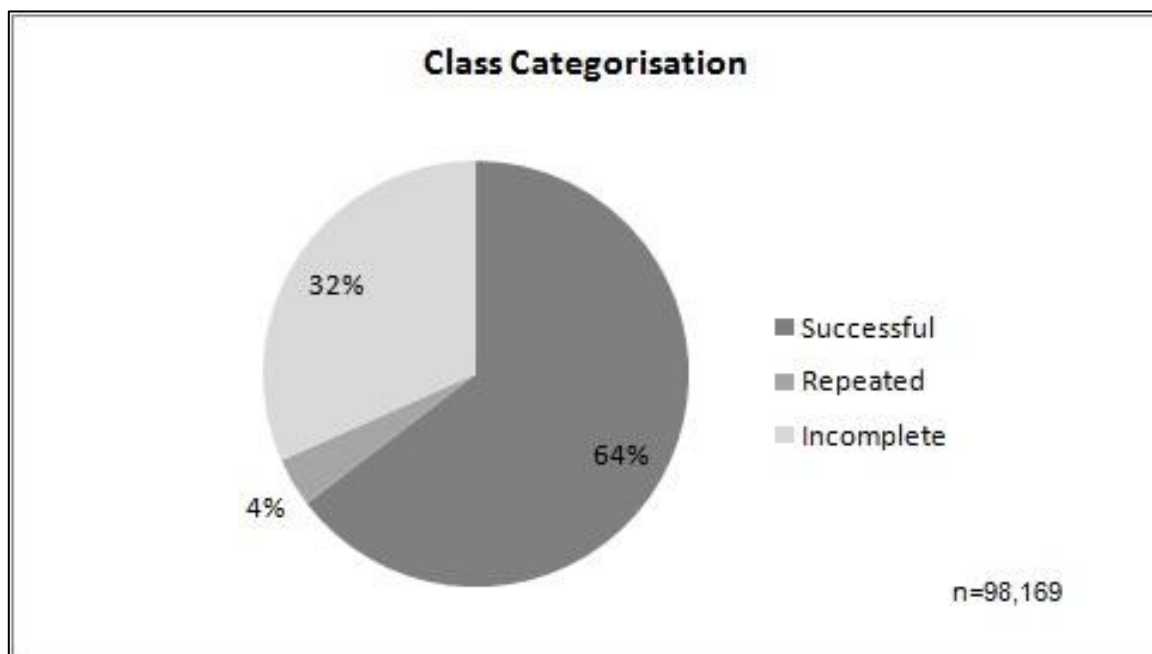


Figure 3.8 Categorisation of Classes Taken in Most Recent Prison Term

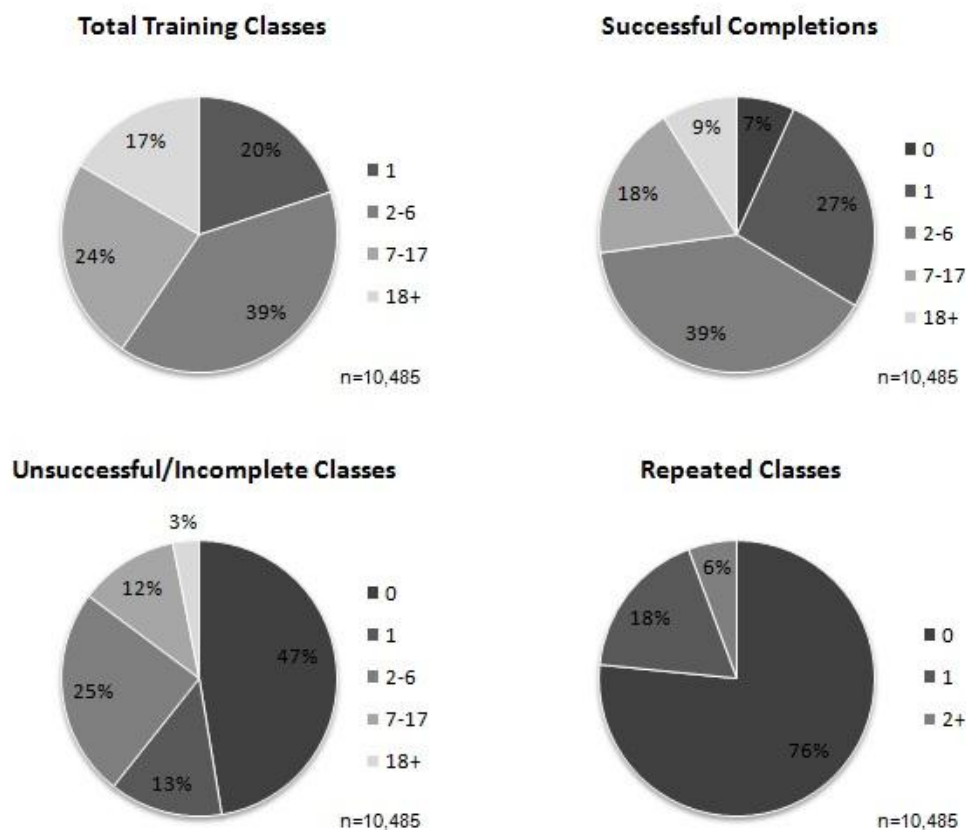


Figure 3.9 Most Recent Prison Term: Number of Total, Successful, Incomplete and Repeated Classes per Studying Prisoner

Although the maximum number of classes (successful completions) was 134 (121), Figure 3.9 shows that only 17% (9%) of prisoners attempted (successfully completed) eighteen or more classes, and 59% (66%) of prisoners attempted (successfully completed) between one and six classes. The incidence of unsuccessful/incomplete classes is fairly common. Over 50% of studying prisoners had at least one incomplete class. As explained at the start of section 3.3.1, classes categorised as “incomplete” encompassed various enrolment statuses. An examination of the data reveals that for 27% of incomplete classes, the reason is recorded as “Exit to Freedom” rather than “Withdrawn” or “Unsuccessful,” indicating that the prisoner was released from prison before being able to finish the class. It is possible that some prisoners continued their studies post-release, thereby completing particular classes and courses they had started during their prison term. Figure 3.9 also shows that there are relatively few incidences of class repeats, yet the proportion of studying prisoners with at least one repeated class in their most recent prison term was far from negligible at 24%.

Table 3.18 reports the number of successful completions in the most recent prison term by each of the socio-demographic factors. As shown in the table, there are statistically significant differences in the mean number of successful completions according to each factor: gender, age, region of last residence and indigeneity.

