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Courses Preferences and Occupational Aspirations of Students in Australian Islamic Schools

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Abstract: Course selection by year 11 and 12 students exert a significant influence on occupational outcomes of young people. While many studies have been conducted by the Australian Council for Educational Research (ACER) across a broad spectrum of schools, not much is known about this aspect in relation to Islamic School students. In this research, data was collected on student course choice from nine randomly selected Islamic schools across Australia. For the first time, the results reveal the most prevalent course clusters studied by students are Science, Technology, Engineering and Mathematics (STEM) aligned courses. Mathematics and sciences followed by legal and business studies sit at the peak of the course hierarchy. Long-held views and anecdotal evidence that suggest Arabic and Islamic Studies feature prominently in course selection proved to be unfounded. Preference for these courses are shown to be very low. Vocational Education & Training (VET) courses do not feature prominently in Islamic school curriculums to the disadvantage of students who may wish to pursue non-academic careers instead of opting for university inspired career paths. Professionally, medicine, engineering, law and business (in that order) are the most preferred occupations. We also find a conspicuous gender-based difference regarding course selection and occupational aspirations.

Keywords: education; Islamic schooling; school courses; student occupations; vocational training; curriculum

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1. Introduction

The Australian education system is both private and public. It is broadly structured thus: primary school—Foundation through to years 6 or 7; secondary—from years 7 or 8 to 10; senior secondary—years 11 and 12; and tertiary education—including higher education and Vocational Education and Training (VET). Islamic schools are independent, non-government schools. Like government schools, they are required to meet public standards of educational and financial accountability, and comply with the legislative, regulatory and reporting requirements. They must meet the criteria established by the relevant state or territory government for registration as a school. Islamic schools are faith based schools that deliver the Australian National Curriculum, and while they do not adopt a single common purpose, some common aims appear to be high quality education and the achievement of a strong Muslim identity that will facilitate participation in society (Abdalla et al. 2020).

In Australia, a great deal of attention is focused on students leaving school to access educational and training pathways to meet career ambitions and employment demands (Norton 2020b). A strong link exists between student aspirations, post-school education and employment demand (Gemici et al. 2014a, p. 10). Aspirations in this context refers to 'educational and vocational dreams' (Sirin et al. 2004). Pursuing dreams or vocations encompasses future challenges students face created by disruptive technologies such as artificial intelligence, advances in medical and biomedical sciences and data analytics that require sophisticated technological proficiency and dexterity. The transformative processes in positioning students for these challenges commence firstly at school with careful attention

to course choice (Fullarton and Ainley 2000), and secondly, career guidance that include Vocational Education and Training (VET) vocations as alternative pathways influenced by parents, friends and online information. A finding by Shergold et al. (2020) indicate strong correlations between these two factors.

Our interest in this paper are to examine the choice of courses and occupational ambitions of Islamic schools' students as no prior research has attempted this examination. These are important considerations for Islamic schools since their locations are predominantly in middle to lower socio-economic areas with varying levels of educational advantages and disadvantages measured by the ICSEA Index[1] that shows up in the Australian Curriculum, Assessment & Reporting Authority (ACARA) database. For these schools (as with many others) the challenge is to ensure the range of courses offered to students are broad and flexible so that career ambitions are not constricted. The narrower the course range, the lesser the prospects of transitioning to desired careers, especially those where traditional work practices are constantly redefined in terms of status, work skills and opportunities (PricewaterhouseCoopers 2017). Islamic schools also have to contend with parental and communal desire to align knowledge acquisition with a strong religious ethos, such that the level of education provide students with " … the skills and knowledge for a good future" (Clyne 2000)[2]. Socially, what is also expected of Islamic schools is to " … educate children for life in what it is hoped will be a diverse and tolerant society" (Clyne 1997, p. 11). In the spirit articulated by Clyne, reference to a 'good future' takes on several meanings, one of which is associated with building human capital where the thoroughness of educational grounding leads to desired and rewarding outcomes for students. Within the realm of Islamic schooling, this relationship presupposes a religion/education nexus that needs to exist and to be nurtured to fulfil these goals. Education-wise, this incorporates a broad spectrum of courses available to students from which to select a cohort of courses that will provide them the 'skills and knowledge' to progress post-schooling (Clyne 1998).

Apart from maintaining an agreed common curriculum base consistent with ACARA requirements[3], a formal curriculum of Islamic schools includes an 'Islamic Studies' and 'Arabic' course layer that underpins the religious ethos of the school (Abdalla et al. 2020). But this, as Jones (2012, p. 44) observes, poses a real quandary for schools arguing " … does an Islamic school simply teach the national curriculum, with an Islamic component tacked on, or does Islam pervade the whole curriculum?". Abdalla (2018, p. 279) finds the teaching of these courses somewhat problematic since their relevance " … does not meet the needs of young Australian Muslims" and further, that this was a real " … concern in equipping them with the necessary knowledge and skills to navigate the modern world". A further consideration is whether Islamic schools themselves have narrowed course choice for students to a level sufficient to display excellence in academic results for reasons of prestige and marketing (Ghamra-Oui 2020).

To the extent these observations hold true for Islamic schools and their students, there is no body of research that clearly confirm the nexus between course choice and occupational aspirations (Baxter 2017) or desired outcomes that is supported by empirical evidence. The little that's known exists only by way of anecdotal evidence gleaned from engagement with school teachers with two elements: first, parents want their children to study in a sound Islamic 'environment'(Abdalla 2018; Diallo 2018); second, parents exert tremendous pressure on children to complete high school and to settle on a vocation not of their choice but one often dictated by their parents. This raises the question: which courses have students elected to study that will enable them to match their occupational ambitions? In addressing this question, the methodology we use examines the range of courses students have

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[1]　"The Index of Community Socio-educational Advantage (ICSEA) is a scale of socio-educational advantage that is computed for each school". https://docs.acara.edu.au/resources/Guide_to_understanding_icsea_ values.pdf.

[2]　Cited in (Abdalla 2018, p. 257).

[3]　ACARA requires curriculum composition from eight core learning areas and an agreed fifteen secondary courses as well as specifying content and standards compliance.

enrolled in, matched with their occupation aspirations and then determining the likelihood of those aspirations being achieved. The research operationalisation includes approaching several Islamic schools in Australia to administer a questionnaire to year 11 and 12 students concerning their course choice and occupational preferences. Nine Islamic schools participated in this research project together with 146 student participations.

Our results show that Islamic schools offer a narrow range of courses that are just enough to comply with core ACARA course requirements. The Medicine, Engineering, Law and Business professions (in that order) are the most preferred occupations. We also find conspicuous gender-based differences regarding course selection and occupational choice. We conclude by suggesting Islamic schools expand their range of courses on offer that will help students to transition to occupations across higher education VET vocational spectrums. We review the literature on this subject, followed by the research methodology employed and results.

2. Literature Review

Rapid technological advancement and displacement of labor-intensive practices with artificial intelligence and robotic substitutes have precipitated paradigm shifts in Australia's employment market and in student career and occupational choices. Desultory approaches to new work practices in trades, professions and vocations will make transitioning difficult and costly, if not accompanied by integrated planning from school and VET levels (PricewaterhouseCoopers 2017). Consequently, some occupational positions will be either marginalised whilst others will simply cease to exist (such as routine office work).[4] Instead, smart transitioning has created 'new' career opportunities by way of offsetting careers and vocations[5] through processes of work substitution (Healy et al. 2017). Intuitively, such changes do impact occupational expectations at school level in ways that concomitantly affect course choice as well as placing undue focus on the Australian Tertiary Admission Rank (ATAR) outcomes. Both developments distort 'educational expectations' as Shergold et al. (2020) finds. It's no wonder then that parents' anguish over their children's education and career futures if those were indeed the primary motivation for educating children. That concern is compounded at school level where course choice is constrained within a narrow band that limit occupational choice.

