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RESEARCH ARTICLE

Longitudinal Study of the Impacts of Young Adults' Education and Graduation on Job Opportunities

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ABSTRACT

The education level is an indispensable component in job finding. Without meeting the minimum educational criteria for many positions, the applicant might even be unable to be invited for an interview. However, young adults today refuse to pursue further studies due to their lack of interest in studying. This could lead to the concern of increasing poverty, neglecting social development and economic growth, and achieving gender inequality. This study uses data sets from the National ICPSR longitudinal study of young adults (aged 18-27) to analyse the relationship between job opportunities and education for future researchers. The correlation between two variables that represent education, namely education level, training program, and academic achievement, and four variables that represent job opportunities, namely rate of pay, job status, job history, and first job, is analysed using SPSS. The results show that each variable representing education is not significantly related to each variable representing employment opportunities. This study is dominant in providing a comprehensive understanding of the relationship between job opportunities and education in detail.

INTRODUCTION

In this modern era, money and income are extremely important to each adult. To ensure that income is stable, people must increase value within themselves, and one of the ways to do so is through education. Therefore, education level and graduation status are important to the extent that people use it to evaluate themselves. Education level and graduation status appear to be the factors that affect the rate of pay, job status, job history, and first job of citizens in the US. In the sense of education level and graduation status act as a significant status evaluated by others; therefore, there is much research carried out in identifying the factors that affect the graduation status variables including: English language skills (Johnson, 2019; Wohlgemuth et al., 2007), family background (Bokhove & Hampden-Thompson, 2022), faculty diversity (Stout et al., 2018; Kowang et al., 2022), and food consumption (Wolfson et al., 2021). However, there is a gap in looking at the details of each factor. This study was carried out to study the details of the factors.

In addition to that, the job as the main income source of most people helps people survive and get their basic needs. Therefore, the job opportunities are as important as education mentioned before. Therefore, the researchers had been conducting studies on factors affect job opportunities including educational attainment (Abankwa, 2018), economic (Subekti et al., 2022) (Stryzhak, 2020), social class (Duta & Iannelli, 2018), mental health (Zhang et al., 2019), discrimination (Busetta et al., 2021), disability (Armor et al., 2018), education (Rudakov & Roshchin, 2019; Tin et al., 2024a, 2024b), graduate (Getie Ayaneh et al., 2020), training program (Adhvaryu & Nyshadham, 2018) and alcohol consumption (Bamberger et al., 2018). However, there is a gap in looking at the details of each factor. Therefore, this study is to investigate the details of the impacts on providing important factors in job opportunities.

Research Problem Statements

Good job quality and working conditions contribute to quality of life and life satisfaction (Drobnič et al., 2010). Education is one of the elements that affects job quality, as higher education will gain a job with better job quality (Lombardo & Passarelli, 2011). Therefore, many researchers carried out research to identify the impacts of education level on different aspects of a job such as income (Stryzhak, 2020), income inequality (Park, 2020), job performance (Sarköse & Göktepe, 2022), job satisfaction (Froese et al., 2019), male-female wage gap (Huang, 1999), and et cetera. The main agenda of these preceding studies is to delimit a good job quality and how the education level affects job quality indirectly by affecting different aspects of a job. However, few studies have shown the impact of education level on work in detail. For example, most studies focus only on the relationship between education level and income level. In this study, the gap will be filled by investigating the impacts on the job in detail.

On the contrary, researchers are diligently conducting studies concerning the influence of different perspectives on job satisfaction, job performance, and/or job stress. Perspectives influence job satisfaction that we could find from previous studies are job environment (Seetanah, 2009), administrative support, salary, autonomy, and finding work meaningful (Han et al., 2018), job security, financial rewards, and empowerment (Ahmad, 2018), level of education (Solomon et al., 2022; Binder & Bound, 2019), etc. Meanwhile, perspectives that impact job performance are diversity climate, personality traits, and self-esteem spectacles (Hussain Tunio et al., 2021). Other than that, the perspectives that influence job stress are job demands and job resources (Teoh et al., 2021), job performance, job satisfaction, absenteeism rate, and motivation level (Chienwattanasook & Jermsittiparsert, 2019), etc. There is a research gap to explore the effects of different perspectives of education on the job, which will be another focus of this study.

LITERATURE REVIEW

Education is becoming more and more important nowadays. A book authored by Lockheed & Adriaan Verspoor indicates that improvement of primary education is important for developing countries even though poor quality education is present in all levels of education in the view of fact that primary education is a stage where children or youngsters develop their basic way of thinking and looking at things (Lockheed & Verspoor, 1991). Furthermore, the study by Torani et al. shows that it is important to provide education on disasters to vulnerable people so that they can protect themselves and others when certain disasters occur (Torani et al., 2019). Education is also highly rated as one of the critical factors for successful entrepreneurship (Arthur et al., 2012). From the perspective of economic development, education has been an influential component in affecting the growth of economic development (Seetanah, 2009). There is interesting research on the importance of education in organ donation. From the research, it was found that the percentage of people who offer to donate organs has climbed from 45.4% to 84.8% after the researcher gave a lesson on organ donation (Yilmaz, 2011). From these previous studies, education is said to be extremely important in all aspects of life to achieve a better future for the country, society, and people.

In Oxford Learner's Dictionary, training is defined as the process of learning the skills you need to do a job. A good process of improvement with specific instructions to address a person's activities technically or practically has also been referred to as training. The goal of training is to equip the employee with the skills and knowledge necessary to enhance his experience performing his job, to develop his skills, knowledge, and experiences in a way that will increase his productivity and the success of his current position, or to prepare him for future employment (Al Qasimi, 2021). Based on the definition of training, it could obviously be found that the training program is an important component in improving employee performance. This is further supported by the research by Niati et al. (2021). The results of their research paper show that training can improve an employee's job performance, and this leads to a better development of his career (Niati et al., 2021). A study by Adhvaryu & Nyshadham revealed that even though soft skills increase marginal products, wages only slightly increase with treatment (by 0.5%), demonstrating that labor market frictions are significant enough to drive a significant gap between productivity and wages (Adhvaryu & Nyshadham, 2018). Based on what has been found up until now, it is presumed that to obtain a higher-paying job, the employee should attend the corresponding training program. Training could also motivate employees to perform better (Karim et al., 2019). Once the employee was motivated, the working hour for the employee to do a certain thing can be reduced and the employee will become more productive. The employee will also have better job satisfaction and job status.

According to data from May 2024, it shows that there is a 60.2% employment rate in the US, with a 40% gap for improvement. There are approximately 8197,000 job offers (Trading Economics, 2024). Studies show that the number of people looking for work or are working is 62.2% (Bloomberg, 2022). Considering that the percentage of the labour force is high, job-related studies need to be carried out to find out how jobs are tied to our daily life and what we can do to improve our chances of getting a job.

Previous studies have focused on the impact of different individual factors on a variety of variables. Previous studies mentioned in Table 1 showed that there are multiple factors that can affect graduation status including English language skills, family background, faculty diversity, alcohol consumption, and food consumption. For example, one of the studies has shown that kindergarten entry students classified as EL originally were 5.3 and 3.7% more likely than IFEPs to graduate in 4 and 5 years (Johnson, 2019). Additionally, individuals who have to go through the change in family structure between ages 14 and 17 are less likely to graduate from high school than those who do not face changes in family structure (Bokhove & Hampden-Thompson, 2022). Furthermore, the study has shown that ethnicity is part of the factors that affect the graduation status in which students from non-underrepresented minority (non-URM) have a convincing higher percentage of graduation compared to underrepresented minority (URM) in the samples given (Stout et al., 2018). Not only that, but first-generation food-secure students were more likely to graduate compared to first-generation food-insecure students (59.3 % vs 47.2 %, p=0.020) (Wolfson et al., 2021).