Table 3.18: Most Recent Prison Term: Successful Class Completions by Socio-demographic Factors

Variable	Category	median	mean	n	t-stat	F-stat	p
Gender	Female	4	7.850	1,170	7.523	-	< 0.001
	Male	2	5.824	9,315			
Age	18 to 25 years	2	5.158	1,878	-	12.669	< 0.001
	26 to 40 years	3	6.171	5,771			
	41+ years	2	6.394	2,836			
Last residence	WA metro	2	6.111	6,114	-	6.236	0.002
	WA rural	3	6.113	3,945			
	Elsewhere	2	4.592	426			
Indigeneity	ATSI	2	5.216	3,953	-7.650	-	< 0.001
	Non-ATSI	3	6.554	6,532			
	Total		6.050	10,485			

Females have a higher mean number of successful class completions than males, whilst prisoners from rural WA have a higher mean number of successful class completions than those from elsewhere. Non-ATSI prisoners have a higher mean number of successful class completions than ATSI prisoners; and the mean number of successful class completions for those aged 26 and above is higher than for those aged 18 to 25. Although the mean differences are statistically significant, the magnitude of the difference is small for all factors except gender.

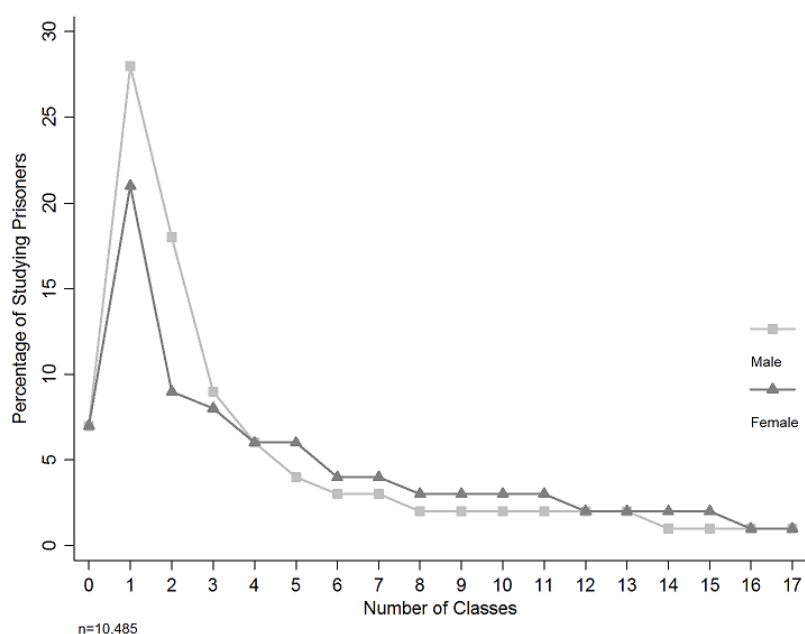


Figure 3.10 Most Recent Prison Term: Number of Successful Class Completions by Gender

Figure 3.10 illustrates how the frequency distribution for number of successful completions in the most recent prison term varies by gender⁵. Around 7% of both females and males did not achieve successful class completions. It is interesting to note that males outperformed females in terms of the respective proportions with one, two and three successful completions. However, the higher mean (and median) number of successful completions for females was due to the fact that for more than four completions, females outperformed males.

The total proportion of males with between one and four successfully completed classes is 60% compared with 44% of females ($\chi^2=107.515$, $p<0.001$). The total proportion of males with more than four successful completions is 33% compared with 49% of females ($\chi^2=113.749$, $p<0.001$).

Table 3.19 looks at the type of course the prisoners undertook during their most recent term in prison, where the most recent course was identified as the most recently taken class, the highest course level, and the highest number of successfully completed classes. In the case of a tie (191 prisoners), the course with the more relevant employment opportunities was chosen wherever possible.⁶

Although 10,485 prisoners studied during their most recent prison term, seven had missing course details for their most recently undertaken class, hence the total of 10,478 in Table 3.19. The majority (90%) of these prisoners were studying for a vocational education or training (VET) qualification. A greater proportion of females than males ($\chi^2=8.816$, $p=0.003$) were studying VET courses, and a higher percentage of prisoners aged 41 years and above were studying VET courses compared with younger age groups ($\chi^2=12.535$, $p<0.001$).

Table 3.19: Most Recent Course: Course Type by Socio-demographic Factors

Variable	Category	VET		OE		Total	
		%	n	%	n	%	n
Gender	Female	92.4	1,081	7.6	89	100	1,170
	Male	89.6	8,342	10.4	966	100	9,308
Age	18 to 25 years	88.0	1,651	12.0	225	100	1,876
	26 to 40 years	89.7	5,174	10.3	593	100	5,767
	41+ years	91.6	2,598	8.4	237	100	2,835
Last residence	WA metro	87.9	5,371	12.1	737	100	6,108
	WA rural	92.5	3,647	7.5	297	100	3,944
	Elsewhere	95.1	405	4.9	21	100	426
Indigeneity	ATSI	91.3	3,606	8.7	343	100	3,949
	Non-ATSI	89.1	5,817	10.9	712	100	6,529
	Total	89.9	9,423	10.1	1,055	100	10,478

⁵ As only 9% of prisoners completed more than 17 classes (Figure 3.19), the x-axis scale in Figure 3.21 has been truncated at 17, so as to give a clearer picture of gender differences.

⁶ If a prisoner takes two classes in their most recent prison term, and both classes have the same completion date but are linked to different courses, then the course with the highest level is taken as the most recent. If both courses are also at the same level then the most recent depends on the course content. For example if the courses are Certificate II in Business, and Certificate II in Hospitality (Kitchen operations), then the latter is taken as the most recent, due to it being more specific in terms of employment prospects.

ATSI prisoners were more likely to be studying VET courses than non-ATSI prisoners ($\chi^2=13.386$, $p<0.001$), and prisoners from metropolitan WA were more likely to be studying Other Education (OE) courses than those from rural WA or elsewhere ($\chi^2=64.529$, $p<0.001$).

Finally, Table 3.20 gives summary statistics, and illustrates the frequency distribution of the total number of classes attempted, the number of unsuccessful/incomplete classes, the number of successfully completed classes and the number of repeated classes for the prisoners' most recent course. The data show that for their most recent course, most prisoners enrolled in a single class, completed one class successfully and had no incomplete or repeated classes (as defined above). As shown in Table 3.20 the total number of classes and the number of successfully completed classes range from 1 to 36 and 0 to 25, respectively.

Table 3.20: Class Statistics for Studying Prisoners' Most Recent Course

Variable	mean	median	range
Total number of classes	2.803	1	(1 - 36)
Total number of unsuccessful/incomplete classes	1.055	0	(0 - 25)
Total number of repeated classes	0.098	0	(0 - 14)
Total number of successes	1.649	1	(0 - 25)
n	10,485		

Figure 3.11 shows that 11% of prisoners enrolled in seven or more classes and only 6% of prisoners successfully completed seven or more classes.