Evidence from non-Islamic school research show strong links between course choice and long-term goals and aspirations of young Australian people (Fullarton and Ainley 2000; Gemici et al. 2014a; Khoo and Ainley 2005). Importantly, diversity in course offerings within school curriculum provide students with broader choice and an early academic base to build knowledge and skills. The resulting enhancement is manifested in human capital. This route, Ainley et al. (1994) argue may be used in mapping future vocational pathways and charting higher occupational qualifications post-schooling. Career aspirations of UK students in their final years schooling are shown to be closely related to choice of courses as shown in early studies by Colley et al. (1994) and in follow-up studies by Colley and Comber (2003). These studies find distinct course preferences between girls who show a propensity for vocational and arts courses while boys tend to prefer mathematics, science and physical education[6]. While gender choice differences may be ascribed to students' personal likings, it is nonetheless also associated with courses being judged as having low or high status within curriculum (Bleazby 2015) and perceived levels of difficulties (hard and soft courses) (Davies and Ercolani 2018; Madden et al. 2018). With a view to improving university entrance grades, males and 'non-white' students avoid 'soft courses' as pathways for entry to universities and in response to demands from 'elite' universities

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4   Gruen, D. *Technological Change and the Future of Work*, Australian Government: Department of the Prime Minister and Cabinet, Thursday 7 December 2017 accessed on 5 January 2019 from https://www.pmc.gov.au.
5   In support Gruen cites the transformation of taxi services and parcel deliveries in Indonesia brought about by the introduction of *GO-JEK* (a low cost scooter equivalent of Uber) that has opened opportunities for ordinary workers and whose presence has had a profound effect in traffic reduction in major Indonesian cities.
6   Part of the composite STEM course groupings.

(Davies and Ercolani 2018, p. 2). Hence students will, according to these authors, choose a mixture of 'hard and soft' courses from course groups that will maximise their final grades.

Taking a different perspective, Bleazby (2015, p. 671) reports that some sort of hierarchical structure exists within school curriculum structures whereby some courses are perceived as "more valuable than others". In other words, there is an implicit assumption in the minds of students (as well as some parents) that some courses are inherently more prestigious than others that should, by default, feature more prominently in course selection. This condition Bleazby argues, may be ascribed in part to the erroneous carry-over of neo-Platonic reasoning that suggests mathematics, physics and philosophy are the domain of the most educated and, as such, are proxies of the highest level of education. Consequently, mathematics and physical science courses occupy the highest level in the curricula hierarchy with the rest relegated to lower levels that are fit only for those pursuing occupations such as trades, crafts and other lower perceived vocations. Much to the annoyance of educators "many commentators lament the marginalisation of arts, humanities and social science courses" (Bleazby 2015, p. 675), who also cites supporting observations by (Adams 2011; Barton et al. 2013; Hansbury and Moroz 2001) and others.

Contextualised to Australia, the inferiority fallacy of art and VET courses is rebutted by the fact that enrolment in maths, English and the sciences has been in decline since the early 1990's (Kennedy et al. 2014). This is supported in the longitudinal course participation rates compiled by the Australian Council for Educational Research (ACER 2005) that show steady uptakes or declines in vocational orientated courses. For instance, the participation rate for 'maths extension' for year 12 students declined from 13.18% (2007) to 11.54% (2017) and in 'maths general' from 26.99% to 22.36% over the same period. Further, boys outnumber girls by a 2:1 ratio in maths study—a ratio that has remained unchanged since 1991. Interestingly, declines in Science, Technology, Engineering & Maths (STEM) courses have occurred (Timms et al. 2018) while participation in other courses such as 'earth sciences' increased (+0.3%) and entry maths (+11%) even though students numbers have grown by around 16% in the period 1992–2012 (Kennedy et al. 2014). On the other hand, participation in business economics, biology, technical studies and languages (to name a few) now occupy just as high a status as mathematics. Part of this shift in course preferences may be ascribed to what Kennedy et al. (2014, p. 1) noted as " … the broadening of curriculum offerings, further driven by students' self-perception of ability and perceptions of course difficulty and usefulness". While this shift constitutes a new trend, the pre-eminent status of English, maths and the sciences is nevertheless acknowledged (Constantinou 2018; Fullarton and Ainley 2000) and the fact that these courses accounted for 51% of all course enrolments (ACER 2005).

Looked at differently, the socio-economic status (SES) of students is an important indicator of aspirations and career pathways (Berger et al. 2019). However, what is particularly worrying with SES data is the observation that courses with lower status (for instance physical education and vocational courses) are destined to be enrolled by students from disadvantaged communities because of their perceived inability to embrace higher level courses (Davies and Ercolani 2018; Polesel et al. 2018; Young 2011). This finding features very prominently in the report by Shergold et al. (2020). The dominance of higher status courses in curriculum is also seen to foster social inequality in terms of affordability as these courses are often sought-after by middle-class and affluent students whose parents can afford private tutoring and admission to prestige schools and whose desire is to see children succeeding in highly paid professions. On the contrary, less fortunate students are resigned to opt for lower status courses and exclusion from private schools thereby only pursuing vocational education (Teese and Polesel 2003; Teese and Walstab 2009; Young 2011). The marginalisation of traditional courses is shown to be problematic since, as Constantinou (2018, p. 2) notes, this tendency leads to " … narrowing the curriculum and depriving students of the opportunity to develop a wide repertoire of knowledge and skills, this hierarchy contributes to the perpetuation of social inequality". The resulting disparity between middle-class students and those from lower socio-economic background plays out as a form "social segregation". As a result, students choose a very narrow range of courses as a means

of scoring high grades to enter university and choosing career paths from a very narrow range of occupational choices.

Davies and Ercolani (2018, p. 4) also identify a 'school effect' as another dimension of course choice. They list the following as influential factors: breath of curriculum; range of courses offered; class size; and school positioning in meeting parental aspirations. As to the economics of school competitive behaviour, 'more successful' schools are less likely to innovate than 'less successful' schools, given their stronger oligopolistic market position. Effectively, this dominant position by a small number of 'elite' schools from a large pool of schools mean these schools need not innovate in terms of breadth of course choice as they already control a dominant share of the competitive market (Davies et al. 2002).

Australian studies show that academic performance, immigration background and parental and peer pressure exert a significant influence on the occupational aspirations of year 12 students (Gemici et al. 2014a). In pursuit of higher aspirations, their research finds that following parent-focused motivation, such as Parents and Career Transition Supports (PACTS) program, to complete final years of study, students were eleven times more likely to attend university. Following such programs, parents' desire for high academic performance was a strong motivating factor for this cohort of students as opposed to non-university aspirants whose performance scores were generally lower leading to lower-status occupations and career pathways. Measuring academic performance is therefore highly dependent on a student's course choice as Fullarton and Ainley (2000) argue. This is supported in research that uses PISA[7] literacy benchmarks as one component whose measurement domain include assessments in three core areas: reading; mathematics and science. Islamic schools add a further layer to these core areas of learning by offering unique courses such as Islamic studies and Arabic studies. However, Abdalla et al. (2020); Abdalla (2018) and Selim (2018) find students have less enthusiasm for these courses notwithstanding their most appropriate settings in an Islamic school environment.

These observations have important policy implications for states and federal government[8] as there has been a rapid growth in Islamic private schools in Australia over the last four decades. This growth is driven primarily by a mix of Federal and State funding of non-government independent schools that appeal to the religious convictions of communities (Independent Schools Council of Australia (ISCA) 2018). Statistics compiled by ISCA show the progressive growth in this sector and Islamic schools now number 46 (4.0%) of the total 1148 independent schools as of calendar year 2020.[9] It's also plain to see that the issue of student preparedness for the long-term occupies an important element in labour market planning quite apart from parental and societal expectations (Atweh et al. 2005).