Table 1. Covariates of Graduation Status in the Previous Study

Covariate	Detail Variables	Previous Studies
English language Skills	Academic results, English proficiency test, demographics (sex, ethnicity, home language, date of birth, level of parental education, special education indicator)	(Johnson, 2019)
Family Background	Parental education, number of siblings, high school, college attendance, race, female, family structure at age 14, family structure at ages 14-17, adjusted family income, self-esteem, influential others perceived attitudes	(Bokhove & Hampden-Thompson, 2022)

Faculty Diversity	Ethnic Variance, Ethnic Faculty, institutional diversity score	(Stout et al., 2018)
Food Consumption	Ethnicity, rate of students with food insecurity, age,	(Wolfson et al., 2021)

However, the educational level among young adults is important, as there is a shortage of knowledge and skills in work (Matt et al., 2020). Previous studies mentioned in Table 2 showed that there are several factors that affect job opportunities, including educational attainment, economic, social class, health, discrimination, and disability. For example, studies have shown that economic growth has positively impacted job opportunities, with the conclusion that the greater the zakat, the greater the job opportunities. When there is an increase in economic growth, job opportunities will also increase (Subekti et al., 2022). Next, it said that the chances of reaching higher occupational level jobs and avoiding lower-level jobs are small in employment which has high job opportunities and social inequalities in graduates. However, graduates from higher social classes are more likely to get a higher occupational level job in the areas where higher occupational level jobs are lower (Duta & Iannelli, 2018). Besides social class inequality, it is also found that in the process of job recruitment in Italy, attractive Italians have a call-back rate of approximately 50%, whereas 13.512% and 37.975% for unattractive applicants and Italians without photo, respectively. Discrimination in job recruitment in Italy is also reported to be serious to the extent that the foreign candidate's call-back rate is marked 10.620%. Furthermore, men receive 28.926% of call-backs, while women receive 27.087% (Busetta et al., 2021).

Table 2. Covariates of Job Opportunities in the Previous Study

Covariate	Detail Variables	Previous Studies
Senior Educational Attainment	school preparation, life after school, job accessibility, and employment, socioeconomic status and language barrier(s)	(Abankwa, 2018)
Economic	Investment, Economic Growth, Government expenditure Degree of economic freedom, level of income, feeling of happiness	(Subekti et al., 2022) (Stryzhak, 2020)
Social Class	Geographical area, parental social class, sector of employment	(Duta & Iannelli, 2018)
Mental Health	Job burnout, stress	(Zhang et al., 2019)
Discrimination	Gender, physical appearance, and nationality on each type of work	(Busetta et al., 2021)
Disability	Salient physical condition, nonsalient physical condition, mental retardations, developmental disability, mental condition	(Armour et al., 2018)
Education	Academic achievement, student employment, graduate salaries, school-to-work transition Academic engagement, perceived employability University Ranking, CGPA, Programming skill Higher education Educational attainment, overeducation Career Competencies	(Rudakov & Roshchin, 2019) (Ma and Bennett, 2021) (Chakraborty et al., 2019) (Rodríguez-Hernández et al., 2020) (Acosta-Ballesteros et al., 2018) (Grosemans & de Cuyper, 2021)
Graduate	CGPA earned from the university, age at graduation, timing of graduates to first employment, field of study preference of graduates	(Getie Ayaneh et al., 2020)

Training Programme	Soft skills training, extraversion and communication, and spurred technical skill upgrading Training work seekers	(Adhvaryu & Nyshadham, 2018) (Baird et al., 2022)
Alcohol Consumption	Student drinking behaviour, frequency of alcohol consumption, frequency of heavy episodic drinking,	(Bamberger et al., 2018))

However, research resources that investigate the relationship between graduation status and job opportunities are substantially limited. In the sense that we have limited resources for research on the relationship between graduation status and job opportunities, this study aims to fill the gap by conducting research on the relationship between graduation status and job opportunities. Therefore, a conceptual framework is developed as shown in Figure 1 for this research with associating hypotheses.

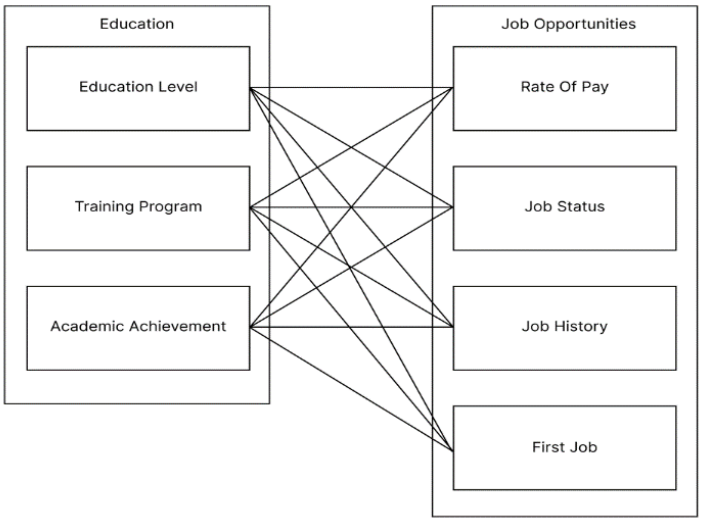

Figure 1. Education (IV) , Rate of pay (Mediator), Job Status (DV)

Research Hypothesis:

H1: There is a relationship between the rate of pay and the level of education.

H2: There is a relationship between the rate of pay and the training program.

H3: There is a relationship between the rate of pay and academic achievement.

H4: There is a relationship between job status and the level of education.

H5: There is a relationship between job status and training program.

H6: There is a relationship between job status and academic achievement.

H7: There is a relationship between the work history and the level of education.

H8: There is a relationship between the history of the job and the training program.

H9: There is a relationship between job history and academic achievement.

H10: There is a relationship between the first job and the education level.

H11: There is a relationship between the first job and the training program.

H12: There is a relationship between the first job and academic achievement.

Research Methodology

Three ICPSR datasets (DS0008 demographic, DS0016 - education, and DS0017 graduation) have been used in this research. They are merged and cleaned by using SPSS. There are a total of 110 variables confirmed in the final version of the data set, as shown in the table below (Table 3). There are 62 variables belonging to the demographic category, 45 variables belonging to the education category, and 1 variable belonging to the graduation category.

Table 3. Detail variables of the data set.

	Total Variables	**Variables Description**		
AID	**1**	**Respondent ID**		
DS0008 - demographic	62	Biological sex Friend sample Sibling sample Partner Sample Binge sample Last interview Calculated age Pretest interview Prison interview Birth month Birth year Hispanic origin Race - White Race - Black/African Race - Amer Indian/Native Race - Asian Family ancestry - first country Family ancestry - 2nd country Lang used most with family Lang used most of her time with close friends Born in the United States Respondent lives at int state	Where respondent lives Highest grade completed reg/sch Has received the equivalent ged/HS Has received an HS diploma Has received a junior college degree Has received a bachelor degree. Has received a master degree Has received a Doctoral degree Has received professional degree Ever attended high school Current attending school Attended training 3 months+ Ever expelled from school Attend vocational/job/training Ever had a job Ever work 9 weeks/more/10 hrs Currently work/10 hrs week Still work first pay job ever Age at first pay job Job classification First pay job full/part time	Number of hours/week curr pay job Time period of the rate of pay Hourly rate of pay Job classification curr job Best desc hrs worked curr job Current job satisfaction Time period at/start/curr job Start hourly rate of pay SOC/SVCS/WELFARE job training Ever been military reserves Current active military duty Served in the military before. Currently have job No hours / week spent at work Avg hrs/week hard/phys labour-work Avg hrs/week mod/phys labor-work Avg hours / week lgt / phys labour-work Avg hours / week sitting at work Enrolled school/voc train

			Number of current pay jobs	
DS0016 - education	45	Math sequence level year 1 Math sequence level year 2 Math sequence level year 3 Math sequence level year 4 Highest math level taken in all years Math level with credit year 1 Math level with credit year 2 Math level with credit year 3 Math level with credit year 4 The highest maths level(credit) all years Science sequence level year 1 Science sequence level year 2 Science sequence level year 3 Science sequence level year 4 The highest science level taken in all years	Science level with credit year 1 Science level with credit year 2 Science level with credit year 3 Science level with credit year 4 Highest science level(credit) all years Math GPA year 1 Math GPA year 2 Math GPA year 3 Math GPA year 4 Cumulative Math GPA across all years Science GPA year 1 Science GPA year 2 Cumulative Science GPA across all years Overall GPA year 1 Overall GPA year 2	Overall GPA year 3 Overall GPA year 4 Cumulative overall GPA across all years Math failure index year 1 Math failure index year 2 Math failure index year 3 Math failure index across all years Science failure index year 1 Science failure index year 2 Science failure index across all years Overall failure index year 1 Overall failure index year 2 Overall failure index year 3 Overall failure index year 4 Overall failure index across all years
DS0017 - graduation	1	High school exit status		

Merged dataset is cleansed following the steps shown in Figure 2. First, variables with missing values of more than 30% will be removed. The total number of cases remaining after cleaning is 3915. Missing values will be replaced with different values under different considerations. For example, the failure index for maths and science will be replaced by the mean value, the missing value of a variable that has ever had a job will be replaced with the value '0', which means that it never had a job. The original data set can be found on the Web pages of the Interuniversity Consortium for Political and Social Research (ICPSR, 2020). After the data set has been transformed, the relationship between the variables is explored using SPSS bivariate analysis (Pearson correlation).

