Abstract: This graduate tracer study was carried out among Level 4 students from all MCAST Institutes who completed their final study programmes in the academic years 2014/2015 and 2015/2016. It intends to provide information about the situation graduates face after completing their studies and supply data to help stakeholders make informed decisions in relation to the transition from education to employment. The research process included secondary and primary research. Factor analysis was the multivariate technique used to group the factors into four different independent variables: Student academic performance; quality of instruction; acquired skills and competences, and MCAST services. As well as using the multivariate technique for the dependent variable: Graduates’ employment potential. The conclusions from Stage 1 pre-test factor analysis resulted in the refined hypotheses of this study. The conceptual framework was also refined, with the variables identified in the pre-test of this research. A new updated instrument was then created and used for Stage 2 regression. Stage 2 consists of multivariate regression on the final respondent data. The results of this study show that, out of these independent variables, the acquired skills and competences variable showed a strong positive relationship with the graduates’ employment potential dependent variable with a beta value of 0.66 and sig. 0.000. The other independent variables achieved a beta value less than 0.1, indicating a weak relationship to the dependent variables. This research project has been a learning experience as well as a pilot programme for future MCAST graduate surveys.

Key words: Tracer study, level 4 graduate, MCAST technical college, survey, student academic performance, quality of instruction, acquired skills, competences, graduates’ employment potential, employability.

Literature Review

To date, graduate studies in Malta have been limited to a particular institution or a particular faculty, such as the ones conducted by the University of Malta. In October 2015, the Employment and Training Corporation (Jobsplus) launched the Employability Index for 2015 which collected and analysed data from the educational institutions on former students of the University of Malta, MCAST (Malta College of Arts, Science and Technology) and ITS (Institute of Tourism Studies), who completed their studies in the academic year 2012/2013, and started their employment after completing their studies. Graduates were categorised into four groups to identify the relationship between the field and level of their studies, and their employment after graduation. Another related study was conducted by the National Commission on Further and Higher Education (NCFHE),
Employment and Training Corporation, and Malta Enterprise. Data from the employers in different sectors of the Maltese economy was collected on recent recruitments, types of vacancies that are hard to fill, and the reasons for such situations. It also collected data on the level of qualifications held by employees in different sectors of the Maltese economy, their knowledge, skills and competences as well as their training needs during their employment.

In the Further and Higher Education Statistics report for 2014/2015 (NCFHE 2015), conducted by the NCFHE in collaboration with the National Statistics Office (NSO), data about graduates was collected from the education providers for the first time. This data consisted of a headcount by study-related characteristics of the students who had successfully completed their programme of study during the academic year 2014/2015. The NCFHE graduate tracer study also coincided with the feasibility study of a European graduate study which was designed to explore the possibility of a graduate study across Europe. The NCFHE completed the Graduate Tracer Study Final Report in 2016. The main aim of this research project was to develop a clear picture of the situation graduates are confronted with, after completing their studies. This research should be able to assist stakeholders in the decision-making process regarding the responsiveness of education on the supply side, and the situation of the labour market on the demand side. On the other hand, this research project provided a learning experience about nationwide graduate tracer studies in Malta. An online survey was used to collect the data from the graduates. The initial target population was all students who completed their studies in Malta in the years 2013 and 2014. Graduates of all academic and vocational licensed further and higher education institutions, and from Malta Qualifications Framework (MQF) levels 1 up to 7 were targeted. The survey was intended as a onetime cross-sectional tracer study done one to two years after completion of studies. The conclusions from the survey were structured in 4 sections covering:

1. demographic characteristics;
2. educational background and plans for future studies;
3. mobility during and after completion of studies; and
4. transition into the labour market.

The research project of the NCFHE provided answers to the following research questions:

1. What educational paths do graduates in Malta follow to progress from compulsory education to their final degree?
2. In what kind of activities are graduates engaged during their studies?
3. What factors influence the graduates’ perspectives, assessment and motivations regarding their experience in education?
4. What are the labour market outcomes of different education pathways in terms of career prospects, unemployment rates, time gap between completing one's studies and finding employment, and employment conditions?
5. What are the factors that affect the graduates’ situation after completion of their studies?
6. How do graduates perceive the relationship between their studies and their employment?