While occupational and career aspirations of high school students has been (and continue to be) thoroughly researched at a national level (Berger et al. 2019; Gore et al. 2017, 2015; Baxter 2017), there remains a distinct lack of research dealing with this issue within the broad Islamic schooling literature. This research addresses this absence given new realities in the labour market. Consequently, Islamic schools may need to adjust their learning curriculums to align with new 'job-ready' imperatives imposed by the Australian Federal government (Norton 2020a).[10] The resultant impact on student aspirations will depend largely on how, and to what extent, Islamic schools contend with course offerings from years 7 onward.

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[7] Programme for International Student Assessment (PISA: OECD 2010).

[8] Independent Schools Council of Australia (ISCA) (2018). *The Independent School Student: A Demographic Profile*. Retrieved from https://isca.edu.au/wp-content/uploads/2018/08/The-Independent-School-Student-A-Demographic-Profile-2016.pdf.

[9] Independent Schools Council of Australia, *Snapshot* 2018, downloaded from: https://isca.edu.au/wp-content/uploads/2018/05/18189-ISCA-2018-Snapshot-A4-2pp.pdf.

[10] Essentially, under radically changed funding structure, universities will need reprioritise degree offerings, in the process making arts, law, business and medical career preferences extremely unaffordable (Norton 2020b).

3. Sample, Data and Methodology

Our methodology first examines actual student course enrolments and how well that fits when juxtaposed with their preferred course selections. Second, our methodology examines how actual course selection transforms into occupational aspirations when matched against the Australian Socioeconomic Index 2006 (AUSEI06)6 and Australian Bureau of Statistics (ABS) 1220.0 ANZSCO 2013[11] v.1.3 occupational classifications. This twofold approach aims at determining the maximum likelihood of students' present course enrolments attaining their desired occupational aspirations using logistic regression modelling. We use several proxy measures as independent (predictor) variables in the regression, consistent with methods employed by Gore et al. (2017, 2015) and Berger et al. (2019) in this space. The methodological procedures followed are detailed below. Our approach fits well with mixed methods suggested by Creswell (2012) as well as methods used in studies by Cooper and Berry (2020); McMillan et al. (2009) and Gemici et al. (2014b).

3.1. Sample

An Australian Islamic school database maintained by the Centre for Islamic Thought and Education (CITE) (hereafter the AISD database) was used to select a representative sample of schools for survey participation and student data collection. The AISD database comprises 46 head-campus Islamic schools that constitute 61stand-alone primary and secondary schools. Twenty schools were approached for participation of which nine agreed to partake in the study. Excluding primary schools, this equates to a participation rate of 20% and included 146 students. The schools in the sample were all Kindergarten to year 12 schools located in metropolitan and suburban areas with diverse socio-economic status. The Index of Community Socio-Educational Advantage (ICSEA) median value for the sample schools is 1024 with a low/high range between 988 and 1083. The 1024 value compares well with the full AISD population of 46 schools whose ICSEA median value is 1010 with a low/high range between 915 and 1186. Further, the sample 1024 median is very close to the ACARA 1000 ICSEA benchmark median and close to the 1010 AISD population median. These values suggest our sample is representative of the population and consistent with a measure used by (Gore et al. 2015).

3.2. Data Collection

A self-administered paper questionnaire was used that included a predetermined list of 17 school courses where students were asked to tick all the courses they were enrolled in. The list included an open-ended option for students to record any courses not appearing in the list of 17. The course list was compiled from an online content analysis of courses offered by Islamic schools from their respective websites. A follow-up question asked students to rank their current course enrolments in terms of preference (most to least preferred). Students were further asked to select their future occupational aspirations from a list compiled by Gemici et al. (2014a, pp. 24–26) that identify most popular student careers. Eight popular professions were identified from the students' questionnaire responses. Survey operationalisation was conducted by two moderators in person during 16 focus group sessions—a method consistent with Atweh et al. (2005).

3.3. Classifying Student Course Enrolments

First, course enrolments are grouped and aligned with the eight key ACARA course learning areas.[12] Where exact course matches were unclear, the next best match was resorted to or identified separately (e.g., Islamic studies). We then assigned within-course weights to all the courses in order

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[11] This refers to the ABS statistical classification of occupations, formally; 1220.0—ANZSCO—Australian and New Zealand Standard Classification of Occupations, 2013, Version 1.3.

[12] https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/national-report-on-schooling-in-australia-data-portal/user-guide.

to make meaningful comparison with national weighted course data as well as developing course scores scaled to national weightings. In this process, the English course was excluded as this is a mandatory course for all schools and therefore of little comparative use. Next, the survey learning areas were compared with national averages, and then ranked to identify course concentrations to examine variations between the respective learning area datasets. National averages are sourced from ACARA data that itself is sourced from Australian Bureau of Statistics datasets. The ABS data tracks longitudinal trends in school course enrolments and is used extensively in determining future occupational trends. From these, we calculate the average annual course growth rate using available ACARA nine-year time series. Comparing these growth rates with the sample Islamic schools survey course learning areas reveals the closeness or divergence from national trends.

3.4. Measuring Occupational Aspirations

In the questionnaire, students were provided a list of professions and occupations to record their preferences and to separately record any not listed. Where they were unsure, they we asked to tick a 'don't know' option. Following (Gore et al. 2015, p. 159), the range of occupational aspirations were ranked in order of "prestige" in which a score of 100 represents the highest occupational status. This ranking procedure conforms with occupational status scores developed by the Australian Bureau of Statistics category 1220.0 ANZSCO 2013, v.1.3.

3.5. Logistic Regression

We use binary logistic regression (BLR) statistical modelling as the preferred analysis tool to model relationships between occupational aspirations (the dependent variable) and other academic and socio-demographic predictor variables. Since the outcome dependable variable is binary, the relationship between it and the predictor variables are inherently S-shaped within probabilities bounded 0 to 1 and where the odds ratio (OR) measures the degree of association between the variables. Cooper and Berry (2020) rely on the same methodology though using multiple logistic regression instead. As BLR uses maximum likelihood (ML) to estimate parameters, we aim to model the likelihood of students realising their occupational preferences in our sample with $n = 146$. The dependent dummy variable 'preference' is coded 1 = 'achievable' (target category) and 0 = 'not achievable' (baseline reference category). The predictor variables are the continuous variables: summated The National Assessment Program—Literacy and Numeracy (NAPLAN) sample school scores; ACARA scores; the ICSEA Index values and the ABS SEIFA Index of Education & Occupation Index score (IEO). The gender identification is a categorical dummy variable wherein the reference category is male coded 1 and female coded 0.

3.6. Variables in the Model

The use of socio-demographic variables and NAPLAN scores is a method employed by Gore et al. (2015, pp. 158–61). Further, following (Gemici et al. 2014a, p. 10) we use the ICSEA predictor variable of socio-educational advantage; year 9 NAPLAN scores and, SEIFA Index of Education & Occupation (IEO). Our reliance on these measures is that youth occupational outcomes are affected by factors such as family circumstances, parental education and gender preferences (Lim and Gemici 2011). This is supported by Baxter (2017, p. 12) who argues there is a strong relationship between student higher academic skills and occupational aspirations based on cognitive capabilities and that this relationship is very pronounced between boys and girls.