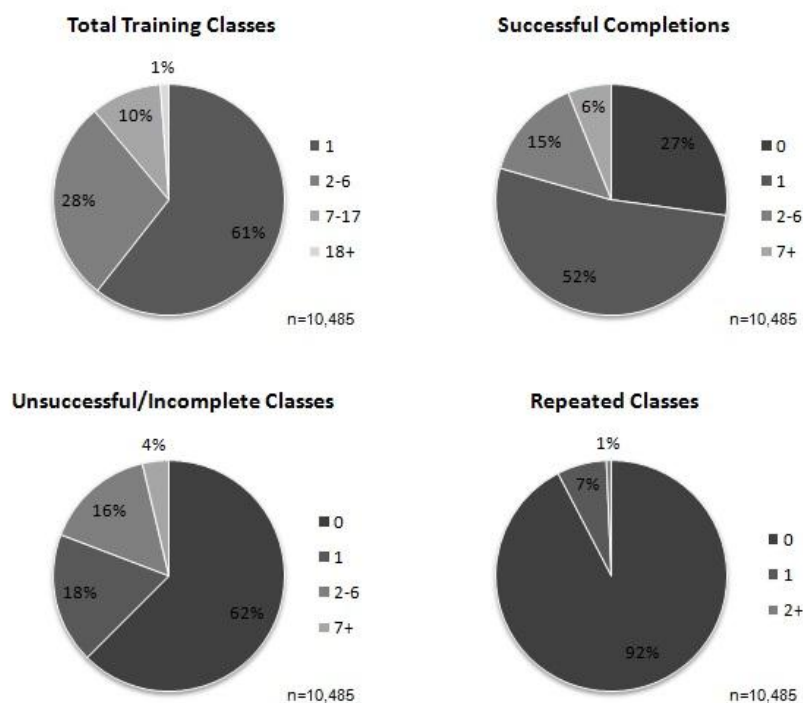


Figure 3.11 Most Recent Course: Number of Total, Successful, Incomplete and Repeated Classes per Studying Prisoner

Hence, the frequency distributions for total number of classes and number of successfully completed classes are positively skewed. That is, few prisoners enrolled in many classes and most prisoners enrolled in few classes. It is also notable in Figure 3.11 that 27% of studying prisoners had no successful completions in their most recent course, indicating that either they failed their class(es), withdrew or were not able to complete due to being released from prison. The proportion of studying prisoners with at least one incomplete class in their most recent course is 38%, and the proportion with at least one repeated class is 8%.

Table 3.21 looks at the number of successful class completions in prisoners' most recent course by socio-demographic factors. Last Residence and Indigeneity both show differences in the mean number of successful completions. Prisoners from rural WA had a higher number of successful class completions than those from elsewhere, and non-ATSI prisoners had a higher number of successful completions than ATSI prisoners. The marginally higher mean number of successful completions by females over males is not statistically significant at the 1% level. There was no effect of age group on mean number of successful completions.

Table 3.21: Most Recent Course: Successful Class Completions by Socio-demographic Factors

Variable	Category	median	mean	N	t-stat	F-stat	p
Gender	Female	1	1.775	1,170	1.654	-	0.098
	Male	1	1.633	9,315			
Age	18 to 25 years	1	1.627	1,878	-	0.590	0.554
	26 to 40 years	1	1.632	5,771			
	41+ years	1	1.697	2,836			
Last residence	WA metro	1	1.598	6,185	-	10.988	<0.001
	WA rural	1	1.777	3,980			
	Elsewhere	1	1.195	435			
Indigeneity	ATSI	1	1.552	3,953	-2.774	-	0.006
	Non-ATSI	1	1.707	6,532			
	Total	1	1.649	10,485			

Figures 3.12 to 3.14 illustrate how the number and distribution of successful completions in the most recent course varied by Gender, Indigeneity and Last Residence⁷. Despite females having a higher number of successful completions overall, proportionately more females (31%) than males (27%) had no successful completions ($\chi^2=9.882$, $p=0.002$) – see Figure 3.12. A higher proportion of males (54%) than females (39%) had only one successful completion ($\chi^2=95.131$, $p<0.001$), but for two or more successful completions the situation was reversed. The total proportion of females with two or more successfully completed classes was 30%, higher than the corresponding proportion of males at 19% ($\chi^2=73.974$, $p<0.001$).

⁷ Since only 6% of prisoners completed more than 6 classes, the x-axis scale in Figure 3.12 has been truncated at 6, so as to give a clearer picture of gender differences.

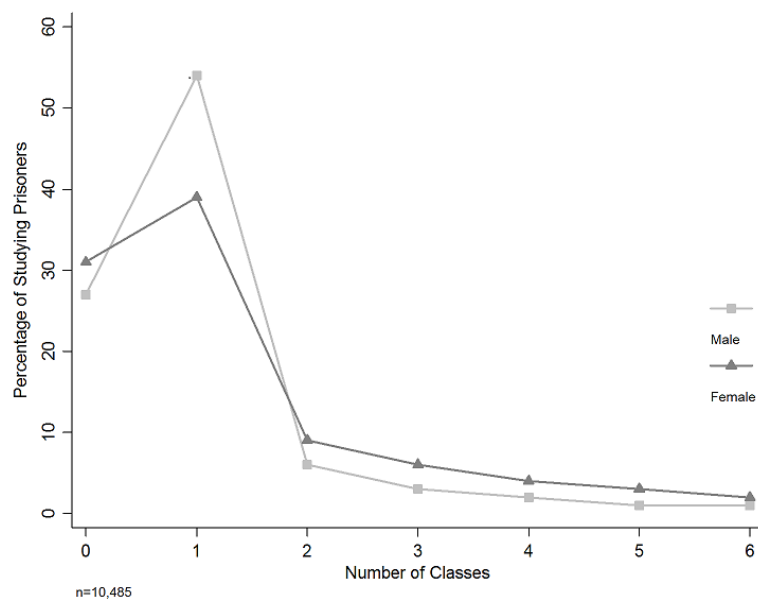


Figure 3.12 Most Recent Course: Number of Successful Class Completions by Gender

Figure 3.13 shows that proportionately more ATSI (29%) than non-ATSI prisoners (26%) had no successful class completions ($\chi^2=11.202$, $p<0.01$), and a higher proportion of non-ATSI prisoners (54% cf. 49%) had one successful completion ($\chi^2=24.596$, $p<0.001$). A higher proportion of ATSI prisoners (8%) than non-ATSI prisoners (6%) had two successful completions ($\chi^2=12.044$, $p=0.001$). There is no statistically significant difference between the proportions of ATSI and non-ATSI prisoners with three or more successful completions.