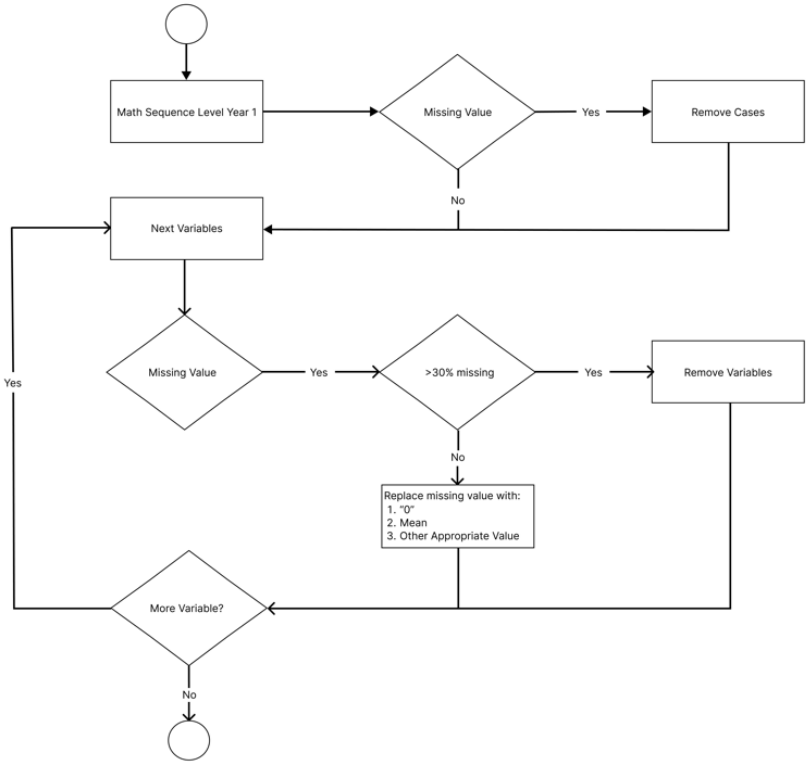

Figure 2. Process of data set cleanup and transformation

RESULTS AND DISCUSSIONS

Demographics

After cleaning and transforming the data set, there are a total of 3915 valid cases for analysis in this investigation (Table 2). There are 46.4% of men and 53.6% of women in the cleansed and transformed dataset, which is relatively balanced. All respondents are in the age range of 18 to 27, and most of the respondents between the ages of 19 and 24 are university or college students. 5% of the respondents have graduated from their high school, 69.1% of the respondents have received their diploma, 7% have received their junior college degree, 11.7% have received their bachelor's degree, 0.4% have received their master's degree, and 0.2% have received their professional degree. Meanwhile, 258 respondents (6.6%) do not have any level of education. 75.4% of the respondents currently have jobs, while the remaining 24.5% do not have one.

Table 4. Respondents' demographic

		Frequency	Percent
Biological Sex	Male	1819	46.4
	Female	2099	53.6
Age	18	30	0.8
	19	448	11.4
	20	612	15.6
	21	632	16.2
	22	711	18.1
	23	659	16.8
	24	608	15.5
	25	180	4.6
	26	29	0.8

	27	6	0.2
Education level	High School Diploma Junior College Degree Bachelor's degree Master's Degree Professional degree No Education Level	197 2703 275 458 15 9 258	5.0 69.1 7.0 11.7 0.4 0.2 6.6
Currently have job	Yes No	2954 961	75.4 24.5
Total Respondents		3915	100

Relationship between rate of pay and level of education

Table 3 shows the variable of relationship between the rate of pay of the variable and the education level variable. Through the table as shown below, it was determined that out of 7 education-level variables, there are 4 education-level variables (Has received HS diploma, has received bachelor's degree, has received master degree, Has received professional degree) that have a significant relationship with rate of pay variables. These four variables have a positive correlation with the time of the rate of pay. However, there are no variables that have a significant relationship with the hourly rate of pay. This means that education level gives a positive impact on the time of rate of pay but gives less impact on the hourly rate of pay. Since there are some variables of the rate of pay that have no significant relationship with some variables of education level, our hypothesis is to be rejected. This result is contrary to the Stryzhak (2020) study, which found that there is a relationship between the rate of pay and the level of education. The result is different from the previous study due to the different questionnaire conducted for different groups of respondents.

Table 5. Relationship between the rate of pay variables and the variables of the education level

		Time period of rate of pay	**Hourly rate of pay**	**Time period at/start/curr job**	**Start hourly rate of pay**
Has received HS diploma	Pearson Correlation Sig	.022 .172	-.004 .797	.038* .018	.009 .577
Has received bachelor degree	Pearson's correlation Sig	.326** .000	.021 .196	.289** .000	.006 .719
Has received master degree	Pearson Correlation Sig	.103** .000	.001 .948	.059** .000	.002 .921
Has received professional degree	Pearson Correlation Sig	.034* .034	.001 .970	.033* .037	.001 .952

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between rate of pay and training program

Table 4 shows the variable of relationship between the rate of pay and the training programme variable. Attending vocational, education, or job training was found to have a positive correlation with the current time of rate of pay, and hourly rate of pay but not with the time period of rate of pay

and hourly rate of pay when the respondent started the job. This means that by attending vocational, educational, or job training, the rate of pay of the current job will be affected from time to time but not the starting rate of pay. Furthermore, it was realized that the respondent currently enrolled in school or in a job training or vocational education program is negatively correlated with the time period of the rate of pay and the hourly rate of pay. This means that when the respondent is enrolled in school or in a job training or vocational education program, his/her hourly rate of pay decreases. This might be because when an individual is attending vocational, education, or job training or is currently enrolled in school, he/she will have no time to work. Therefore, the hourly rate of pay will decrease. Since not all variables represented in the training program are related to the rate of variables represented in the pay program, our hypothesis is rejected. This contrasts with the research by Adhvaryu & Nyshadham (2018). However, relationships between several DV and IVs as shown in Table 6.

Table 6. Relationship between the rate of pay variable and the training programmeme variable

		Time period of rate of pay	Hourly rate of pay	Time period at/start/curr job	Start hourly rate of pay
Attend voc/job/training	Pearson Correlation Sig	.032* .042	.033* .039	.021 .194	-.006 .721
Enroll school/voc training	Pearson Correlation Sig	-.088** .000	-.034* .034	-.070** .000	-.036* .024

* The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between rate of pay and academic achievement

Table 5 shows the relationship between the rate of pay variable and the academic achievement variable. On the basis of the table, we can find that academic achievement has a significant relationship with the time period of the rate of pay, no matter if it is the current time period of the rate of pay or the rate of pay of the starting job. Academic achievement is positively related to the time of the rate of pay, which means that from low to high academic achievement, the individual will be paid from per hour to per day and per week, etc.

There is an interesting finding about the impact of the failure index on the hourly rate of pay. It was discovered that the higher the failure index, the higher the hourly rate of pay, which is opposed to what we commonly think, that the higher the failure index, the lower hourly rate of pay. This might be due to those who are included in the failure index might focus on their job instead of their academic. Meanwhile, math, science, and overall GPA have a negative correlation with the hourly rate of pay. Similarly, as above, when a person focused on his/her academics, he/she will choose not to work or less to work. Therefore, we can conclude that a young adult can focus only on one aspect, academic or work. If the young adult focuses on academics, he/she will have a lesser hourly rate of pay. If the young adult concentrates on his/her job, he/she will have a lower GPA or higher failure index. Due to the academic performance having no significant relationship with the start hourly rate of pay, we can say that our hypothesis is rejected. This contrasts with Rudakov & Roshchin (2019) research.