The dependent 'preference' variable is a proxy for student's top occupational desires that we determined after matching student's stated occupational preferences as closely as possible with occupational classifications developed by the Australian Bureau of Statistics (ABS) (2013) at the 4-digit Unit Group level (Gemici et al. 2014a, pp. 25–29). We convert these classifications with status scores developed by McMillan et al. (2009) and the ANU06 scales developed by the Australian National University's Australian Socioeconomic Index 2006 (AUSEI06). These are further condensed into eight

occupational categories whereby the top four occupations namely medicine, business, engineering and law jointly constitute the dependent 'preference' variable.

ICSEA values provide a relative measure of each participating school's value of educational advantage or disadvantage. Next, we rely on Baxter's method to determine NAPLAN scores where we use the most recent year-9 NAPLAN results associated with reading, writing and numeracy, harvested from the MySchool database. Baxter (2017) and Gemici et al. (2014a, p. 10) also identify parental occupational achievements as an influencer and predictor of career aspirations measured in terms of socio-economic status. However, this effect is captured in relative ICSEA values. We do not use the method proposed by Fullarton and Ainley (2000) that extends the range of predictor variables to include school location as the MySchool database already incorporates this in the ICSEA values. A further predictor variable is the university entrance required ATAR score since intuitively, students wishing to attend university, or those exhibiting higher career aspirations, will prefer academic courses that will enhance their ATAR scores to improve their chances of entry.

4. Results and Discussion

4.1. Descriptives

Age and gender distribution of students from the schools surveyed are shown in Table 1. An almost equal number of females and males in both school years participated in the survey with the majority 82.2% in the 17–18-year age group.

Table 1. Survey participants by gender, age and school year.

	Age					School Year	
	16 Years	**17 Years**	**18 Years**	**19 Years**	**Total**	**Year 11**	**Year 12**
Female	1.5%	45.6%	35.3%	17.6%	46.6%	45.1%	54.9%
Male	3.8%	32.1%	51.3%	12.8%	53.4%	48.4%	51.6%
Total	**2.7%**	**38.4%**	**43.8%**	**15.1%**	**100.0%**	**100.0%**	**100.0%**

4.2. School Courses

In relation to the courses they were studying, students were asked:

Which of the following courses are you studying presently? Tick all the ones that apply to you.

The results are presented in Table 2. In common with all Australian schools, students in Islamic schools have the choice of selecting a combination of courses from eight core learning areas prescribed in the ACARA curriculum. Weighted enrolment in mathematics (26.1%) is almost on par with the national average of 25.3% with slightly higher female participation. Science courses feature very prominently with 28.4% participation compared to 18.2% nationally. The opposite trend can be observed for the ICT courses. However, the weighted enrolment in STEM courses (maths, science and ICT) summed at 59.0% compares favourably with the national average of 55.4%. These collectively fall within the 'high status' courses identified by Bleazby (2015). The next big course cluster is associated with humanities and social science (HSS) that collectively exceed the national average. Course enrolment in maths, sciences, ICT and HSS aggregate 85.8% compared to the national average of 76.0%. Clearly, these cohort of courses weigh disproportionately against national trends. Choice of arts courses feature very poorly with a participation ratio of 1:36 compared to the national ratio of 1:14.

Table 2. Student course enrolments.

	Panel A: Sample				Panel B: ACARA Time Series [b]				
	% Weighted				% Weighted				
	Female	Male	Total	Rank	Female	Male	Total	Rank	Growth [c]
Sample size	68	78	146						
Learning areas									
English [a]	46.6%	53.4%	100.0%	1	54.2%	45.8%	100.0%	1	0.06%
Mathematics	27.0%	25.3%	26.1%	4	12.5%	12.7%	25.3%	2	1.19%
Mathematics A	16.4%	15.2%							
Mathematics B	10.6%	10.1%							
Sciences	28.3%	28.4%	28.4%	2	9.8%	8.4%	18.2%	4	1.40%
Science	14.2%	12.2%							
Physics	3.5%	8.4%							
Chemistry	10.6%	7.8%							
Information & Communication Technology (ICT)	1.8%	6.8%	4.6%	7	5.0%	7.0%	12.0%	5	−0.12%
Computing & ICT	1.8%	6.8%							
Humanities & Social Sciences (HSS)	26.5%	27.0%	26.8%	3	11.6%	9.0%	20.6%	3	0.02%
Accounting	1.3%	4.1%							
Business management	4.0%	6.4%							
Business Study	11.1%	8.4%							
Economics	0.0%	0.3%							
Legal Studies	10.2%	7.8%							
Health & Physical Education (HPE)	7.1%	3.4%	5.0%	6	5.9%	4.5%	10.4%	6	1.65%
Physical Education	6.6%	3.0%							
Psychology	0.4%	0.3%							
Languages (Arabic)	2.7%	2.0%	2.3%	8	2.3%	1.4%	3.7%	8	−0.14%
Arts	1.3%	0.3%	0.8%	9	6.3%	3.5%	9.8%	7	−0.58%
Islamic Studies	5.3%	6.8%	6.1%	5					0.00%
	100.0%	100.0%	100.0%		53.4%	46.6%	100.0%		

[a] Course heading in bold align with the eight core learning areas identified in the ACARA curriculum. The respective percentages are weighted within course enrolments that excludes English. [b] Nine-year mean statistics calculated from ACARA time series accessed from https://www.acara.edu.au/reporting/national-report-on-schooling-in-australia/national-report-on-schooling-in-australia-data-portal/year-12-course-enrolments#dataset. [c] Own calculations: Average annual growth rate (2010–2018) in student course enrolment calculated from ACARA time series.

The Arabic and Islamic studies course enrolments are of concern to Islamic schools as indicated by low participation levels: 2.3% and 6.1% respectively. Both courses are fundamental to the study of Islam because of their culturally responsive religious pedagogies and the ethos they espouse in their teaching and learning (Abdalla 2018; Ghamra-Oui 2020). It is plain to see from the responses that they are among some of the least desired courses by students. Why this is so is somewhat ironic given the heavy emphasis Islamic schools advocate championing ideals such as 'Islamic values' and 'citizens with Muslim values' and the like, that feature prominently on the mission and vision statements of Islamic schools.

If the reasoning for offering these courses was to appeal to religious consciousness and a means to attract enrolment in Islamic schooling (Ghamra-Oui 2020), the low enrolments rebut these ideals. Perhaps, as Abdalla (2018) and Selim (2018) find, low enrolment numbers may be associated with student disenchantment with course content and delivery. Only two of the Islamic schools surveyed offer vocational education training (VET) courses. These courses include health, office studies, sports and recreation and IT studies. The enrolment numbers for these courses are cross accounted in the main course headings in Table 2. The important point exhibited by low VET course participation may perhaps be attributed to schools focusing on courses attracting high ATAR scores. In this regard Shergold et al. (2020, p. 59) observes:

> Prompted in part by perceiving the ATAR as the most important indicator of educational success, there is a persistent tendency for many parents, students and teachers to view VET as a much less prestigious and valuable pathway, compared to the academic route that leads to university.

Further, preference for courses other than VET courses helps explain the observation that four in five parents desire children to attend university instead of pursuing vocational training careers (Wyman et al. 2017).

4.3. Gender Differences in Course Choice and Rankings

A more detailed and nuanced appreciation of course choice disparities appear from a comparison of male and female enrolments in Table 2, Panels A and B. The ACARA English enrolment data for 2018 show that nationally females (82.0%) show a greater propensity to study English than males (72.1%). While male and female enrolment in mathematics nationally is equal, females (27.0%) show a slightly greater interest that males for Islamic schools (25.3%). Females are more inclined to study science courses (9.8%) than males (8.4%) nationally whereas equal participation exists in our sample as shown in Panel A. More males than females in both Panels are inclined to study Accounting and Business management. Females are 2 times more attracted to PE than males (Panel A) and 1.3 times nationally (Panel B).