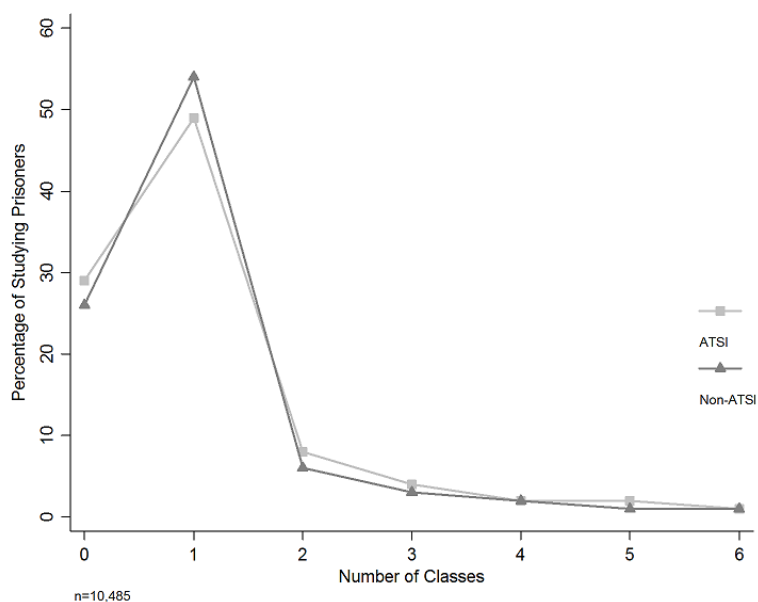


Figure 3.13 Most Recent Course: Number of Successful Class Completions by Indigeneity

Figure 3.14 shows a comparison between prisoners with a last region of residence in rural WA and those from metropolitan WA. Proportionately fewer rural prisoners had either no (25%, cf. 28% for metropolitan WA; $\chi^2=7.860$, $p<0.10$) or one successfully completed class (50%, cf. 53% for metropolitan WA; $\chi^2=16.826$, $p<0.001$). However, the total proportion of rural prisoners with two or more successfully completed classes was 25%, higher than the 18% for prisoners from metropolitan WA ($\chi^2=66.029$, $p<0.001$).

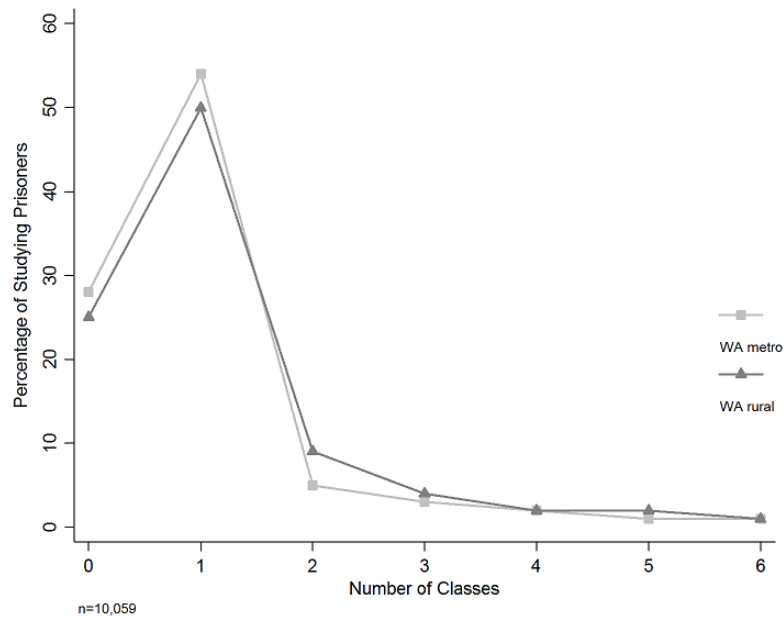


Figure 3.14 Most Recent Course: Number of Successful Class Completions by Region of Residence

4 Multivariate analyses

Three types of models were developed. First, factors affecting choice of study were modelled. Estimates of these models are presented in Section 4.1. Next, the effects of prison education and training on recidivism were modelled. Three different definitions of recidivism and multivariate models of recidivism are presented in Section 4.2. Finally, factors affecting the choice to up-skill were modelled and the results summarised in Section 4.3.

4.1 Successful class completion and study choice

In this section two models of factors affecting prisoners' choice to study are presented.

Table 4.1: Logistic Regression model with Study as Binary Dependent Variable

Variables	Model 1	Model 2
ATSI	0.0444	0.0731
Male	-0.1214	-0.1379*
Age when prison term t commenced	0.0089	0.0125
Age2/100	-0.0327*	-0.0371*
Number of terms prior to term t	-0.2651***	-0.2384***
Median sentence ranking of major offence for prison term t	0.0021*	
Sentence Type (benchmark = Parole):		
Default of Fine	-3.0563***	-2.8611***
Finite	-0.5218***	-0.4015***
GP	-1.4241***	-1.2546***
Sentence Type: Life	-0.0569	-0.1657
Last residence (benchmark = WA metropolitan):		
WA rural	0.0508	0.0555
Interstate	-0.0846	-0.1258
Overseas	-0.3542*	-0.4502*
ANCO Category (benchmark = Offences Against the Person):		
Robbery and Extortion		0.2379
Property Offences		0.0176
Offences Against Good Order		-0.6822***
Drug Offences		0.4301***
Motor Vehicle, Traffic and Related Offences		-0.1539*
Other Offences		-0.0528
Year prison term t commenced	-0.1382***	-0.1244***
Constant	279.5635***	251.8580***
Observations	14641	14643
Degrees of freedom	14	19
Pseudo R2	0.2420	0.2540

Notes: *p < 0.05, **p < 0.01, ***p < 0.001

Table 4.1 shows that if median sentence ranking (MSR; see Section 4.2.1) is used to proxy offence severity (Model 1), then prisoners with the following characteristics *were more likely to enrol* in an education or training class in their most recent term:

- Had served fewer or no prison terms prior to the most recent term
- Had committed less severe offences
- Had sentence type of Parole
- Had rural WA home addresses
- Commenced their prison term earlier in the sample period.

Using ANCO categories instead of MSR to proxy offence severity (Model 2), Table 4.1 shows that relative to “Offences Against the Person”, prisoners in the ANCO categories “Robbery and Extortion”, “Property Offences” and “Drug Offences” were more likely to enrol in prison classes. Prisoners in the ANCO categories “Offences Against Good Order”, “Motor Vehicle, Traffic and Related Offences” and “Other Offences” were less likely to study in their most recent term. Model 2 also shows that male prisoners were less likely to study than their female counterparts. These results are similar to those from the 2003 survey of adult prisoners in metropolitan public prisons in Western Australia (Giles et al., 2004a, 2004b), in which males were found to be less likely to study, as were prisoners with prior prison terms.