The European Centre for the Development of Vocational Training (Cedefop) collects and analyses information about lifelong learning, vocational education and training, and
related labour market issues in the European Union. Its aim is to support policy-making in the field. Cedefop’s governing board includes representatives of the member states, employers’ associations, and trade unions across Europe. The European Commission (Cedefop 2018) recommends that countries should strengthen their capacity to anticipate and match labour market and skills needs. This information would aid all stakeholders to ensure better matching between the supply of skills among the working population as well as the occupations being created in a recovering economy.

The employment rate of recent graduates for the year 2013 in Malta was registered at 93.1% (European Commission 2014b). This is one of the highest rates registered in the EU28 (80.9% in 2013). Indeed, the employment of all graduates in the EU seems to have stagnated at 75.5%, or 6.5 percentage points less than in 2008. The provision of vocational education is leading to a boost in levels of employability of graduates, as stated in this report (European Commission, 2014b). World Economic Forum (2014) states that apprenticeships can be one of the policies used to address the negative effects of the global economic crisis as it helps young people and the unemployed maintain a link with the labour market and gain useful work-relevant skills.

In the Cedefop European public opinion survey on vocational education and training report (Cedefop 2017), the following two variables were used: Economic sector match and educational qualification. The survey then categorised the employment of the sample graduates into these four categorical combinations:

1. Employment that requires the individual’s level of education and that matches the relevant area of study.
2. Employment that requires the individual’s level of education but does not match the relevant area of study.
3. Employment that matches the individual’s study area but does not require the level of educational qualification attained.
4. Employment that neither matches the individual’s study area, nor requires the level of educational qualification attained.

The European, Cedefop public opinion survey on vocational education and training report, was a first attempt to shed light on the extent to which Malta’s higher educational institutions are serving this function. The results in this report represent a relatively positive picture for the higher education institutions in Malta, as it illustrates that most graduates managed to find an occupation that matches their qualifications, as well as their academic background.

The study of Ramirez, Cruz and Alcantara (2014), aimed to trace the graduates of the Rizal Technological University (RTU) Pasig campus during the academic years 2006 to 2011. Specifically, the study was designed to provide answers to the following research questions:

1. What are the personal details of the graduates in terms of the following personal characteristics?
2. What is the incidence of employment, self-employment, unemployment, and further education among the graduates?
3. How relevant are the school-acquired skills and competencies to the graduates’ chosen occupations?
4. What skills and competencies do the graduates recommend making the curricular offerings more relevant to current jobs?
The 2 hypotheses of this study by Ramirez, Cruz and Alcantara stated the following:

1. The RTU-Pasig graduates are mostly employed within their fields of specialization.
2. The school-acquired skills and competencies of the graduates are relevant to their chosen occupations.

The core mission of MCAST as for other vocational colleges and universities, is the continuous increase in the number of life-long opportunities available for students. Nowadays, employment opportunities have become very competitive for students, due to the increase in the number of college graduates. A very important policy for colleges and universities is to strengthen present opportunities, while creating new opportunities and connections with industries.

A tracer study provides an opportunity to the College to evaluate how new graduates have paired with the industrial world. This graduate tracer study provides information as to the situation of the new graduates in their early stages of their prospective careers. It also provides information on how adequate the academic skills and competences provided by the various technical college curricula can be relevant in helping students in their chosen careers. This Tracer Study provides valuable information for evaluating the outcomes of knowledge, skills and competences that MCAST’s Technical College transfers to students, hence it serves as a starting point for future planning on improving the course programmes. The participants of this research study are the MCAST Technical College graduates of the following academic years 2014/2015 and 2015/2016 from the six Institutes’ colleges: Institute of Applied Sciences, Institute for the Creative Arts, Institute of Engineering and Transport, Institute of Business Management and Commerce, Institute of Community Services and Institute of Information and Communication Technology. The Literature Map illustrated in Figure 1 represents the 3 main themes of this study: Data collection, data analysis, and methodological tools. From the literature listed under the data collection theme, the independent variables and the dependent variable were identified. Relationships between variables, hence the hypothesis, and the way they should be analysed were identified from the literature listed under Data analysis. The research instrument and the multivariate analytic technique were identified from the literature listed under the Methodological Tools.
The Statistical Package for the Social Sciences (SPSS) was used to generate results from the acquired quantitative data using the frequency counts, percentage and the Chi-square goodness of the fit test. The findings of this study showed that the graduates’ academic skills and competencies acquired, contributed to their job performance. A significant relationship between the graduates’ fields of specialization and their occupations after graduation was presented by the Chi-square goodness of fit. The academic skills and competencies acquired by graduates are very relevant to their chosen occupations. The results further proved that RTU-Pasig produces marketable and appropriately trained graduates with the majority of former students commencing course-related jobs shortly after graduation. The MCAST Technical College Graduate Tracer study was carried out to review if the same is happening for Level 4 alumni in Malta. The main conclusion indicates that the MCAST Technical College graduates possess the skills and competencies necessary to succeed in this competitive world.