Interestingly, although male and female participation in HSS is almost equal in Islamic schools, when compared nationally, the nine-year mean for female participation (74,287) exceed male participation (57,842) by 28.4%. Further, females are more inclined to study arts and languages, both of which align with national trends. Within HPE females are 2 times more attracted than males to physical education (PE) (6.6% | 3.0%). This accords with national PE enrolment trends found in ACARA data that indicate a ratio of 1.31:1 in favour of females. One would expect female PE participation in Islamic schools to be low given perceived negative portrayal of Muslim female indulgence in sports—especially issues conflated with wearing hijab. Our findings show the reverse and challenges this biased perception as our sample indicate greater female participation in PE. A reverse trend emerges in relation to ICT courses where males dominate females by a ratio of 3.8:1 (6.8% | 1.8%) compared to a 1.4:1 ratio nationally.

Comparing learning areas in terms of rankings, mathematics (4) and ICT (7) rank lower while sciences rank in reverse order against ACARA rankings. Art courses rank lowest in the sample compared to languages (other than English) that have the lowest ranking in ACARA statistics. Looking

at the nine-year average annual growth rates for all learning areas[13], the positive growth rates are generally in line with those observed in the Australian Council for Educational Research (ACER 2005) study for the period 1993–2001. In the latter study, declines were observed in economics, accounting, chemistry, physics and legal studies. In the present study however, the greatest growth concerns are those with arts and languages. There were only four enrolments in arts which occupies the lowest ranking. In relation to Arabic language studies, the disaggregated ACARA language time series (2006:2018) show a −1.0% decline in growth for all languages over 13 years. Within this ACARA twelve-language dataset, the disaggregated participation rate for the Arabic course is 1.9% compared to much higher rates for the eleven other languages.

4.4. Course Preferences

Gemici et al. (2014a) and Bleazby (2015) argue that student's course selection may, to a large extent, be influenced by parental or peer pressure. We were interested to examine whether this observation holds for our sample. We therefore compared students' existing course enrolment vis-à-vis those they preferred. The results are displayed in Table 3.

Table 3. Preferred vs. actual course selection.

Courses	Preferred Courses [a]			Enrolled Courses [b]			
	Female	Male	Total	Female	Male	Total	Changes
Mathematics A	11.90%	20.80%	16.70%	12.59%	12.03%	12.28%	**4.42%**
English	22.40%	7.80%	14.60%	23.13%	20.86%	21.86%	−7.26%
Legal Studies	13.40%	7.80%	10.40%	7.82%	6.15%	6.89%	**3.51%**
Mathematics B	9.00%	6.50%	7.60%	8.16%	8.02%	8.08%	−0.48%
Science	7.50%	7.80%	7.60%	10.88%	9.63%	10.18%	−2.58%
Chemistry	9.00%	6.50%	7.60%	8.16%	6.15%	7.04%	**0.56%**
Physics	1.40%	11.70%	6.90%	2.72%	6.68%	4.94%	**1.96%**
Physical Education (PE)	9.00%	3.90%	6.30%	5.10%	2.41%	3.59%	**2.71%**
Study of Business	10.40%	1.30%	5.60%	8.50%	6.68%	7.49%	−1.89%
Business Management	1.50%	9.10%	5.60%	3.06%	5.08%	4.19%	**1.41%**
Accounting	3.00%	5.20%	4.20%	1.02%	3.21%	2.25%	**1.95%**
Information & Communication Technology (ICT)	1.50%	2.60%	2.10%	1.36%	3.74%	2.69%	−0.59%
Arabic	0.00%	2.60%	1.40%	2.04%	1.60%	1.80%	−0.40%
Islamic Studies	0.00%	2.60%	1.40%	4.08%	5.35%	4.79%	−3.39%
Computing & IPT	0.00%	3.80%	2.00%	0.00%	1.60%	0.90%	**1.10%**
Economics	0.00%	0.00%	0.00%	0.00%	0.27%	0.15%	−0.15%
Psychology	0.00%	0.00%	0.00%	0.34%	0.27%	0.30%	−0.30%
Arts	0.00%	0.00%	0.00%	1.02%	0.27%	0.60%	−0.60%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%

Notes: [a] These are the courses students indicated as their preferred choice. [b] These are the courses they are *actually* enrolled in. Course preferences are ranked highest to lowest. Positive changes appear in bold.

What appears from Table 3 are divergences in course preferences. The changes suggest that had they exercised their own preferences their course selections would be those listed in the first panel. On the other hand, the changes indicated in the last column may represent course likes or dislikes. Whatever the reason, the changes indicate interest/disinterest with several courses concerning English, Islamic studies and science courses. Disinterest for English is almost entirely among males with total disinterest for Islamic studies among females. Mathematics A, legal studies and physics are the most preferred courses. An interesting observation is interest in PE among female students. There is a total lack of preference for the last six courses among females in Table 3. What these changes in course preferences suggest is that students are more attuned to select courses that align with their future occupational aspirations.

13　Accessed from the ACARA database—see footnote b in Table 2.

4.5. Occupational Aspirations

The first observation from Table 4 is that aspirations are concentrated in a few discrete disciplines highlighted in the 4th quartile. Medicine, engineering, business, law and teaching are amongst the most highly sought-after professions as we observe from the rankings. When merging accounting with the business management courses, the preferential order changes to medicine, accounting, engineering, teaching and law (in that order). The first order accords with our anecdotal evidence of student preferences. Occupations in the 4th quartile account for 45.7% of all occupations which, when added to 3rd quartile occupational aspirations constitutes 77.3%. These high-level occupational preferences suggest students set their occupational expectations very high which shows up in high enrolment in mathematics and other STEM courses (Table 3). Further, evidence from the Shergold et al. (2020) report suggests students are not favourably disposed toward vocational and para-professional occupations that are often associated with low status vocations such as salespersons, real estate agents and arts. Islamic school student preferences reflect such bias.

Table 4. Preferred occupational aspirations of students.

	Student Occupational Aspirations				AUSEI06 Equivalent Occupational Status [a]			
Occupations	Female	Male	Total	Rank [c]	Minor Group	Occupational Classifications	AUSEI 06 Unit Group	Status Scores [b]
4th Quartile								
Medicine	10.10%	14.30%	24.4%	1	2530	Medical Practitioners	2531	100.0
Psychology	4.80%	0.70%	5.5%	7	2530	Psychiatrists	2534	100.0
Dentistry	1.40%	0.00%	1.4%	12	2520	Dental Practitioners	2523	93.6
Law	2.09%	4.79%	6.9%	6	2700	Solicitors	2713	90.7
Teaching	6.09%	1.40%	7.5%	4	2410	Middle & Secondary School Teachers	2414	87.6
3rd Quartile								
Engineering	0.70%	7.70%	8.4%	3	2330	Civil Engineering	2332	86.2
Architecture	2.10%	1.40%	3.5%	9	2300	Architects	2321	84.1
Accounting	0.70%	2.10%	2.8%	11	2200	Business, Human Resource & Marketing	2211	83.7
Occupational Therapy	0.70%	0.70%	1.4%	12	2520	Occupational Therapists	2524	82.3
Information Technology	0.70%	4.10%	4.8%	8	2610	Software & Application Programmers	2613	81.3
Nursing	3.30%	0.00%	3.3%	10	2540	Registered Nurses	2544	80.7
2nd Quartile								
Business Management	3.30%	4.10%	7.4%	5	1110	General Managers	1112	78.2
Aviation	0.00%	1.40%	1.4%	12	2300	Air Transport Professionals	2311	77.4
Media	1.40%	0.00%	1.4%	12	2120	Journalist & Other Writers	2124	77.4
Social Work	0.70%	0.00%	0.7%	18	2720	Social Workers	2725	77.3
1st Quartile								
Finance	0.00%	0.70%	0.7%	18	2220	Financial Managers	2223	75.9
Graphic Design	0.70%	0.70%	1.4%	12	2320	Graphic & Web Designers	2324	67.0
Art	0.00%	0.70%	0.7%	18	2100	Arts & Media Professionals	2114	67.0
Real Estate	0.00%	1.40%	1.4%	12	6100	Real Estate Principal	6121	55.0
Undecided [d]	7.50%	7.50%	15.0%	2	5990	Clerical & Administrative Workers	5999	54.0

Notes: [a] Occupations are ranked highest to lowest status based on AUSI06 scores in the last column. [b] Status scores sourced from ABS 1220.0 ANZSCO 2013, v1.3. [c] Ranked in order of students' preferences. [d] Students who were either unsure or did not respond at all.