4.2 The effects of prison education and training on recidivism

Ideally, correctional authorities would like to see rehabilitation in prison resulting in released prisoners remaining in the community without further offending behaviour or additional periods of incarceration. In other words, the goal is for rehabilitation in prison to halt the progression of criminal careers. This measure of rehabilitation success may potentially ensue from the completion of education and training programs in prison, in particular up-skilling. Giles et al. (2007) suggested that by improving human capital, studying in prison can improve labour market outcomes with better employment and occupation possibilities and reduce welfare dependence.

Rehabilitation success can also be evaluated in terms of two other outcomes: a) longer periods of time in the community between prison terms, and b) less serious subsequent offences. Both these suboptimal outcomes may be a result of the impact of prison education and training on labour market outcomes (Bahn, 2011). It could also be argued that this is the result of a natural tendency of offending behaviour to peak and then diminish over the life cycle (Cohen, Piquero, & Jennings, 2010).

In the following sections, the two suboptimal measures of rehabilitation success are presented and discussed, with a particular focus on whether studying prisoners are less likely to exhibit crime escalation.

4.2.1 Reduced offence severity

Of primary interest are the characteristics of prisoners and/or their prison terms, including prison study, that determine whether subsequent offences are more or less serious than earlier offences. The DCS data did not include a measure of offence severity, however offence type and sentence length presented two possibilities for approximating offence severity.

Table 4.2: Average Time Served by Offence Category (discharged prisoners)

		Average Time Served (Days)	n
ANCO Category			
1	Offences Against the Person	486.970	4,023
2	Robbery and Extortion	859.304	612
3	Property Offences	381.651	3,278
4	Offences Against Good Order	162.034	4,993
5	Drug Offences	537.491	968
6	Motor Vehicle, Traffic and Related Offences	139.225	3,633
7	Other Offences	131.145	352
Total		314.537	17,859
ASOC Category			
1	Homicide and related offences	1989.855	159
2	Acts intended to cause injury	320.354	3,026
3	Sexual assault and related offences	864.404	675
4	Dangerous or negligent acts endangering persons	168.851	1,259
5	Abduction, harassment and other offences against the person	472.169	189
6	Robbery, extortion and related offences	859.304	612
7	Unlawful entry with intent/burglary, break and enter	424.147	1,990
8	Theft and related offences	332.904	722
9	Fraud, deception and related offences	275.464	362
10	Illicit drug offences	537.491	968
11	Prohibited and regulated weapons and explosives offences	264.244	90
12	Property damage and environmental pollution	281.296	226
13	Public order offences	198.167	209
14	Traffic and vehicle regulatory offences	127.232	2,412
15	Offences against government procedures, government security and government operations	160.721	4,670
16	Miscellaneous offences	102.818	292
Total		314.519	17,861

Two variables that classify offence type, ANCO and ASOC, were included in the data but could not be used to directly rank the severity of crime. Average time served by offence category (both ANCO and ASOC) for each discharged prison term represented in our sample is shown in Table 4.2. The average time served was less for ANCO category 1 (Offences Against the Person) than for categories 2 (Robbery and Extortion) and 5 (Drug Offences). Thus the ANCO ranking of 1 to 7 was not a good proxy for offence severity as measured by highest to lowest average time served. Similarly, there was no obvious pattern in the ASOC ranking that linked the order of average time served (highest to lowest) to the order of ASOC categories 1 to 16.

Table 4.3: Average Time Served By Median Sentence Ranking (discharged prisoners)

MSR	Average Time Served (Days)	n	MSR	Average Time Served (Days)	n	MSR	Average Time Served (Days)	n
1	4441.780	50	41	356.371	1885	89	1720.529	17
2	1536.143	14	42	447.050	20	91	139.889	9
3	1698.077	52	43	136.000	1	92	293.800	60
4	1083.566	53	44	944.077	13	93	243.360	175
5	962.410	39	47	397.714	14	94	406.857	21
6	510.938	746	48	84.800	5	95	179.626	155
7	665.439	41	49	244.888	258	96	146.200	50
8	2335.500	2	51	192.000	2	97	250.342	38
10	234.462	1,105	55	333.637	135	98	57.000	7
12	944.831	490	56	255.120	25	99	59.857	7
13	760.154	52	59	306.667	6	100	26.000	1
14	196.500	2	60	153.796	1059	101	3.000	1
15	224.900	10	61	28.000	1	103	97.000	3
16	455.000	1	63	221.977	129	104	142.807	57
17	60.512	209	64	267.353	17	105	174.303	241
18	6.000	1	65	11.500	2	106	175.305	105
19	128.479	2,100	66	99.667	3	108	101.000	4
20	569.932	59	67	425.500	2	109	43.000	3
22	437.375	8	69	74.531	245	110	105.000	1
23	365.786	42	71	250.081	459	112	227.000	5
24	201.538	13	73	412.000	27	114	11.000	1
25	885.567	557	75	125.898	1,208	115	3.667	3
26	3.000	1	76	42.470	315	116	68.051	589
27	619.872	47	77	272.783	23	117	85.143	7
28	397.514	109	78	56.429	28	119	65.000	2
29	287.100	70	79	46.750	4	121	50.333	6
30	484.232	349	80	146.667	111	122	361.000	3
32	510.071	70	81	50.600	5	124	6.000	1
33	279.326	273	82	229.000	1	125	2.000	1
34	424.147	1,990	83	165.786	28	126	46.430	86
36	304.672	61	84	37.000	1	129	118.333	3
37	5.000	1	85	262.693	662	130	124.320	25
38	449.542	48	86	163.076	812			
40	356.500	2	88	13.000	1	Total	314.519	17,861

ASOC categories have been used by MacKinnell et al. (2010) to develop the median sentence ranking (MSR). The MSR was constructed from median sentences actually imposed by courts for offences in each ASOC category, and was these authors' preferred index for investigating or controlling for the influence of offence seriousness. Each ASOC code is thus allocated a unique MSR value. Low values of MSR represented more serious offences and high values of MSR related to less serious offences.

However, the correlation between a ranking of WA prisoners based on MSR and a ranking based on their average time served is unclear, as shown in Table 4.3.

The actual sentence handed down by the courts, which could be used as an indicator of offence severity, was not available in the DCS data, although length of sentence served for all discharged prisoners was included. It is expected that, other things being equal, more serious offences are likely to result in longer periods of incarceration than less serious offences (Huang, Finn, Ruback, & Friedmann, 1996).