Table 7. Relationship between rate of pay variables and academic achievement variables

		Time period of rate of pay	Hourly rate of pay	Time period at/start/curr job	Start hourly rate of pay
Math sequence level year 1	Pearson Correlation Sig	.038* .017	.012 .456	.055** .001	-.003 .836
Math sequence level year 2	Pearson Correlation Sig	.058** .000	.001 .969	.061** .000	.006 .685
Math sequence level year 3	Pearson Correlation Sig	.080** .000	-.009 .567	.069** .000	.006 .685
Math sequence level year 4	Pearson Correlation Sig	.089** .000	-.019 .230	.082** .000	-.001 .943
The highest math level taken in all years	Pearson Correlation Sig	.103** .000	-.019 .242	.101** .000	-.005 .768
Math level with credit year 1	Pearson Correlation Sig	.061** .000	-.037* .020	.067** .000	-.039* .015
Math level with credit year 2	Pearson Correlation Sig	.073** .000	-.023 .146	.072** .000	-.004 .782
Math level with credit year 3	Pearson Correlation Sig	.091** .000	-.014 .380	.081** .000	.009 .565
Math level with credit year 4	Pearson Correlation Sig	.096** .000	-.022 .162	.084** .000	.002 .898
Highest math level (credit) in all years	Pearson Correlation Sig	.107** .000	-.022 .168	.102** .000	-.002 .891
Science sequence level year 1	Pearson Correlation Sig	.011 .511	-.007 .665	.030 .061	.007 .644
Science sequence level year 2	Pearson Correlation Sig	.051** .001	.000 1.000	.062** .000	.004 .794
Science sequence level year 3	Pearson Correlation Sig	.104** .000	.003 .857	.096** .000	.006 .731
Science sequence level year 4	Pearson Correlation Sig	.070** .000	-.020 .205	.075** .000	-.014 .389

The highest science level taken in all years	Pearson Correlation Sig	.109** .000	-.017 .277	.105** .000	-.006 .702
Science level with credit year 1	Pearson Correlation Sig	.034* .033	-.039* .014	.045** .005	-.024 .138
Science level with credit year 2	Pearson Correlation Sig	.066** .000	-.028 .076	.073** .000	.006 .687
Science level with credit year 3	Pearson Correlation Sig	.114** .000	-.023 .146	.097** .000	.009 .586
Science level with credit year 4	Pearson Correlation Sig	.068** .000	-.019 .241	.076** .000	-.012 .443
The highest science level (credit) in all years	Pearson Correlation Sig	.109** .000	-.044** .006	.105** .000	-.003 .860
Math GPA year 1	Pearson Correlation Sig	.087** .000	-.039* .016	.086** .000	-.046** .004
Math GPA year 2	Pearson Correlation Sig	.090** .000	-.034* .036	.091** .000	.016 .312
Math GPA year 3	Pearson Correlation Sig	.075** .000	-.002 .917	.075** .000	-.004 .804
Math GPA year 4	Pearson Correlation Sig	.056** .000	-.006 .730	.043** .007	-.003 .846
Cumulative math GPA across all years	Pearson Correlation Sig	.104** .000	-.030 .060	.099** .000	-.011 .480
Science GPA year 1	Pearson Correlation Sig	.069** .000	-.039* .015	.064** .000	-.049** .002
Science GPA year 2	Pearson Correlation Sig	.072** .000	-.032* .047	.082** .000	-.003 .875
Cumulative science GPA across all years	Pearson Correlation Sig	.085** .000	-.041* .010	.083** .000	-.022 .159
Overall GPA year 1	Pearson Correlation Sig	.097** .000	-.044** .006	.091** .000	-.027 .086
Overall GPA year 2	Pearson Correlation Sig	.096** .000	-.035* .027	.091** .000	-.005 .768

Overall GPA year 3	Pearson Correlation Sig	.088** .000	-.035* .027	.081** .000	-.007 .641
Overall GPA year 4	Pearson Correlation Sig	.063** .000	-.010 .519	.053** .001	-.006 .725
Cumulative GPA across all years	Pearson Correlation Sig	.104** .000	-.040* .012	.096** .000	-.012 .466
Math failure index year 1	Pearson Correlation Sig	-.056** .000	.048** .003	-.047 .003	.061** .000
Math failure index year 2	Pearson Correlation Sig	-.065** .000	.049** .002	-.062** .000	-.006 .702
Math failure index year 3	Pearson Correlation Sig	-.059** .000	-.010 .536	-.068** .001	-.012 .451
Math failure index across all years	Pearson Correlation Sig	-.079** .000	.041** .010	-.054** .000	.013 .423
Science failure index year 1	Pearson Correlation Sig	-.058** .000	.052** .001	-.051** .001	.063** .000
Science failure index year 2	Pearson Correlation Sig	-.045** .005	.051** .001	-.047** .003	-.008 .617
Science failure index across all years	Pearson Correlation Sig	-.056** .000	.066** .000	-.052** .001	.018 .269
Overall failure index year 1	Pearson Correlation Sig	-.073** .000	.053** .000	-.061** .000	.034* .033
Overall failure index year 2	Pearson Correlation Sig	-.075** .000	.048** .003	-.069** .000	-.008 .601
Overall failure index year 3	Pearson Correlation Sig	-.065** .000	0.44** .005	-.058** .000	-.012 .461
Overall failure index across all years	Pearson Correlation Sig	-.079** .000	.056** .000	-.068** .000	.004 .779

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed)

Relationship between job status and education level

Table 8 shows the relationship between the variables of job status and the variables of the level variables. According to Table 8, we can tell that the variable Has received HS diploma has a significant relationship with the variables DV1, DV2, DV3, DV5, DV9 and DV12. The variable Has received HS

diploma is positively correlated with DV1, DV2, DV5 and DV12. For example, this means who the individuals that have received an HS diploma are more likely to have a job currently, currently working for pay at least 10 hours a week, have more jobs and have a higher average hour spent per week seated at work. On the contrary, the variable Has received HS diploma is negatively correlated with DV3 and DV9. This means that individuals that have received an HS diploma are more likely to have fewer average hours spent per week on hard physical labour work.

Furthermore, the variable of education level (has received master's degree) has a significant relationship with DV3 and DV12 but not with other job status variables. It is positively correlated with DV12. On the contrary, it is negatively correlated with DV3. This means that individuals that have received a master's degree are more likely to have a higher average hour spent per week seated at work. This may be due to the master's degree holders usually like to work using their knowledge or thinking and problem-solving skills instead of physical work that requires them to move around. In short, H4 is rejected because not all job status variables have a significant relationship with education level variables. This is contrast with Ma & Bennett (2021) research.

Table 8. Relationship between job status variables and education level variables

		DV1	**DV2**	**DV3**	**DV4**	**DV5**	**DV6**	**DV7**	**DV8**	**DV9**	**DV10**	**DV11**	**DV12**
Has received GED/HS equiv	Pearson Correlation Sig	-.031 .051	-.023 .149	.015 .358	.012 .446	-.022 .177	.022 .165	.009 .559	-.002 .881	.040* .012	-.012 .449	-.025 .112	-.009 .573
Has received HS diploma	Pearson Correlation Sig	.089** .000	.076** .000	-.059** .000	-.017 .278	.067** .000	-.072** .000	.013 .409	.024 .134	-.074** .000	.014 .372	.023 .145	.066** .000
Has received junior college degree	Pearson Correlation Sig	.080** .000	.078** .000	-.069** .000	-.055** .001	.062** .000	-.010 .548	-.017 .299	.058** .000	-.036* .026	.020 .216	.006 .726	.083** .000
Has received bachelor degree	Pearson Correlation Sig	.039* .014	.041* .011	-.080** .000	-.028 .081	.042** .008	.079** .000	-.035* .027	.080** .000	-.118** .000	-.067** .000	.044** .006	.223** .000
Has received master degree	Pearson Correlation Sig	.007 .682	.013 .402	-.035* .031	-.004 .803	.007 .656	.026 .111	-.008 .617	.016 .315	-.026 .103	-.031 .052	.003 .855	.057** .000
Has received professional degree	Pearson Correlation Sig	.027 .087	.020 .218	-.037* .022	-.042** .009	.033* .037	.006 .687	-.006 .699	.023 .159	-.016 .307	.019 .239	-.011 .474	.028 .085