The emerging themes from the occupational aspiration quartiles show wide disparities between the 1st and 4th quartiles. While students may aim for very highly regarded occupations, they may perhaps be oblivious of the intense and highly competitive nature of their desired occupations. Universities, sensing high demand for these professions, set high entry level ATAR benchmarks as highlighted by Shergold et al. (2020) and Norton et al. (2019). Students aspiring for entry to highly academic professions such as medicine and law are keenly aware of the high entrance scores and therefore align their course selection to maximise ATAR outcomes. This tendency fits with our observation that the range of courses offered at Islamic schools are not sufficiently wide to incentivise students to look at other vocations and career alternatives. Another area of concern that shows up in Table 4 is the high level of uncertainty (15% undecided) among students that points to poor career guidance at school level identified by Baxter (2017).

Setting high occupational ambitions carry with it risks of rejection especially when ATAR at entry levels are set high. Risks for students mean deciding early on choice alternatives and reassessment of options as soon as university entry rounds are announced. Given such risks, what then are the likelihood of achieving initial high aspirations in the first place? Following Gore et al. (2015) and Cooper and Berry (2020) we use logistic regression to assess the likelihood of achievement of occupational goals.

4.6. Logistic Regression & Results

In running the logistic regression models, we condense the range of occupations in Table 4 into seven main categories as shown in Table 5.

Table 5. Main occupational categories [a] and ATAR score requirements.

Occupations	Female	Male	Total	Entry Level ATAR [b]
Medicine & Dentistry	35.3%	28.2%	31.5%	98.0
Business	8.8%	12.8%	11.0%	78.5
Engineering	5.9%	16.7%	11.6%	82.2
Law	4.4%	9.0%	6.8%	92.5
Teaching	13.2%	2.6%	7.5%	78.2
Information Technology	1.5%	7.7%	4.8%	72.8
Other occupations [c]	16.2%	9.0%	12.3%	70.0
Not stated	14.7%	14.1%	14.4%	0.0
	100.0%	100.0%	100.0%	

[a] The occupational aspirations in Table 4 are condensed into seven main categories to indicate relative preference.
[b] These ATAR scores are the minimum university entry-level scores required for the main occupational categories. They are mean ATAR scores sourced from eleven universities situated closest to the nine Islamic schools surveyed.
[c] Represents all occupations other than the six listed separately.

The first four occupations in Table 5 are 'prestigious' consistent with (Beavis et al. 2005; Sikora and Saha 2011). Students may or may not gain entry to nor realise these desired occupational outcomes and so in the model we set 'achieve' as the dependent binary outcome. In this dummy variable 'achievable' is the target category coded 1, and 'not achievable' coded = 0 is the baseline reference category.

Following this criterion, we hypothesise students who complete schooling with ATAR scores less than the minimum cut-off of 78.0 will most likely *not* gain entry to these prestigious occupations. Where ATAR scores are >78.0 the model predicts likelihood of achieving occupations. Running the model produced the following classification results set out in Table 6.

A majority 61% (89/146) fall into the achievable group. A test of the full model versus one with the intercept-only was conducted. The full model was statistically significant with χ^2 (5, $n = 146$) = 146.66, $p < 0.000$ and this model was able to correctly classify 93.3% (83/89) of those who may achieve as opposed to 91.2% (52/57) who may not achieve for an overall rate of 92.5%. The intercept-only model is χ^2 (1, $n = 146$) = 0.446, $p < 0.009$ and the predicted odds of achievable is 1.561 (89/57) since 89 students fall into the achievable group. The results of the full model fit the data significantly better

than a null model. For the full model, the logistic regression coefficients, Wald test and odds ratio for each of the achievement predictors are shown in Table 7.

Table 6. Classification table.

		Prestigious Occupations		
		Not Achievable	**Achievable**	**Total**
Observed				
Females	*n*	31	37	68
Males	*n*	26	52	78
Total	*n*	57	89	146
Predicted				
Not achievable	*n*	52	5	91.2%
Achievable	*n*	6	83	93.3%

Table 7. Regression predicting achievement from gender, NAPLAN, ATAR, ICSEA & IEO Indexes.

Predictor	B	Wald χ^2	*p*	Odds Ratio
Intercept-only	0.446	6.899	0.009	1.561
Full model				
Male—comparison group	−1.507	3.732	0.053	0.222
NAPLAN pooled scores	−0.005	0.530	0.467	0.995
ATAR scores	0.557	15.611	0.000	1.745
ICSEA value	−0.020	0.885	0.347	0.981
IEO Index	0.014	4.069	0.044	1.014
Constant	−25.45	2.873	0.090	0.000

For each predictors (B) the regression slope is the predicted change in the log odds of falling into the target category per one unit increase on the predictor (controlling for the remaining predictors). The positive regression coefficients for ATAR and IEO indicates the probability of the target category increasing as a result of increases in the predictors. At a 0.05 statistical significance criterion, gender, ATAR scores and the IEO variables show positive significant partial effects. The odds ratio for gender indicates that male students are 0.22 or 4.5 times (when inverted 1/0.222) likely to fall into the achievable target membership. For every one-point increase in ATAR scores, the odds of success increase by a multiplicate of 1.745. Likewise, for every one-point increase in the IEO index the odds of success increases by 1.014.

The NAPLAN scores and ICSEA values are not significant predictors of 'achieve'. However, had they been significant, then their negative coefficients would have suggested less likelihood of achievement for every one-unit negative decrease. Running the regression univariately for reading, writing and numeracy as well as ICSEA scores did not result in any significant partial effects that improved the χ^2 scores.

Although the IEO predictor is significant, it is much smaller than the ATAR predictor that require further explanation. The IEO predictor in the model uses pooled values. The ABS disaggregate this SEIFA Index in terms of quintiles whereunder the quintiles range from 1 (most disadvantaged) to 10 (most advantaged). Thus, IEO Index effect should be read in the context of SEIFA quintiles that examines the advantaged/disadvantaged effects for areas where students live or, in our sample, where the Islamic schools are located. Four schools of the sample schools fall in the 1st quintile; 3 in the 4th; 1 in the 5th and 1 in the 7th quartiles. For those students attending schools in the 1st and 3rd quintiles, the odds for falling in the 'achieving' membership, would require significant unit increases in the respective school's NAPLAN scores. Students who attend schools in these quintiles are likely to fall below the national minimum NAPLAN pooled scores than those who attend schools in higher

quintiles. At the national level, these quartile differences show significantly different effects when measured against the 1st quintile comparison group where $p < 0.001$.[14]

5. Conclusions

Our research finds new evidence and confirm several previous anecdotal observations that Islamic schools offer courses that are heavily STEM-weighted. Students therefore match these courses with careers that synchronise well with their career aspirations. In relation to course selection, students show higher preference for mathematics and legal studies over English. Female students show greater preference for PE rebutting negative stereotyping that somehow Muslim females are averse to sports and physical education. Our research confirms that Islamic school students' have preference for medicine, law and business. However, medical allied vocations such as nursing remain less attractive as does teaching. The likelihood of students aspiring to prestigious occupations depends on achieving high ATAR scores. However, students attending schools in disadvantaged areas will find it difficult to aspire to the prestigious occupations.