The following analyses test both of these offence severity measures (length of time served and MSR) with binary variables Z_1 and Z_2 , which are indicators of reduced offence severity and are defined as follows:

$$\begin{aligned} Z_1 &= 0 && \text{if time served in prison term } t \text{ is at least as long as time served in prison term } t-1, \text{ and} \\ &= 1 && \text{if time served in prison term } t \text{ less than time served in prison term } t-1 \\ Z_2 &= 0 && \text{if MSR for prison term } t \text{ is less than or equal to MSR for prison term } t-1, \text{ and} \\ &= 1 && \text{if MSR for prison term } t \text{ is greater than MSR for prison term } t-1. \end{aligned}$$

Both Z_1 and Z_2 relate to prisoners who served more than one term during the data period. However, for Z_1 the sample was further restricted to prisoners who had served more than one term in full during the data period; so terms from which the prisoner had not been discharged from prison at 30 June 2010 were disregarded.

There were 3,837 prisoners in the sample for Z_1 and 4,941 prisoners in the sample for Z_2 . In each case only their two most recent prison terms were examined. Table 4.4 gives bivariate statistics which test the relationship between Z_1 and Z_2 and all other variables of interest. Categorical variables with more than two categories were replaced by dummy (indicator) variables for each category.

Table 4.4: Relationship of Key Variables to Offence Severity Measures

Variable	$Z_1 =$	$Z_2 =$
	Binary Sentence length variable	Binary MSR variable
	Chi-Square ¹	
ATSI	16.9990***	0.1931
Male	0.1860	1.2124
Studied in term t-1	321.0698***	0.1421
Up-skilled (W=1) in term t-1	102.5957***	0.1276
Prisoner has term prior to t-1	66.8194***	13.1166**
Sentence type for term t-1:		
1 Default of Fine	219.3378***	121.8758**
2 Finite	8.4717**	1.6063
3 Governor's Pleasure	0.7809	0.1419
4 Life	5.4805*	9.2188*
5 Parole	136.1250***	73.7920**
ANCO category for term t-1		
1 Offences Against the Person	40.0531***	43.0492**
2 Robbery and Extortion	55.3091***	0.9480
3 Property Offences	29.8715***	97.0065**
4 Offences Against Good Order	143.6854***	479.8842**
5 Drug Offences	22.1154***	63.3898**
6 Motor Vehicle, Traffic and Related Offences	15.7715***	150.1942**
7 Other Offences	9.6907**	7.4130*
Region of residence when sentenced (term t-1)		
1 WA Metropolitan	8.1277**	1.4834
2 WA Rural	7.4393**	0.4663
4 Interstate	0.1047	4.5248
5 Overseas	0.8456	0.0473
	t-test ²	
Age (last birthday) at 30 June 2010	-2.2866*	-1.8891
Number of terms prior to t-1	7.6109***	-5.0334**
Prison term t-1 in months	-21.5167***	-2.7125*
Number of months between terms t and t-1	-6.1567***	-7.0991**
Calendar year term t-1 discharged	-7.2586***	3.3219**
Number of successful classes (term t-1)	-13.5010***	0.0710
Observations	3,837	4,941

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. 1 Chi-square test is for equality of relative frequencies in each of the two sub-samples defined by Z_i , for each of the binary variables X_j . 2 t-test is for equality of means in each of the two sub-samples defined by Z_i , for each of the continuous variables X_j . That is, \bar{X}_j for $Z_i=0$ equals \bar{X}_j for $Z_i=1$.

Table 4.5 displays the results of fitting various logistic regression models to the binary variables Z_1 and Z_2 . In each case the first model shown (Model 1 and Model 3) used all the variables that had significant bivariate relationships with Z_1 (see Table 4.4). For the categorical variables (Sentence Type, ANCO category and Region of Residence), dummy variables were fitted for each category excluding the most frequent (Parole (5), Offences Against Good Order (4), and WA Metropolitan (1) respectively), which was used as the reference category. The dummy variable for Sentence Type Life (4) was subsequently dropped from Model 1 and the eight prisoners in this category were not used, since all these prisoners had $Z_1=1$.

Table 4.5: Logistic Regression Models with Offence Severity as Binary Dependent Variable

Variables	Z_1		Z_2	
	Model 1	Model 2	Model 3	Model 4
ATSI	-0.2371*	-0.3362**	0.1947**	0.1814**
Age (last birthday) at 30 June 2010	0.0129*	0.0134**	-0.0008	
Number of terms prior to t-1	-0.0597		0.2616***	0.1403***
Studied in term t-1	0.4292***	0.4757***	0.0210	
Up-skilled (W = 1) in term t-1	0.1728		-0.0158	
Prison term t-1 in months	0.1741***	0.1780***	0.0094**	0.0126***
Prisoner has term prior to t-1	-0.3855*	-0.4902***	-0.3135*	
No of mnths between terms t and t-1	0.0532***	0.0542***	0.0251***	0.0223***
Sentence type for term t-1:				
1 Default of Fine	-0.9639***	-0.9667***	-1.1960***	-1.0784***
2 Finite	-0.0053		-0.1257	
3 Governor's Pleasure	0.4095		-1.3895	
4 Life	n/a		1.5458	
ANCO category for term t-1:				
1 Offences Against the Person	0.1508		-1.6464***	-1.6242***
2 Robbery and Extortion	0.3025		-1.2211***	-1.2366***
3 Property Offences	-0.0549		-1.7382***	-1.7355***
5 Drug Offences	0.4630		0.0900	
6 Motor Vehicle, Traffic and Related Offences	0.0964		-1.8512***	-1.8565***
7 Other Offences	-0.8862		-2.6810*	-2.6921*
Year term t-1 discharged	0.6070***	0.6159***	0.0602	
No of successful classes (term t-1)	0.0081		-0.0002	
Region of residence when sentenced (term t-1)				
2 WA Rural	-0.2130*		0.0516	
4 Interstate	-0.2487		-0.6321*	0.6503*
5 Overseas	1.7476		1.1038	

Variables	Z ₁		Z ₂	
	Model 1	Model 2	Model 3	Model 4
Constant	-1220.2217***	-1238.1567***	-120.6664	0.1984*
Observations	3,829	3837	4,941	4,941
Degrees of Freedom	22	8	22	11
Pseudo R-squared	0.2617	0.2596	0.1355	0.1326

Notes: * p<0.05, ** p<0.01, *** p<0.001.

Models 2 and 4 are parsimonious models based on Models 1 and 3, respectively. Model 2 has an explanatory power of 25.96%. The coefficients of all the independent variables and the constant are statistically significant. Model 4 illustrates a far poorer explanatory power of 13.26% with all the coefficients for all the independent variables statistically significant. For Z₁ the equation suggests that prisoners less likely to exhibit a reduction in sentence length over successive terms and therefore *most likely to show crime escalation*:

- are ATSI
- have not studied in their previous term in prison
- served fewer months in their previous term,
- have terms prior to their previous term,
- spent less time out of prison between terms,
- are more likely to have served time previously for a default of fine, and
- are less likely to have been discharged in 2009 or 2010.