**Research Methodology**

The Research Approach for this study is Quantitative represented in Figure 2. Survey Research provides a quantitative or numeric description of trends, attitudes, or opinion of a population by studying a sample of that population (Creswell 2015).
**Table 1:** Worldview, design and methodology of this research

<table>
<thead>
<tr>
<th>Worldview</th>
<th>Positivist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Quantitative</td>
</tr>
<tr>
<td>Methodology</td>
<td>Pre-determined</td>
</tr>
<tr>
<td></td>
<td>Instrument-based questions</td>
</tr>
<tr>
<td></td>
<td>Statistical analysis</td>
</tr>
<tr>
<td></td>
<td>Statistical interpretation</td>
</tr>
</tbody>
</table>

*Figure 2: Worldview, design and methodology of this research*

**Data Collection**

The research instrument for this study was finalised on an online survey development cloud-based software, SurveyMonkey. This software was also used for the collection of data. The survey was intended as a one-time cross-sectional tracer study done two years after completion of studies. The data collected contained factual information about the graduates, as well as their personal perceptions and assessments. After drafting the survey in May 2019, consultation meetings were held with Head of MCAST Technical College to finalise the survey. To improve the validity of this study, experts were asked to confirm the understanding of the questionnaire including Dr Mario Cardona, Head of MCAST Technical College, Ms Ann Marie Cassar, Deputy director of MCAST Institute of Community Services, and Ing Joseph Azzopardi, Engineering team leader at ICT Solutions.

**Ethical Considerations**

The survey was anonymous in an effort to capture honest replies from the participants. The survey was also provided in Maltese to minimise possible language barriers or limitations for participants in understanding the questions of the survey. The survey was reviewed and approved by the relevant MCAST IRC (Institute Research Sub-Committee) under the direction of the MCAST REC (Research Ethics Committee). In the designed survey students only provided the Institute in which they completed the Level 4 course and no personal data.

Informed consent was voluntarily obtained from all participants without any duress before research began. The form clearly states what they would be asked to do, drawing attention to anything they could, conceivably, subsequently object to. It also includes how the collected data will be used, and how and to whom it will be reported. Participants were clearly informed that they can withdraw from the study at any time and that adequate measures were being taken to ensure the confidentiality of data. The survey was verified by the MCAST Head of Technical College and reviewed by the MCAST Ethical Board. Therefore, there were no data protection impediments to carry out this research. In the Consent form, the participants were informed explicitly that they are free to leave the study at any time without jeopardy. Participants also had the right to withdraw their data in retrospect, after was collected.

Once the survey was available online in both Maltese and English, the link to the survey was shared on Facebook to past MCAST students who completed the Level 4 course in 2014/2015 and in 2015/2016. Students shared the survey among their past classmates.
The topics covered in the survey included:

- the graduates' demographic information;
- the graduates' academic performance;
- details about the study conditions of the qualification obtained at MCAST Level 4 course;
- the graduates' retrospective assessments of their study programme and skills acquired during their studies;
- the situation after graduation, including additional studies;
- the transition from education to employment and job search;
- the relevance of the skills obtained during the Level 4 course with their current job.

The data in this research is a representation of variables against a range of participants. The variables represent the survey questions, and the participants represent 10% of the Technical College Graduates, having an average Level 4 graduates' population of 850 per academic year. Data was given numeric value, for example 10 represents Strongly Disagree; 30 represents Disagree; 50 represents No Opinion; 70 represents Agree; and 90 represents Strongly Agree. The data was transferred into the Statistical Package for the Social Sciences (SPSS) – the tool of this methodology. Descriptive and inferential statistics were computed through SPSS. The Sample Size Calculator was used to calculate the sample size required at a Confidence level of 95% and a Confidence Interval of 10% (margin of error). SPSS was used to test for normality of the data. SPSS was also used to test for skewness and homoscedasticity. To determine whether the statistical techniques considered for data analysis are appropriate, the coefficient alpha test was carried out. Data reduction technique was used to relate variables to the dependent variable by means of the statistic test. Factor analysis was the technique used to reduce many variables into fewer numbers of factors and therefore enhance the validity of the study. The dependent variable in this study is the graduates' employment potential.