Islamic schools generally offer the core suite of courses mandated under ACARA guidelines. They do, however, add a further layer to the core learning areas unique courses such as 'Islamic studies' and 'Arabic' studies. On the assumption that these courses condense everything a student ought to learn about Islam and their cognitive appeal to religious consciousness, this sits well with Islamic social-cultural norms. This pitch, although philosophically attractive, is somewhat problematic since knowledge acquisition is meant to be more diverse in scope and depth incorporating many dimensions of learning, of which Islamic and Arabic studies are only a part. Hence, beyond this ideological appeal, a range of other courses such as VET courses, need to be offered to enhance students' occupational opportunities.

The aspect of stimulating interest in VET careers is thoroughly examined by Shergold et al. (2020) in their review of labour market conditions and career opportunities facing Australian youth. For the long-term, they foresee better opportunities in pursuing VET vocations driven by rapid changes in IT and artificial intelligence that continues to marginalise and render obsolete many traditional vocations. For instance, complex algorithms that analyses sales and marketing data accurately within seconds has replaced jobs previously assigned to sales managers and market research analysts as has automated checkout counters replaced cashiers. This 'displacement effect' is now visible in fields such as university education whereby distance education has replaced face-to-face lectures.

Our anecdotal evidence as well as online scanning of enrolment advertisements by Islamic schools indicate these schools focus more on achieving high ATAR outcomes and less on stimulating occupational diversity and interest in VET that may benefit students in terms of choice. Norton et al. (2019) find that this bias carries the risk of 'poor outcomes' while there may be other and better opportunities outside higher education. They argue that:

> . . . students are encouraged to enroll in higher education, overlooking potentially better-paid vocational education alternatives in areas of labor-market need. These concerns are greatest for low-ATAR university students, whose numbers have increased significantly. (Norton et al. 2019, p. 3)

Further, outreach activities play a pivotal role in guiding students on how best to pursue higher education especially when faced with entry difficulties drive by low self-esteem and ATAR scores.

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[14] See ABS appendix: socioeconomic factors and student achievement—results of logistic regression analysis https://www.abs.gov.au/AUSSTATS/abs@.nsf//Latestproducts/4261.3Appendix42011.

References

Abdalla, Mohamad. 2018. Islamic Studies in Islamic Schools: Evidence-based Renewal. In *Islamic Schooling in the West: Pathways to Renewal*. Edited by Mohamad Abdalla, Dylan Chown and Muhammad Abdullah. Australia: Palgrave Macmillan, pp. 257–84.

Abdalla, Mohamad, Dylan Chown, and Nadeem Memon. 2020. Islamic Studies in Australian Islamic Schools: Learner Voice. *Religions* 11: 404. [CrossRef]

Adams, Jeff. 2011. The degradation of the arts in education. *International Journal of Arts & Design Education* 30: 156–60.

Ainley, John, Lyn Robinson, Adrian Harvey-Beavis, Gerald Elsworth, and Marianne Flemming. 1994. *Subject Choice in Years 11 and 12*. Canberra: Australian Government Publishing Service.

Atweh, Bill, Sandra Taylor, and Parlo Singh. 2005. School Curriculum as Cultural Commodity in the Construction of Young People's Post-School Aspirations. Paper presented at the Australian Association for Research in Education Conference 2005, Sydney, Australia, November 27–December 1.

Australian Bureau of Statistics (ABS). 2013. Australian and New Zealand Standard Classification of Occupations, ABS Cat. No. 1220.0 ANZSCO, Version 1.2. Available online: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1220.02013,%20Version%201.2?OpenDocument (accessed on 10 September 2020).

Australian Council for Educational Research (ACER). 2005. Year 12 Subjects and Further Studies (LSAY Briefing Report No. 11). Available online: http://research.acer.edu.au/lsay_briefs/11 (accessed on 20 May 2020).

Barton, Georgina M., Margaret Baguley, and Abbey MacDonald. 2013. Seeing the bigger picture: Investigating the state of the arts in teacher education programs in Australia. *The Australian Journal of Teacher Education* 38: 75–90. [CrossRef]

Baxter, Jennifer. 2017. *The Longitudinal Study of Australian Children Annual Statistical Report 2016*. Melbourne: Australian Institute of Family Studies, pp. 11–34.

Beavis, Adrian, David Curtis, and Niola Curtis. 2005. What Do Students Know about Work? Senior Secondary School Students' Perceptions of the World of Work: A Report Prepared for the Smith Family. Available online: https://trove.nla.gov.au/work/153077950 (accessed on 10 December 2020).

Berger, Nathan, Kathryn Holmes, Jennifer Gore, and Jennifer Archer. 2019. Charting career aspirations: A latent class mixture model of aspiration trajectories in childhood and adolescence. *Australian Educational Researcher* 47: 651–78. [CrossRef]

Bleazby, Jennifer. 2015. Why some school subjects have a higher status than others: The epistemology of the traditional curriculum hierarchy. *Oxford Review of Education* 41: 671–89. [CrossRef]

Clyne, Irene Donohoue. 1997. Seeking Education for Muslim Children in Australia. *Muslim Education Quarterly* 14: 4–18.

Clyne, Irene Donohoue. 1998. Cultural diversity and the curriculum: The Muslim experience in Australia. *European Journal of Intercultural Studies* 9: 279–89. [CrossRef]

Clyne, Irene Donohoue. 2000. Seeking Education: The Struggle of Muslims to Educate Their Children in Australia. Ph.D. thesis, The University of Melbourne, Melbourne, Australian.

Colley, Anne, and Chris Comber. 2003. School Subject Preferences: Age and gender differences revisited. *Educational Studies* 29: 59–67. [CrossRef]

Colley, Ann, Chris Comber, and David J. Hargreaves. 1994. Gender effects in school subject preferences. *Educational Studies* 20: 13–19. [CrossRef]

Constantinou, Filio. 2018. Strong and weak 'brands' in the school curriculum: Towards a framework for leveling the curriculum hierarchy. *Research Papers in Education* 34: 553–68. [CrossRef]

Cooper, Grant, and Amanda Berry. 2020. Demographic predictors of senior secondary participation in biology, physics, chemistry and earth/space sciences: students' access to cultural, social and science capital. *International Journal of Science Education* 42: 151–66. [CrossRef]

Creswell, John W. 2012. Educational research: Planning, conducting, and evaluating quantitative and qualitative research. In *Collecting Quantitative Data*, 4th ed. Edited by J. W. Creswell. Upper Saddle River: Pearson Publication, pp. 140–73.

Davies, Peter, and Marco G. Ercolani. 2018. Hard and soft choices? Subjects selection by schools and students. *Oxford Review of Education* 45: 1–31. [CrossRef]

Davies, Peter, Nick Adnett, and Jean Mangan. 2002. The diversity and dynamics of competition: Evidence from two local schooling markets. *Oxford Review of Education* 28: 91–107. [CrossRef]

Diallo, Ibrahim. 2018. The importance of Islamic Studies from an Islamic Worldview in Australia. In *Islamic Schooling in the West: Pathways to Renewal*. Edited by Mohamad Abdalla, Dylan Chown and Muhammad Abdullah. Australia: Palgrave Macmillan, pp. 239–56.

Fullarton, Sue, and John Ainley. 2000. Subject Choice by Students in Year 12 in Australian Secondary Schools. (Research Report No. 15). Retrieved from LSAY Research Reports. Longitudinal Surveys of Australian Youth. Available online: http://research.acer.edu.au/lsay_research/13 (accessed on 20 May 2020).