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed); DV1 - Currently have job; DV2 - Currently work 10 hours a week; DV3 - Best desc hour job; DV4 - Current job satisfaction; DV5 - Number of current pay job; DV6 - Number of hours / week of curr pay job; DV7 - Current active military duty; DV8 - No hours spend / week at work; DV9 - Avg hours / week of hard / physical labour work; DV10 - Avg hours / week mod / physical labour work; DV11 - Avg hr / week lgt / physical labour work; DV12 - Avg hrs/week seated at work

Relationship between job status and training program

Table 9 shows the relationship between the job status variables and the training programme. According to Table 9, we can tell that the training program variable *Attend voc/job/training* are significantly related to most of the job status variables such as DV1, DV2, DV4, DV5, DV6, DV7, DV8, DV9, and DV10. It is positively correlated with most of the job status variables, except DV4. This

means who individuals that attend any vocational education or job training in a program will be more likely to have a job currently, are working at least 10 hours a week, have a greater number of current pay jobs, work more hours per week for the current job, are currently active in military duty, have more hours spent per week at work, have higher average hours per week spent on doing hard physical labour work, have higher average hours spent on doing moderate physical labour work, and more. On the contrary, they are more likely to be unhappy with their current job. There is a prediction that we can make from the data analysed that they were probably not satisfied with their job performance and status; hence they chose to attend the vocational education and job training program. In summary, H5 is said to be rejected, as not all the job status variables have a significant relationship with the training program variables. This contrasts with Baird et al. (2022) research.

Table 9. Relationship between job status variables and training program variables

		DV1	**DV2**	**DV3**	**DV4**	**DV5**	**DV6**	**DV7**	**DV8**	**DV9**	**DV10**	**DV11**	**DV12**
Attend voc/job / training	Pearson Correlation	.050**	.038**	-.015	-.048**	.037**	.125**	.104**	.117**	.072**	.091**	.024	.005
	Sig	.002	.017	.340	.003	.019	.000	.000	.000	.000	.000	.135	.734
Enroll school/ voc training	Pearson Correlation	-.098**	-.126**	.167**	.067**	-.082**	-.334**	-.016	-.285**	-.146**	-.084**	-.037*	-.141**
	Sig	.000	.000	.000	.000	.000	.000	.324	.000	.000	.000	.020	.000

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between job status and academic achievement

Table 10 shows the relationship between the job status variables and the academic achievement variables. According to Table 10, it is shown that the variable cumulative math GPA of academic achievement in all years has a significant relationship with DV1, DV5, DV6, DV8, DV9, DV10 and DV11. It is positively correlated with DV1, DV5, and DV11. However, it is negatively correlated with DV6, DV8, DV9, and DV10. This means that it will positively impact the job status variables that are positively correlated with itself. For example, the individuals that have a higher cumulative math GPA across all years will have a job currently, have more jobs currently and have a higher average hours per week spent on light physical labour work. In contrast, they are more likely to have lower working hours per week, lesser hours spent at work per week, lesser average hours spent per week on hard physical labour work, and lesser average hours spent per week on moderate physical labour. The reason why individuals who have a higher cumulative math GPA have lesser average hours spent per week on moderate physical labour work and fewer average house per week spent on light physical labour work may be because the likelihood of them choosing a STEM career is high (Blotnicky et al., 2018), and most of the STEM career job contents do not require them to work on hard physical labour work.

Furthermore, Table 10 also shows that the academic achievement variable the overall failure index year 1 has a significant relationship with most of the job status variables, except DV7 and DV8. It is positively correlated with DV3, DV4, DV6, DV9 and DV10. This means that the higher proportion of all courses that students failed in each year (EAOFIX1-6) and cumulatively (EAOFIXC), the students are more likely to be satisfied with their current job, work more hours per week, have a higher average hour spent per week on hard physical labour work and higher average hours spent per week

on moderate physical labour work. On the contrary, it is found to be negatively correlated with DV1, DV2, DV5, DV11 and DV12. Therefore, they are more likely to not have a job currently, work less than 10 hours per week, have fewer jobs, have a lower average hour spent per week on light physical labour work, and have a lower average hour spent per week seated at work.

Additionally, there is an interesting finding regarding variables of academic achievement and job status variables. DV6 and DV9 have significant relationships with all variables of academic achievement variables. This shows that academic achievement is very important and will greatly affect the number of hours they work per week and the average hours spent per week on hard physical labour work. It is also found that DV5, DV6, DV9 and DV12 have significant relationships with all overall failure index variables, which shows that other than DV6 and DV9 that were mentioned, it is pivotal and will greatly affect their number of current jobs and the average hours spent per week seated at work. In summary, H6 is rejected, as not all variables of academic achievement have a significant relationship with variables of job status. This contrasts with Chakraborty et al. (2019) research.

Table 10. Relationship between job status variables and academic achievement variables

		DV1	DV2	DV3	DV4	DV5	DV6	DV7	DV8	DV9	DV10	DV11	DV12
Math sequence level year 1	Pearson Correlation Sig	-.011 .491	-.013 .400	.031 .054	-.012 .450	.006 .694	-.112** .000	-.005 .743	-.070** .000	-.103** .000	-.058** .000	-.026 .107	.070** .000
Math sequence level year 2	Pearson Correlation Sig	.032* .046	.026 .100	-.012 .468	-.027 .091	.034* .036	-.116** .000	-.006 .694	-.040* .012	-.098** .000	-.051** .002	.003 .833	.078** .000
Math sequence level year 3	Pearson Correlation Sig	.028 .076	.017 .298	-.001 .969	-.005 .749	.020 .203	-.126** .000	-.018 .271	-.052** .001	-.125** .000	-.051** .001	-.010 .547	.092** .000
Math sequence level year 4	Pearson Correlation Sig	-.016 .305	-.020 .212	.025 .120	.016 .329	-.010 .526	-.111** .000	-.006 .686	-.092** .000	-.116** .000	-.050** .002	-.021 .181	.036* .024
The highest maths level taken in all years	Pearson Correlation Sig	.023 .153	.013 .404	.006 .688	-.010 .551	.027 .096	-.151** .000	-.022 .173	-.075** .000	-.154** .000	-.072** .000	-.013 .421	.110** .000
Math level with credit year 1	Pearson Correlation Sig	.018 .271	.008 .624	.008 .619	-.015 .354	.030 .061	-.112** .000	-.005 .733	-.049** .002	-.114** .000	-.067** .000	.009 .588	.082** .000
Math level with credit year 2	Pearson Correlation Sig	.032* .045	.026 .106	-.002 .878	-.036* .023	.036* .023	-.128** .000	-.014 .381	-.049** .002	-.131** .000	-.060** .000	.006 .717	.101** .000
Math level with credit year 3	Pearson Correlation Sig	.032* .043	.019 .243	-.007 .648	-.004 .821	.031 .052	-.139** .000	-.007 .669	-.056** .000	-.134** .000	-.055** .001	-.002 .912	.095** .000
Math level with credit year 4	Pearson Correlation Sig	-.017 .293	-.021 .182	.025 .117	.011 .509	-.014 .383	-.110** .000	-.014 .367	-.093** .000	-.123** .000	-.057** .000	-.014 .382	.045** .005
Highest math level (credit) in all years	Pearson Correlation Sig	.032* .047	.023 .146	-.005 .759	-.007 .647	.039* .014	-.146** .000	-.015 .345	-.068** .000	-.158** .000	-.073** .000	.005 .743	.108** .000
Science sequence level year 1	Pearson Correlation Sig	-.007 .655	.007 .669	.012 .464	.004 .824	-.001 .956	-.047** .003	-.010 .535	-.028 .077	-.034* .033	-.014 .375	-.022 .167	.020 .218
Science sequence level year 2	Pearson Correlation Sig	.007 .645	.014 .378	-.005 .755	-.028 .083	.014 .373	-.055** .001	-.019 .244	-.024 .127	-.082** .000	-.022 .176	.019 .234	.036* .023