The following figure is a representation of the initial Conceptual Framework of this Tracer Study for Level 4 students from all MCAST Institutes who completed their study programmes in 2014/2015 and 2015/2016.

**Figure 3: Conceptual Framework**

Figure 4, represents the methodology including analytic stages of Stage 1 – Factor analysis and Stage 2 – Regression.
1.2 Identification of variables

- **Factor analysis** is a statistical data reduction and analysis technique that strives to explain correlations among multiple outcomes as the result of one or more underlying explanations, or **factors**. The technique involves data reduction, as it attempts to represent a set of variables by a smaller number.

1.3 Scree plot

- To show a cut off between two gradients
- The scree plot will confirm the choice of three components

1.4 Variance

- Factor analysis extracts maximum common variance from all variables and puts them into a common score.

1.5 Rotated Component Matrix

- To show a representation of each main component (Key independent variable) of the study is a multiple item scale.

1.6 Data Reduction

- Factor Analysis is primarily used for data reduction
- The purpose of data reduction is to remove redundant (highly correlated) variables from the data file, perhaps replacing the entire data file with a smaller number of uncorrelated variables.
- Complete Pre-test and update of the conceptual framework of the study.
- Improve Survey
2.1 Data collection
- Choice of adequate sample size
- Collection and transfer of data of the updated survey to SPSS

2.2 Assumption 1: The data is linear
- The visual outcome: Graph (scatter plots) should reflect a linear data

2.3 Assumption 2: Normality in the data
- Normal distribution curve – visual outcome – graph: The data should follow a normal distribution curve as multivariate analysis assumes that the data is normal.

2.4 Assumption 3: Low level of multicollinearity
- To show that the association between 2 or more independent variables is as low as possible, so that the relationship between an independent and the dependent variable is not explained by the other independent variables. The Variance Inflation Factor (VIF) is 1/Tolerance. It is always greater than or equal to 1. There is no formal VIF value for determining presence of multicollinearity. Values of VIF that exceed 10 are often regarded as indicating multicollinearity, but in weaker models values above 2.5 may be a cause for concern.

2.5 Assumption 4: Adequate level of homoscedasticity
- To show that the independent variables change constantly with the dependant variable: This will result in a consistency within the relationship (P-P plot). Normal P-P plot of Regression Standardized Residuals - Residual = Observed value - Predicted value.

2.6 Linear regression proved
- The above 4 assumptions must be met.
- \( y = mx + c \)
- \( y = \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + c \)

*Figure 4: Methodology Flow chart including analytic stages*
Analysis of Research Findings

SPSS was used to test for normality of the data. The data followed a normal distribution curve as multivariate analysis assumes that the data is normal. Reliability of data was tested by the Cronbach's alpha value as the Cronbach's alpha value reflects consistency in the data. The Cronbach Alpha value was found to be 0.824 when N = All factors, indicating the reliability of data Figure 8, and 0.726 when N = Key variables (1 dependent and 4 independent variables) also indicating the reliability of data Figure 6.

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>N of Items</td>
</tr>
<tr>
<td>.824</td>
<td>18</td>
</tr>
</tbody>
</table>

*Figure 5: Cronbach's Alpha value when N = All factors*

<table>
<thead>
<tr>
<th>Reliability Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
<td>N of Items</td>
</tr>
<tr>
<td>.726</td>
<td>5</td>
</tr>
</tbody>
</table>

*Figure 6: Cronbach's Alpha value when N = Dependent variable and Independent variables*

Factor analysis involves grouping similar variables into dimensions. This process was used to identify latent variables or constructs. The purpose of factor analysis is to reduce many individual items into a fewer number of dimensions. In this study, Factor analysis was used to simplify data, by reducing the number of variables in components.