Gemici, Sinan, Alice Bednarz, Tom Karmel, and Patrick Lim. 2014a. *The Factors Affecting the Educational and Occupational Aspirations of Young Australians*. (Research Report No. 66). Adelaide: National Centre for Vocational Education Research (NCVER), Available online: https://www.lsay.edu.au/publications/search-for-lsay-publications/2711 (accessed on 13 July 2020).

Gemici, Sinan, Alice Bednarz, Tom Karmel, and Patrick Lim. 2014b. *The Factors Affecting the Educational and Occupational Aspirations of Young Australians*. (Support Document—Research Report No. 66). Adelaide: National Centre for Vocational Education Research (NCVER), Available online: https://www.lsay.edu.au/publications/search-for-lsay-publications/2711 (accessed on 13 July 2020).

Ghamra-Oui, Nada. 2020. The Semiotics of an "Islamic" Education: Engaging with the Concrete Realities of Muslims in Australia. *Journal of Muslim Minority Affairs*, 1–14. [CrossRef]

Gore, Jennifer, Kathryn Holmes, Max Smith, Erica Southgate, and Jim Albright. 2015. Socioeconomic status and the career aspirations of Australian school students: Testing enduring assumptions. *Australian Educational Researcher* 42: 155–77. [CrossRef]

Gore, Jennifer, Kathryn Holmes, Max Smith, Leanne Fray, Patrick McElduff, Natasha Weaver, and Claire Wallington. 2017. Unpacking the career aspirations of Australian school students: Towards an evidence base for university equity initiatives in schools. *Higher Education Research & Development* 36: 1383–400. [CrossRef]

Hansbury, Leah, and Wally Moroz. 2001. Male and Female Students' Attitude Toward Social Studies—A Case Study. Paper presented at the Australian Association for Research in Education Conference, Fremantle, Australia, December 2–6.

Healy, Joshua, Daniel Nicholson, and Peter Gahan. 2017. The Future of Work in Australia: Anticipating How New Technoloies Will Reshape Labour Markets, Occupations and Skill Requirements. NSW Government Future Frontiers Analytical Report. Available online: https://prod65.education.nsw.gov.au/content/dam/main-education/teaching-and-learning/education-for-a-changing-world/media/documents/The-Future-of-Work-in-Australia-Executive-Summary.pdf (accessed on 18 August 2020).

Independent Schools Council of Australia (ISCA). 2018. The Independent School Student: A Demographic Profile. Available online: https://isca.edu.au/wp-content/uploads/2018/08/The-Independent-School-Student-A-Demographic-Profile-2016.pdf (accessed on 18 August 2020).

Jones, Peter D. 2012. Islamic schools in Australia. *The La Trobe Journal* 89: 36–47.

Kennedy, John, Terry Lyons, and Francis Quinn. 2014. The continuing decline of Science and mathematics enrollments in Australian high schools. *The Journal of the Australian Science Teachers Association* 60: 34–46.

Khoo, Siek. T., and John Ainley. 2005. *Attitudes, Intentions and Participation*. (Research Report No. 41). Adelaide: National Centre for Vocational Education Research (NCVER), Available online: https://www.lsay.edu.au/publications/search-for-lsay-publications/1847 (accessed on 13 July 2020).

Lim, Patrick, and Sinan Gemici. 2011. *Measuring the Socioeconomic Status of Australian Youth*. Adelaide: National Centre for Vocational Education Research, Available online: http://library.bsl.org.au/jspui/bitstream/1/2805/1/Measuring%20the%20socioeconomic%20status%20of%20Australian%20youth.pdf (accessed on 9 September 2020).

Madden, Andrew D., Sheila Webber, Neil Ford, and Marie Crowder. 2018. The relationship between students' subject preferences and their information behaviour. *Journal of Documentation* 74: 692–721. [CrossRef]

McMillan, Julie, Adrian Beavis, and Frank L. Jones. 2009. The AUSEI06: A new socioeconomic index for Australia. *Journal of Sociology* 45: 123–49. [CrossRef]

Norton, Andrew. 2020a. Jobs, Interests and Student Course Choices. Available online: https://andrewnorton.net.au/ (accessed on 13 July 2020).

Norton, Andrew. 2020b. 3 Flaws in Job-Ready Graduates Package Will Add to the Turmoil in Australian Higher Education. *The Conversation*. October 9. Available online: https://theconversation.com/3-flaws-in-job-ready-graduates-package-will-add-to-the-turmoil-in-australian-higher-education-147740 (accessed on 9 October 2020).

Norton, Andrew, Ittima Cherastidtham, and Will Mackay. 2019. *Risks and Rewards: When is Vocational Education a Good Alternative to Higher Education?* Melbourne: Grattan Institute.

Polesel, John, Mary Leahy, and Shelley Gillis. 2018. Educational inequality and transitions to university in Australia: Aspirations, agency and constraints. *British Journal of Education* 39: 793–810. [CrossRef]

PricewaterhouseCoopers. 2017. Career and Skills Pathways: Research into a Whole-of-System Approach to Enhancing Lifelong Career Support Mechanisms for All Australians: Final Report. Available online: https://cica.org.au/wp-content/uploads/Career-and-Skills-Pathways-Project-June-2017.pdf (accessed on 25 March 2020).

Selim, Nadia. 2018. Arabic Teaching at Australian Islamic Schools: A CALL Framework. In *Islamic Schooling in the West: Pathways to Renewal*. Edited by Mohamad Abdalla, Dylan Chown and Muhammad Abdullah. Australia: Palgrave Macmillan, pp. 285–314.

Shergold, Peter, Tom Calma, Sarina Russo, Patrea Walton, Jennifer Westacott, Don Zoellner, and Patrick O'Reily. 2020. *Looking to the Future: Report of the Review of Secondary Pathways into Work, Further Education and Training*. Canberra: Department of Education, Skills & Employment Education Council.

Sikora, Joanna, and Lawrence Saha. 2011. *Lost Talent? The Occupational Ambitions and Attainments of Young Australians*. Longitudinal Surveys of Australian Youth—Research Reports. Adelaide: National Centre for Vocational Education Research Ltd., vol. 56.

Sirin, Selcuk R., Mathew A. Diemer, Lisa R. Jackson, Lisa Gonsalves, and Aangela Howell. 2004. Future aspirations of urban adolescents: A person-in-context model. *International Journal of Qualitative Studies in Education* 17: 437–56. [CrossRef]

Teese, Richard, and Anne Walstab. 2009. Social area differences in VET participation. *Australian Bulletin of Labour* 35: 438–51.

Teese, Richard, and John Polesel. 2003. *Undemocratic Schooling: Equity and Quality in Mass Secondary Education in Australia*. Melbourne: Melbourne University Press.

Timms, Michael, Kathryn Moyle, Paul Weldon, and Pru Mitchell. 2018. Challenges in STEM Learning in Australian Schools: Literature & Policy Review. Retrieved from Australian Council for Education Research. Available online: https://research.acer.edu.au/cgi/viewcontent.cgi?article=1028&context=policy_analysis_misc (accessed on 25 March 2020).

Wyman, Nicholas, Mark McCrindle, Simon Whatmore, Joanne Gedge, and Tim Edwards. 2017. *Perceptions Are Not Reality: Myths, Realities and the Critical Role of Vocational Education and Training in Australia*. North Melbourne: Skilling Australia Foundation, 25p.

Young, M. F. D. 2011. The return to subjects: A sociological perspective on the UK coalition government's approach to the 14–19 curriculum. *The Curriculum Journal* 22: 265–78. [CrossRef]