Science sequence level year 3	Pearson Correlation Sig	.025 .123	.002 .907	.002 .888	.009 .559	.014 .392	-.096** .000	.002 .902	-.040* .012	-.105** .000	-.030 .061	-.002 .889	.062** .000
Science sequence level year 4	Pearson Correlation Sig	-.023 .159	-.031 .051	.048** .003	.009 .575	-.017 .276	-.091** .000	-.011 .482	-.082** .000	-.099** .000	-.049** .002	-.015 .338	.027 .086
The highest science level taken in all years	Pearson Correlation Sig	.010 .547	.003 .868	.019 .225	.002 .901	.015 .343	-.107** .000	-.008 .635	-.060** .000	-.125** .000	-.040* .012	-.007 .647	.074** .000
Science level with credit year 1	Pearson Correlation Sig	.017 .282	.024 .132	-.007 .666	-.005 .737	.021 .181	-.063** .000	-.002 .892	-.022 .170	-.055** .001	-.034* .036	-.004 .797	.049** .002
Science level with credit year 2	Pearson Correlation Sig	.039* .016	.037* .022	-.020 .215	-.040* .013	.035* .027	-.063** .000	-.018 .252	-.009 .574	-.101** .000	-.013 .428	.031 .050	.058** .000
Science level with credit year 3	Pearson Correlation Sig	.032* .046	.012 .463	-.003 .836	.002 .901	.025 .113	-.103** .000	-.003 .829	-.039* .016	-.118** .000	-.029 .065	.011 .473	.070** .000
Science level with credit year 4	Pearson Correlation Sig	-.029 .072	-.037* .022	.049** .002	.008 .632	-.019 .237	-.097** .000	-.013 .407	-.088** .000	-.113** .000	-.051** .002	-.011 .506	.028 .075
The highest science level (credit) in all years	Pearson Correlation Sig	.027 .087	.018 .261	.007 .673	.001 .951	.031 .053	-.110** .000	.002 .893	-.044** .006	-.135** .000	-.038* .017	.011 .489	.084** .000
Math GPA year 1	Pearson Correlation Sig	.037* .022	.015 .346	-.009 .590	-.037* .019	.034* .032	-.101** .000	-.019 .227	-.042** .008	-.119** .000	-.049** .002	.041** .010	.065** .000
Math GPA year 2	Pearson Correlation Sig	.021 .188	.006 .700	.014 .372	-.024 .130	.021 .194	-.120** .000	-.020 .210	-.067** .000	-.158** .000	-.058** .000	.030 .059	.079** .000
Math GPA year 3	Pearson Correlation Sig	-.005 .744	-.024 .131	.026 .105	-.003 .858	-.003 .827	-.100** .000	-.007 .673	-.077** .000	-.131** .000	-.066** .000	.022 .161	.066** .000
Math GPA year 4	Pearson Correlation Sig	.023 .144	.000 .980	.014 .388	-.036* .025	.014 .373	-.086** .000	-.036* .023	-.044** .006	-.101** .000	-.063** .000	.036* .024	.063** .000
Cumulative math GPA across all years	Pearson Correlation Sig	.040* .013	.012 .434	.000 .986	-.031 .055	.035* .027	-.131** .000	-.019 .236	-.063** .000	-.161** .000	-.065** .000	.044** .006	.087** .000
Science GPA year 1	Pearson Correlation Sig	.039* .015	.012 .440	.002 .891	-.026 .098	.035* .027	-.146** .000	-.027 .087	-.062** .000	-.149** .000	-.056** .000	.033* .038	.075** .000
Science GPA year 2	Pearson Correlation Sig	.028 .075	.007 .642	.015 .352	-.010 .537	.028 .080	-.134** .000	-.034* .033	-.067** .000	-.171** .000	-.047** .004	.021 .189	.092** .000
Cumulative science GPA across all years	Pearson Correlation Sig	.037* .021	.009 .578	.009 .575	-.018 .273	.035* .029	-.151** .000	-.029 .069	-.071** .000	-.190** .000	-.063** .000	.040* .012	.099** .000
Overall GPA year 1	Pearson Correlation Sig	.046** .004	.024 .133	-.006 .710	-.051** .001	.046** .004	-.157** .000	-.029 .068	-.065** .000	-.162** .000	-.062** .000	.035* .028	.088** .000

Overall GPA year 2	Pearson Correlation Sig	.038* .018	.016 .302	.013 .428	-.035* .030	.041* .010	-.158** .000	-.027 .088	-.073** .000	-.190** .000	-.063** .000	.033* .038	.105** .000
Overall GPA year 3	Pearson Correlation Sig	.003 .853	-.019 .226	.038* .017	-.018 .272	.014 .394	-.159** .000	-.030 .064	-.101** .000	-.174** .000	-.075** .000	.022 .166	.079** .000
Overall GPA year 4	Pearson Correlation Sig	-.001 .948	-.022 .167	.044** .006	-.037* .022	.012 .470	-.150** .000	-.055** .001	-.100** .000	-.171** .000	-.088** .000	.048** .002	.062** .000
Cumulative GPA across all years	Pearson Correlation Sig	.048** .002	.020 .219	.006 .720	-.038* .017	.046** .004	-.173** .000	-.028 .079	-.076** .000	-.193** .000	-.067** .000	.045** .005	.096** .000
Math failure index year 1	Pearson Correlation Sig	-.056** .001	-.045** .005	.040* .012	.027 .089	-.052** .001	.059** .000	-.011 .488	-.005 .759	.054** .001	.036* .025	-.033* .041	-.057** .000
Math failure index year 2	Pearson Correlation Sig	-.050** .002	-.045** .005	.014 .371	.047** .003	-.042** .009	.086** .000	.000 .975	.013 .417	.106** .000	.016 .328	-.015 .344	-.078** .000
Math failure index year 3	Pearson Correlation Sig	-.014 .383	-.010 .523	.012 .450	-.001 .959	-.029 .072	.077** .000	-.020 .208	.038* .018	.086** .000	.036* .025	-.021 .189	-.051** .001
Math failure index across all years	Pearson Correlation Sig	-.067** .000	-.055** .001	.044** .006	.037* .020	-.064** .000	.088** .000	-.015 .362	.008 .621	.092** .000	.034* .031	-.036* .025	-.076** .000
Science failure index year 1	Pearson Correlation Sig	-.053** .001	-.038* .019	.038* .017	.030 .061	-.047** .003	.065** .000	-.008 .635	.003 .840	.077** .000	.038* .016	-.042** .009	-.065** .000
Science failure index year 2	Pearson Correlation Sig	-.065** .000	-.051** .002	.034* .032	.038* .019	-.050** .002	.050** .002	.002 .880	-.014 .384	.080** .000	-.004 .792	-.026 .108	-.071** .000
Science failure index across all years	Pearson Correlation Sig	-.081** .000	-.064** .000	.052** .001	.031 .055	-.071** .000	.072** .000	-.011 .497	-.014 .367	.104** .000	.015 .338	-.051** .002	-.086** .000
Overall failure index year 1	Pearson Correlation Sig	-.063** .000	-.054** .001	.046** .004	.041* .010	-.065** .000	.084** .000	-.016 .326	.005 .734	.079** .000	.034* .034	-.037* .020	-.066** .000
Overall failure index year 2	Pearson Correlation Sig	-.082** .000	-.071** .000	.043** .007	.049** .002	-.072** .000	.087** .000	-.009 .554	-.009 .554	.103** .000	.016 .310	-.040* .011	-.091** .000
Overall failure index year 3	Pearson Correlation Sig	-.044** .006	-.037* .019	.018 .261	.013 .401	-.052** .001	.098** .000	-.010 .545	.025 .125	.082** .000	.021 .197	-.011 .493	-.065** .000
Overall failure index year 4	Pearson Correlation Sig	-.019 .244	-.024 .134	.007 .683	.037* .021	-.031* .049	.074** .000	.007 .663	.034* .034	.099** .000	.046** .004	-.036* .026	-.052** .001
Overall failure index	Pearson Correlation Sig	-.086** .000	-.072** .000	.051** .001	.040* .013	-.079** .000	.103** .000	-.016 .312	.001 .967	.104** .000	.026 .103	-.045** .005	-.078** .000

across all years													

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between work history and education level

Table 9 shows the relationship between history and education level. The table shows that the education level bachelor's degree has a positive correlation with the job history with the variable ever having a job and ever working 9 weeks/more/10 hours. This means that by having a bachelor's degree you will have a job and have worked in a business for 9 weeks or more, and that was at least 10 hours a week. However, the bachelor's degree of education that the variable has received bachelor's degree has a negative correlation with the variable having ever been military reserve and served military before. This means that by having a bachelor's degree, the respondent will not be a military reserve or have never served military before. This may be due to when owning a bachelor's degree, there is no need to serve military because they already have job, they will not have the time to participate in military activities (Lane, 2020). The hypothesis is rejected because some of the variables from the job history do not have a significant relationship with the other variables at the educational level. This contrasts with the Grosemans & de Cuyper (2021) research.