The Initial Conceptual Framework of this study included 14 variables. The Revised Conceptual Framework (*Figure 4*) included 4 independent variables and 1 dependent variable. The variables of the Revised Conceptual Framework emerged from the outcome of Factor Analysis, that is the Rotated Component Matrix.
## Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GoodAcademicGrades</td>
<td>-.147</td>
<td>.196</td>
<td>.767</td>
<td>-.137</td>
<td>-.067</td>
</tr>
<tr>
<td>GoodQualityEducation</td>
<td>.495</td>
<td>-.130</td>
<td>.677</td>
<td>.224</td>
<td>.033</td>
</tr>
<tr>
<td>ClassEnvironment</td>
<td>.756</td>
<td>.029</td>
<td>.060</td>
<td>.021</td>
<td>-.033</td>
</tr>
<tr>
<td>ResourcesInLectureRoom</td>
<td>.812</td>
<td>.362</td>
<td>-.031</td>
<td>.027</td>
<td>-.176</td>
</tr>
<tr>
<td>ResourcesDuringPracticals</td>
<td>.725</td>
<td>-.020</td>
<td>.064</td>
<td>.146</td>
<td>.101</td>
</tr>
<tr>
<td>Counselling</td>
<td>.198</td>
<td>.040</td>
<td>.007</td>
<td>.874</td>
<td>.136</td>
</tr>
<tr>
<td>Library</td>
<td>.047</td>
<td>.171</td>
<td>.123</td>
<td>.824</td>
<td>-.253</td>
</tr>
<tr>
<td>Lecturers</td>
<td>.654</td>
<td>-.037</td>
<td>.426</td>
<td>.188</td>
<td>.068</td>
</tr>
<tr>
<td>CompetencesRelevantToJob</td>
<td>.377</td>
<td>.799</td>
<td>.125</td>
<td>.088</td>
<td>.001</td>
</tr>
<tr>
<td>ExpectedIndustrySkills</td>
<td>.357</td>
<td>.410</td>
<td>.677</td>
<td>.259</td>
<td>-.029</td>
</tr>
<tr>
<td>SkillsHelpedInTransition</td>
<td>.465</td>
<td>.471</td>
<td>.536</td>
<td>.214</td>
<td>.017</td>
</tr>
<tr>
<td>JobInlineWithTheCourse</td>
<td>-.133</td>
<td>.925</td>
<td>.010</td>
<td>-.047</td>
<td>.026</td>
</tr>
<tr>
<td>OverQualified</td>
<td>-.005</td>
<td>-.027</td>
<td>-.033</td>
<td>-.062</td>
<td>.973</td>
</tr>
<tr>
<td>CareerExpectations</td>
<td>.020</td>
<td>.790</td>
<td>.246</td>
<td>.206</td>
<td>-.101</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

**Figure 7: Factor Analysis - Rotated Component Matrix**

Multiple item scale was carried out to enhance validity, hence making the study fit for purpose. The key variables were formed as follows:

First the highest values for each of the 14 variables were identified, then the highlighted variables within the 5 different columns represented the corresponding 5 key variables (components) of this study. Therefore, this study has 5 key variables, four of which have more than one statement each, hence 4 of the key variables are multiple item scales.

The factors (key variables) were called something other than the name of the observed variable. The reason for this is that factors are latent aggregates of observed variables and the factor name should represent the aggregate and not be confused with a specific measured variable.
<table>
<thead>
<tr>
<th>Component</th>
<th>Factor/s</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Class environment, lecturers, resources in lecture rooms and resources during practicals</td>
<td>Quality of Instruction (Independent Variable)</td>
</tr>
<tr>
<td>2</td>
<td>Competences relevant to job, skills helped in transition, Job in line with the course, career expectations</td>
<td>Graduates’ employment potential (Dependent variable)</td>
</tr>
<tr>
<td>3</td>
<td>Good academic grades, Good quality education, Expected industry skills</td>
<td>Acquired Skills and Competences (Independent variable)</td>
</tr>
<tr>
<td>4</td>
<td>Counselling and library</td>
<td>MCAST services, counselling and library (Independent variable)</td>
</tr>
<tr>
<td>5</td>
<td>Over qualified</td>
<td>Student academic performance (Independent variable)</td>
</tr>
</tbody>
</table>

**Figure 8: Identified Variables**

The above figure represents how the 14 factors were grouped in the 5 different components of this study. This indicated areas of improvement for the instrument, by adding a number of related questions of a particular variable. For example, since only one factor (Over qualified) reflects the variable, student academic performance, new questions related to this variable were added to the new instrument.