4.2.2 Increased time in the community between sentences

In this section we focused on frequency of incarceration rather than seriousness of crime. Again, prisoners with multiple prison terms made up the sample, but this time we looked at prisoners who had served three or more terms during the data period including the period of time they had spent out of prison after each discharge date. The aim was to identify the characteristics related to the prisoner and/or prison term that determined whether the prisoner would spend more time out of prison between prison terms. For purposes of this analysis, the binary variable M was defined for each prisoner by the time spent outside prison between successive prison terms. That is,

M = 0 if time between prison terms t and t-1 \geq time between prison terms t-1 and t-2, and

M = 1 if time between prison terms t and t-1 < time between prison terms t-1 and t-2.

Note that with this approach, only prisoners' three most recent prison terms were examined, and the most recent term did not need to be completed. Table 4.6 gives bivariate statistics which test the relationship between M and all other variables of interest. Categorical variables with more than two categories were replaced with dummy (indicator) variables for each category.

Table 4.6: Relationship of Key Variables to Increased Time in the Community

Variables	Chi-Square
ATSI	3.9571*
Male	0.1189
Studied in term t-1	0.4630
Up-skilled in term t-1 (see Section 4.3)	9.9559**
Prisoner has term prior to t-2	4.6060*
Sentence type for term t-1:	
1 Default of Fine	67.5683***
2 Finite	7.2906**
3 Governor's Pleasure	0.0121
5 Parole	7.6746**
ANCO category for term t-1	
1 Offences Against the Person	0.1962
2 Robbery and Extortion	6.4974*
3 Property Offences	5.5137*
4 Offences Against Good Order	28.2080***
5 Drug Offences	12.2226***
6 Motor Vehicle, Traffic and Related Offences	3.3690
7 Other Offences	0.2336
Region of residence when sentenced (term t-1)	
1 WA Metropolitan	1.0192
2 WA Rural	1.3681
4 Interstate	0.4593
Variables	t-test
Age (last birthday) at 30 Jun 2010	0.7168
Number of terms prior to t-2	-2.3711*
Prison term t-1 in months	-0.2096
Number of months between terms t-1 and t-2	26.4677***
Calendar year term t-1 discharged	15.6753***
Number of successful classes (term t-1)	2.5638*
Observations	1,949

Notes: * p<0.05, ** p<0.01, *** p<0.001.

Table 4.7 displays the results of fitting a logistic regression model to the binary variable M. This model used all the binary and ordinal/continuous variables that had statistically significant bivariate relationships with M (see Table 4.6). For the categorical variables (Sentence Type and ANCO Category) dummy variables were fitted for each category excluding the most frequent (Parole (5) and Offences Against Good Order (4) respectively), which were used as the reference categories. Correlations between the explanatory variables were low, indicating that multicollinearity between independent variables was not a problem.

It is interesting to note that whether or not the prisoner studied during their previous term in prison, (measured in terms of number of successful classes in terms t-1) and whether or not the study improved skills, had no significant effect on the time between prison terms.

Table 4.7: Logistic Regression Models with Increased Time in the Community as Binary Dependent Variable

Variables	Coefficients
ATSI	0.0602
Up-skilled (W=1) in term t-1	-0.3172
Prisoner has term prior to t-2	0.0322
Number of terms prior to t-2	0.0052
Number of months between terms t-1 and t-2	-0.2342***
Sentence type for term t-1:	
1 Default of Fine	-0.2925
2 Finite	0.3014*
3 GP	1.9665
ANCO category for term t-1:	
1 Offences Against the Person	0.1393
2 Robbery and Extortion	-0.8481
3 Property Offences	-0.1912
5 Drug Offences	-0.6929
6 Motor Vehicle, Traffic and Related Offences	0.4373*
7 Other Offences	0.8360
Year term t-1 discharged	-0.6484***
Number of successful classes (term t-1)	0.0142
Constant	1303.6277***
Observations	1949
Degrees of freedom	16
Pseudo R-squared	0.3150

Notes: * p<0.05, ** p<0.01, *** p<0.001.

The regression equation suggests the following characteristics for those *prisoners most likely to have spent a longer time out of prison* during their most recent prison term gap than they did in their previous prison term gap:

- spent less time out of prison between their previous two terms;
- are more likely to have served their previous sentence in default of fine;
- are more likely to have served their previous sentence for Motor Vehicle and Traffic related offences; and
- are less likely to have been discharged in 2009 or 2010.

This latter point was a feature of our truncated sample, since the cut-off date was 30 June 2010.

4.2.3 The effects of prison study on prisoners' human capital

This section looks at prisoners who studied during their most recent prison term. The focus here was on whether or not their prison training resulted in increased skills, competencies and knowledge as they relate to the labour market. The dataset did not include information on prisoners' work history or their highest education level prior to entering prison, hence the analysis was based on evidence of learning progress over their prison term. In this analysis, the binary variable W for each prisoner was defined by the level of the course associated with their first and last successfully completed class. That is:

$W = 0$	If course level for first successful class was higher than or the same as course level for last successful class (that is, there is no improvement in human capital), and
$W = 1$	If course level for first successful class is lower than course level for last successful class (that is, there is an improvement in human capital).

For example, if a prisoner started out by successfully completing a class for a Short Course (level 2 from Table 3.10) and went on to successfully completing a Certificate II (level 6) course class, then $W = 1$ and study by this prisoner represented an increase in their human capital or up-skilling. If however, a prisoner successfully completed a Short Course and the final class successfully completed was also a Short Course, then $W = 0$. That is, study by this prisoner did not represent an improvement in their human capital.

Table 4.8 gives bivariate statistics which test the relationship between W and all other variables of interest: X_j and X_k . Categorical variables with more than two categories were replaced with dummy (indicator) variables for each category. It can be seen that, of the demographic variables, indigeneity and gender influence up-skilling but age does not. The average age of prisoners who improved their human capital was 35 years, as was the average age of prisoners who did not up-skill. However, proportionately more non-indigenous prisoners successfully completed classes that improved their human capital (31%) compared with indigenous prisoners (17%). Similarly, proportionately more male prisoners up-skilled (26%) compared with female prisoners (18%).

In their study of adult prisoners in metropolitan prisons in Western Australia in 2003, Giles et al. (2004a, 2004b) found that female prisoners had only slightly better prior education than male prisoners - 32% of female prisoners had year 10 and above qualifications compared with 31% of males. This difference is not statistically significant. They also found that ATSI prisoners had poorer prior education than non-ATSI prisoners (43% of ATSI prisoners had a highest level of education as Year 9 or below, compared with 25% of non-ATSI prisoners: $\chi^2 = 25.1108$, $p < 0.0001$).