Table 11. Relationship between job history variables and education level variables

		Ever had a job	Ever work 9 weeks/more/10 hrs	Ever been military reserves	Served military before
Has received HS diploma	Pearson Correlation Sig	.044** .006	.039* .014	.021 .185	.030 .060
Has received junior college degree	Pearson Correlation Sig	.035* .028	.026 .110	-.029 .066	-.017 .0299
Has received bachelor degree	Pearson Correlation Sig	.038* .018	.037* .019	-.054** .001	-.043** .008

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between work history and training program

Table 10 shows the relationship between the work history and the training program. This shows that vocational education or job training in a program has a positive relationship job status variable that has been in military reserves and served military before. This means that by attending vocational education or job training in a program, the individual is a military reserve or has served the military before. The hypothesis is rejected because some of the variables for the job history do not have a significant relationship with the variables in the training program. This is in contrast to the research by Zhang et al. (2019).

Table 12. Relationship between job history variables and training program variables

		Ever been military reserves	Served military before
Attend voc/job/training	Pearson Correlation Sig	.092** .000	.111** .000
Enroll school/voc training	Pearson Correlation	-.011	-.036*

	Sig	.494	.025

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between job history and academic achievement

Table 11 shows the relationship between job history and academic achievement. This table shows that the cumulative GPA overall years has a positive correlation with the job history variable. Ever had a job and ever worked 9 weeks or more and that was at least 10 hours a week. This means that if the individual has a high cumulative CPA, they will previously have a job and they worked 9 weeks or more and that was at least 10 hours a week. However, the cumulative GPA across all years has a negative correlation with the job history variable that has ever been a military reserve and served military before. This means that when the individual has a high cumulative GPA across all years, they will not be a military reserve, or they have never served in the military before. This may be due to individuals who have low cumulative GPA in all years they do not have a job and joining the military can help them go to college to obtain a certificate and pursue their future job (Corcione, 2019). This hypothesis is rejected because there are some variables in the work history that do not have a significant relationship with some of the variables in academic performance. This contrasts with Rodríguez-Hernández et al. (2020).

Table 13. Relationship between job history variables and academic performance variables

		Ever had a job	Ever work 9 weeks/more/10 hrs	Ever been military reserves	Served military before
Math sequence level year 1	Pearson Correlation Sig	.064** .000	.072** .000	-.020 .203	-.037* .022
Math sequence level year 2	Pearson Correlation Sig	.078** .000	.095** .000	-.013 .406	-.017 .279
Math sequence level year 3	Pearson Correlation Sig	.061** .000	.071** .000	-.037* .020	-.009 .569
Math sequence level year 4	Pearson Correlation Sig	.052** .001	.049** .002	-.037* .021	-.033* .037
The highest maths level taken in all years	Pearson Correlation Sig	.089** .000	.091** .000	-.036* .024	-.031 .052
Math level with credit year 1	Pearson Correlation Sig	.064** .000	.075** .000	-.017 .300	-.026 .100
Math level with credit year 2	Pearson Correlation Sig	.059** .000	.069** .000	-.034* .032	-.029 .066
Math level with credit year 3	Pearson Correlation Sig	.063** .000	.066** .000	-.037* .021	-.022 .169
Math level with credit year 4	Pearson Correlation Sig	.052** .001	.046** .004	-.034* .032	-.032* .043

Highest math level (credit) in all years	Pearson Correlation Sig	.086** .000	.088** .000	-.035* .028	-.032* .047
Science sequence level year 1	Pearson Correlation Sig	.022 .172	.038* .019	-.005 .740	-.012 .442
Science sequence level year 2	Pearson Correlation Sig	.050** .002	.053** .001	-.024 .140	-.032* .044
Science sequence level year 3	Pearson Correlation Sig	.057** .000	.040* .013	-.027 .087	-.019 .228
The highest science level taken in all years	Pearson Correlation Sig	.053** .001	.047** .004	-.023 .157	-.019 .226
Science level with credit year 1	Pearson Correlation Sig	.022 .165	.045** .005	-.003 .867	-.012 .443
Science level with credit year 2	Pearson Correlation Sig	.052** .001	.051** .001	-.019 .236	-.022 .166
Science level with credit year 3	Pearson Correlation Sig	.066** .000	.053** .001	-.026 .101	-.027 .093
The highest science level (credit) in all years	Pearson Correlation Sig	.062** .000	.059** .000	-.017 .283	-.018 .261
Math GPA year 1	Pearson Correlation Sig	.045** .004	.042** .008	-.036* .023	-.019 .241
Math GPA year 2	Pearson Correlation Sig	.034* .035	.026 .100	-.035* .028	-.007 .640
Cumulative math GPA across all years	Pearson Correlation Sig	.038* .017	.030 .057	-.038* .017	-.022 .169
Science GPA year 1	Pearson Correlation Sig	.040* .012	.043** .008	-.027 .097	-.027 .091
Science GPA year 2	Pearson Correlation Sig	.040* .012	.023 .146	-.016 .320	-.008 .631
Cumulative science GPA across all years	Pearson Correlation Sig	.037* .020	.033* .038	-.020 .222	-.027 .095
Overall GPA year 1	Pearson Correlation Sig	.042** .009	.051** .001	-.035* .029	-.023 .158

Overall GPA year 3	Pearson Correlation Sig	.016 .321	.015 .346	-.038* .019	-.037* .020
Overall GPA year 4	Pearson Correlation Sig	.011 .480	.013 .414	-.043** .008	-.051** .001
Cumulative GPA across all years	Pearson Correlation Sig	.035* .027	.035* .026	-.036* .026	-.032* .042
Math failure index year 1	Pearson Correlation Sig	-.035* .029	-.040* .012	-.008 .600	-.013 .411
Math failure index year 3	Pearson Correlation Sig	-.011 .496	-.004 .793	.015 .361	.033* .039
Math failure index across all years	Pearson Correlation Sig	-.033* .041	-.031 .055	.001 .925	.006 .703
Science failure index year 1	Pearson Correlation Sig	-.025 .124	-.040* .012	.000 .980	.002 .901
Science failure index year 2	Pearson Correlation Sig	-.034* .034	-.023 .152	-.003 .841	-.004 .815
Science failure index across all years	Pearson Correlation Sig	-.038* .016	-.049** .002	-.005 .758	.013 .426
Overall failure index year 1	Pearson Correlation Sig	-.048** .003	-.057** .000	-.010 .533	-.016 .319
Overall failure index year 2	Pearson Correlation Sig	-.023 .147	-.041** .010	.005 .733	.011 .511
Overall failure index year 3	Pearson Correlation Sig	-.027 .093	-.034* .032	.005 .766	.005 .734
Overall failure index across all years	Pearson Correlation Sig	-.039* .014	-.046** .004	-.003 .867	-.003 .874

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between first job and education level

Table 14 shows the relationship between the variables of the first job and the variables of the educational level. Through the table as shown below, it was found that Has received the HS diploma and has received junior college degree is positively correlated with First pay job full/part time. This means who for those respondents that received a diploma or a junior college degree, their first pay job was a part-time job. However, Has received GED/HS equiv is negatively correlated with first pay job full/part time. This might be due to respondents working as a part-timer during their diploma

and junior college degree to earn some pocket money while for those who do not further their education, they chose to find a full-time job as their formal job. Overall, based on the table, the education level variables do not have a significant relationship with each of the first job variables. For example, the education level variable Has received HS diploma has a significant relationship with the first job variable but does not have a significant relationship with the other job content variables such as Still work first pay job ever and Age at first pay job. Therefore, the hypothesis is rejected. This contrasts with Acosta-Ballesteros et al. (2018).