Table 4.8: Relationship of Key Variables to Up-skilling

Variable (X_j)	Chi-Square ¹
ATSI	222.3631**
Gender	35.7311**
Prisoner has more than one term	69.7734**
Sentence type for most recent term:	
1 Default of Fine	100.1413**
2 Finite	21.1562**
3 Governor's Pleasure	0.1628
4 Life	1.6881
5 Parole	84.2764**
ANCO category for most recent term	
1 Offences Against the Person	0.4610
2 Robbery and Extortion	7.9762*
3 Property Offences	0.4745
4 Offences Against Good Order	45.4242**
5 Drug Offences	115.2078**
6 Motor Vehicle, Traffic and Related Offences	2.1673
7 Other Offences	26.3948**
Region of residence when sentenced	
1 WA Metropolitan	43.4200**
2 WA Rural	30.3403**
4 Interstate	0.1648
5 Overseas	20.3759**
Variable (X_k)	t-test ²
Age (last birthday) at 30 June 2010	-1.8379
Number of terms prior to most recent	8.6061**
Most recent prison term in months	-8.6937**
Year most recent term commenced	3.7743**
Total number of training classes	-30.8841**
Total number of repeated classes	-8.4270**
Total number of withdrawals	-13.6904**
MSR for most recent term	7.3149**
Observations	10,454

* $p < 0.01$, ** $p < 0.001$.¹ Chi-square test is for equality of relative frequencies in each of the two sub-samples defined by W for each of the binary variables X_j .² t-test is for equality of means in each of the two sub-samples defined by W for each of the continuous variables X_k .

Table 4.9 displays the results of estimating W using a logistic regression model. For the categorical variables (Sentence Type, ANCO category and Last Region of Residence), dummy variables were fitted for each category excluding benchmark categories for Sentence Type (Parole), ANCO category (Offences Against the Person), and Region of Residence (WA metropolitan).

The model shown in Table 4.9 suggests that prisoners *most likely to up-skill* during their term in prison are:

- not ATSI
- male
- attempt more classes
- have fewer repeated classes and withdrawals
- are less likely to be serving a sentence in default of a fine.

Table 4.9: Logistic Regression Models with Up-skilling as Binary Dependent Variable

Variables	Coefficients
ATSI	-0.6540**
Male	0.6804**
Number of Terms prior to most recent	-0.1144
Most recent prison term in months	0.0058*
Prisoner has term prior to most recent	-0.0347
Total number of training classes	0.0782**
Total number of repeated classes	-0.1492**
Total number of withdrawals	-0.0604**
Sentence type for most recent term:	
1 Default of Fine	-0.8700**
2 Finite	-0.0251
3 GP	-0.4703
4 Life	-0.4031
MSR for most recent term:	0.0026*
Region of residence when sentenced	
2 WA Rural	-0.0900
4 Interstate	-0.0001
5 Overseas	-1.0034**
Year most recent term commenced	0.0984**
Constant	-199.4822**
Observation	10,453
Degrees of freedom	17
Pseudo R-squared	0.1114

Notes: * p<0.01, ** p<0.001

The results presented in Table 4.9 are intuitively appealing. In their survey of adult prisoners in metropolitan prisons in Western Australia, Giles et al. (2004a, 2004b) found that prisoners of Aboriginal or Torres Strait Islander (ATSI) descent were less likely to be studying (2004b, p. 11) and less likely to expect good job prospects as a result of study in prison (2004a, p. 33). This might suggest that up-skilling is more difficult or less attractive for ATSI prisoners. In contradiction to the findings of the current study, the Giles (2004a, 2004b) study also concluded a similar result for male prisoners. One explanation is a difference in the non-gender characteristics of the survey sample presented in Giles et al. (2004a, 2004b) and the population analysed in the current study.

Prisoners who attempted more classes were more likely to progress to classes at a higher educational level. This result was supported in Model 1. Similarly, prisoners who repeated fewer classes and withdrew less often were also more likely to up-skill, and as shown in Model 1, prisoners who repeated classes and/or withdrew from classes frequently, were less likely to successfully complete classes at higher levels.

Whether or not Sentence Type influenced prisoners' choices to up-skill is less obvious. In her study of fine default, Houghton (1983) found that the main cause of default was having no money, and that the majority of defaulters were unemployed at the time they were fined. It could perhaps be argued that prisoners with a fine default offence are good candidates for up-skilling while they are in prison. It is also possible that the average prison sentence for fine default is short, possibly too short a timeframe within which to successfully complete consecutive classes. According to the data, the median time served was 78 days.

Drug offences were ranked sixth out of 131 in MacKinnell et al.'s (2010) Median Sentence Ranking with a median time served of 421 days. This was sufficient time to successfully complete more than one class and progress from one education level to the next, thereby up-skilling. Theft and Illegal Use of a Motor Vehicle were ranked 30th and 40th respectively by MacKinnell et al., (2010). Median time served for these offences was 148 days. As with Drug Offences, prisoners with Motor Vehicle offences appeared to have sufficient time to successfully complete consecutive classes and progress through higher educational levels.

Prisoners who up-skill do not necessarily achieve a successful future in the labour market. This is due to a number of factors. Firstly, irrespective of their study intentions, prisoners with mental health issues may find it difficult to obtain work and continue working. Secondly, certain offences severely limit their employment opportunities. The location of home residence may present a further difficulty, particularly in regional and remote WA where employment opportunities are limited. Finally, research shows that despite having acquired marketable skills, female ex-prisoners are more likely to resume parenting roles than enter the workforce.

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Appendix: The Linkage Key

About Linkage Keys

Linkage keys can be constructed for each person's record in a database by combining together specific elements of the data contained in their record.

Both DCS and Centrelink/DEEWR will use the same rules to construct a linkage key for each person/client record. Thus if a person or client is on both databases, they will have the same linkage key in each one. The linkage key will allow data from both organisations to be matched. Hence we can obtain a more comprehensive picture of the labour market and welfare outcomes of ex-prisoners as well as their offences and prison training experiences.

Linkage keys are not a new concept. In fact, they are commonly used within the health and service sectors to collate data from multiple sources so that the total services received can be described. In Western Australia "linked" health data have been analysed for over fifteen years with the results influencing policy in several areas. Dr Giles has previous experience with linking data across the community care sector (2008) and in the health and road safety sectors (1991).

Construction of the Linkage Key

The linkage key used in this study is 14 characters long. It is constructed as follows:

Linkage Key Characters	Source
1 – 3	2nd,3rd and 5th letters of the family name (surname)
4 – 5	2nd and 3rd letters of the first name
6 – 13	date of birth (DDMMYYYY)
14	gender (M = 1 /F = 2)

The linkage key variable then becomes another variable in the database.

In the event of missing or incomplete source variables, there are two basic rules – one for missing parts of a variable and one for missing variables. That is, if any letters of either surname or first name are missing, a 2 is substituted. If a surname or first name is missing, then 99 is used. If date of birth is missing, then 99999999 is used.

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