Table 14. Relationship between first-job variables and education-level variables

		Still work first pay job ever	Age at first pay job	First pay job full/part time
Has received GED/HS equiv	Pearson Correlation Sig	-.012 .442	-.023 .154	-.057** .000
Has received HS diploma	Pearson Correlation Sig	.026 .107	-.017 .280	.112** .000
Has received junior college degree	Pearson Correlation Sig	-.035* .027	-.010 .537	.040* .010
Has received bachelor's degree	Pearson Correlation Sig	-.036* .025	.041* .010	.015 .345

Relationship between first job and training program

Table 15 shows the relationship between the variables of the first job of the variables and training program. Through the table below, we can tell that the training program variable Enroll school/voc training is positively correlated with First pay job full/part time. This means that enrolment school/voc training has positively impacted on the First pay job full/part time. Since there is only one of the training program variables related to one of the first job variables, our hypothesis is said to be rejected. This contrasts with the research by Wheeler et al. (2022).

Table 15. Relationship between first-job variables and training program variables

		First pay job full/part time
Enroll school/voc training	Pearson Correlation Sig	.040* .012

*The correlation is significant at the 0.05 level (2-tailed); **The correlation is significant at the 0.01 level (2-tailed).

Relationship between first job and academic achievement

Table 16 shows the relationship between the variables and first job of the variables of academic achievement variables. Based on the table, we can find that most of the academic achievement variables have a significant relationship with the first pay job full/part time variable. One interesting finding is that only failure index variables have a negative significant relationship with the full / part-time variable of the first pay job. The reason for this might be that for those respondents who do not have good academic performance, they will not continue their education and choose to work full-time. Therefore, the higher the failure index, the more respondents work full time for their first job. According to the table, some of the first job variables do not have a significant relationship with the academic achievement variables. Therefore, our hypothesis is rejected. This contrasts with Getie Ayaneh et al. (2020).

Table 16. Relationship between First-Job Variables and academic performance variables

		Still work first pay job ever	Age at first pay job	First pay job full/part time
Math sequence level year 1	Pearson Correlation Sig	-.019 .240	-.052** .001	.044** .006
Math sequence level year 2	Pearson Correlation Sig	-.027 .088	-.042** .009	.044** .006
Math sequence level year 3	Pearson Correlation Sig	-.013 .048	-.029 .065	.061** .000
Math sequence level year 4	Pearson Correlation Sig	-.010 .550	-.011 .505	.037* .019
The highest maths level taken in all years	Pearson Correlation Sig	-.024 .131	-.039* .015	.068** .000
Math level with credit year 1	Pearson Correlation Sig	-.017 .288	-.045** .005	.058** .000
Math level with credit year 2	Pearson Correlation Sig	-.027 .090	-.036* .023	.053** .001
Math level with credit year 3	Pearson Correlation Sig	-.008 .635	-.019 .231	.059** .000
Math level with credit year 4	Pearson Correlation Sig	-.010 .536	-.008 .635	.040* .013
Highest math level (credit) in all years	Pearson Correlation Sig	-.016 .328	-.043** .007	.074** .000
Science sequence level year 2	Pearson Correlation Sig	-.032* .048	-.030 .062	.050** .002
Science sequence level year 3	Pearson Correlation Sig	.006 .710	.018 .251	.050** .002
The highest science level taken in all years	Pearson Correlation Sig	-.034* .032	.009 .591	.054** .001
Science level with credit year 2	Pearson Correlation Sig	-.025 .113	-.042** .009	.077** .000
Science level with credit year 3	Pearson Correlation Sig	.012 .472	.021 .179	.053** .001

The highest science level (credit) in all years	Pearson Correlation Sig	-.020 .220	.004 .784	.069** .000
Math GPA year 1	Pearson Correlation Sig	-.010 .522	-.027 .097	.072** .000
Math GPA year 2	Pearson Correlation Sig	-.015 .344	.011 .486	.049** .002
Math GPA year 3	Pearson Correlation Sig	.008 .609	.019 .246	.032* .045
Cumulative math GPA across all years	Pearson Correlation Sig	-.004 .802	-.004 .786	.069** .000
Science GPA year 1	Pearson Correlation Sig	.003 .842	-.010 .545	.095** .000
Science GPA year 2	Pearson Correlation Sig	-.001 .952	-.004 .798	.071** .000
Cumulative science GPA across all years	Pearson Correlation Sig	.000 .984	-.001 .970	.092** .000
Overall GPA year 1	Pearson Correlation Sig	-.013 .407	-.024 .133	.109** .000
Overall GPA year 2	Pearson Correlation Sig	-.008 .627	-.003 .862	.088** .000
Overall GPA year 3	Pearson Correlation Sig	-.003 .850	.017 .277	.069** .000
Overall GPA year 4	Pearson Correlation Sig	.001 .937	.015 .339	.056** .000
Cumulative GPA across all years	Pearson Correlation Sig	-.003 .873	-.008 .628	.108** .000
Math failure index year 1	Pearson Correlation Sig	.011 .508	.030 .058	-.053** .001
Math failure index year 2	Pearson Correlation Sig	.018 .259	.003 .851	-.043** .007
Math failure index year 3	Pearson Correlation Sig	-.017 .299	-.006 .692	-.047** .003

Math failure index across all years	Pearson Correlation Sig	.002 .906	.025 .124	-.072** .000
Science failure index year 1	Pearson Correlation Sig	-.023 .146	.013 .415	-.079** .000
Science failure index year 2	Pearson Correlation Sig	-.003 .847	.028 .085	-.075** .000
Science failure index across all years	Pearson Correlation Sig	-.024 .133	.011 .498	-.093** .000
Overall failure index year 1	Pearson Correlation Sig	.000 .981	.035* .028	-.100** .000
Overall failure index year 2	Pearson Correlation Sig	-.003 .842	.039* .016	-.088** .000
Overall failure index year 3	Pearson Correlation Sig	-.014 .372	.009 .568	-.086** .000
Overall failure index year 4	Pearson Correlation Sig	.000 .993	.003 .865	-.040* .013
Overall failure index across all years	Pearson Correlation Sig	-.014 .375	.034* .031	-.112** .000

CONCLUSION

In general, this paper has studied 3915 respondents in the age frame 18 - 27 where most of the respondents between the ages of 19 - 24 are university students. The purpose of this is to investigate how the education variables correlate with the employment opportunities variables. There were studies that focused on the impact of different individual factors on a variety of variables, such as graduation status and job opportunities. However, research resources that investigates the relationship between graduation status and job opportunities are substantially limited, so this study is aiming to fill the gap by doing research regarding the relationship between education, graduation status, and job opportunities. This study has further investigated and focused on how education variables are correlated with job opportunities variables such as rate of pay, job status, job history, and first job variables.

Looking at the results, all the hypotheses are said to be rejected, as there is no significant relationship between the variables of education and graduation status and the job opportunities variables. With this, it is said that education and graduate status variables are not related to and do not have a significant impact on the job opportunities variables, namely current job satisfaction, number of current pay jobs, average hours spent weekly based on work type (hard/moderate/light physical labour work) et cetera.

However, there are some interesting findings in this study. For example, it was found that the higher the failure index, the higher the hourly rate of pay, which does not match our common sense that it should be the other way around. Then, it was found that the number of work hours per week and the average hours spent per week on hard physical labour work have a significant relationship with all

the academic achievement variables, showing that they are utterly important and will affect the academic achievement variables to some extent. Finally, after completing the research, we have concluded an unexpected finding that some of the independent variables could influence the dependent variables and work the other way around as well. For instance, the study shows that there is a portion of respondents who are not satisfied with their current job and therefore chose to attend the vocational education and job training program, but there is also another possibility that due to the high number of working hours per week despite attending vocational education or training programmes where the training has not helped them work more efficiently. In short, this study bridges the gap by including some job opportunity variables that previous studies have not investigated. This is crucial to ensure that the findings can be reused and generalized with higher accuracy.

In future work, this research could provide insight into how education affects job opportunities. Future studies that were related to the job could build on and refer to the diversity of variables for each variable that were related to job. In addition to that, future studies could also refer to the diverse variables for each variable that represents education. However, there are still limitations in this study. First, this study used the ICPSR dataset (DS0008, DS0016, DS0017) that only focusses on young adults who aged between the ages of 18 and 27 in the United States. In the future, researchers could study the relationship between education and job opportunities between different age ranges in different countries to increase the research coverage of related topics. Additionally, after completing this research, it was found that it is possible that work affects education. Therefore, researchers are recommended to study the impacts of work on education in the future.

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