In this study, factor analysis was primarily used for data reduction. The purpose of data reduction was to remove redundant (highly correlated) variables from the data file. The principal components method of extraction began by finding a linear combination of variables (a component) that accounts for as much variation in the original variables as possible. It then found another component that accounts for as much of the remaining variation as possible and is uncorrelated with the previous component, continuing in this way until there are as many components as original variables found. Five components accounted for most of the variation, and these components were used to replace the original variables. This method was used to reduce the number of variables in the data file. The initial conceptual framework of this study included 14 factors. The revised conceptual framework (Figure 17) included 4 independent variables and 1 dependent variable.

The variables of the revised conceptual framework emerged from the outcome of factor analysis, that is the rotated component matrix.

The instrument’s reliability and validity were tested before carrying out a pre-test on the respondents. Following this pre-test, the conceptual framework was adjusted, and the hypotheses were re-defined. Any ethical concerns were eliminated through guaranteed confidentiality and anonymity, as well as the fact that no sensitive issues were discussed. Limitations of this research were also stated.

The visuals and results of Stage 2 of the methodological approach, where the multivariate technique linear regression was carried out, are explained in detailed in the following
A STUDY OF THE FACTORS THAT INFLUENCE THE EMPLOYMENT POTENTIAL OF MCAST LEVEL 4 GRADUATES

section. Stage 1 factor analysis was mainly carried out for data reduction and to identify areas of improvement for the instrument. A new updated instrument was then created and used for Stage 2 regression. The conclusions from Stage 1 pre-test factor analysis led to the following updated conceptual framework and refined hypotheses where each independent variable has a significant positive relationship with the dependent variable. The following Figure 9, is a representation of the refined conceptual framework of this Tracer Study for Level 4 students from all MCAST Institutes.

**Figure 9: Refined conceptual framework**

**Refined Hypothesis:**

- H1: Student academic performance has a significant positive relationship to graduates’ employment potential
- H2: Quality of instruction has a significant positive relationship to graduates’ employment potential
- H3: Acquired skills and competences have a significant positive relationship to graduates’ employment potential
- H4: MCAST services have a significant positive relationship to graduates’ employment potential

In this study, the above 4 assumptions have been met. Hence the following equation is proved.

\[ y = \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + e \]

Where \( y \) denotes the dependent variable that is linearly related to \( k \) independent (or explanatory) variables \( x_1, x_2, x_3, x_4 \) through the parameters \( \beta_1, \beta_2, \beta_3, \beta_4 \) presented below.

\[ y = \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + e \]

This is known as the multiple linear regression model. The parameters \( \beta_1, \beta_2, \beta_3, \beta_4 \) are the regression coefficients associated with \( x_1, x_2, x_3, x_4 \) respectively and \( e \) is the random error component, reflecting the difference between the observed and fitted linear relationship.
Key Findings

The following is a representation of the Hypotheses and corresponding regression values.

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Beta</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: Student Academic Performance has a significant positive relationship with the Graduates' Employment Potential</td>
<td>0.005</td>
<td>0.958</td>
</tr>
<tr>
<td>H2: Quality of Instruction has a significant positive relationship Graduates' Employment Potential</td>
<td>-0.023</td>
<td>0.823</td>
</tr>
<tr>
<td>H3: Acquired Skills and Competences have a significant positive relationship Graduates' Employment Potential</td>
<td>0.660</td>
<td>0.000</td>
</tr>
<tr>
<td>H4: MCAST Services have a significant positive relationship Graduates' Employment Potential</td>
<td>0.053</td>
<td>0.001</td>
</tr>
</tbody>
</table>

**Figure 10: Hypotheses and corresponding regression values**

Acquired skills and competences was the variable with the strongest significant positive relationship to graduates' employment potential (beta value 0.660, Sig. 0.000), thus proving the hypothesis. The factors constituting the acquired skills and competences variable were: good academic grades, good quality education, and having the expected industry skills.

The factor: Good academic grades, was presented by the following reply in the survey: *Overall, I achieved good academic grades (average over 80).* The factor: Good quality education, was presented by the following question in the survey: *Quality education is one that is meaningful, worthwhile, responsive to individuals and social needs, and provides a positive learning outcome. Overall, I experienced good quality education and training.* The factor: Expected industry skills, was represented by the following question in the survey: *MCAST has provided me with the expected industry skills, knowledge and competencies for my vocational career.* In the study of Ramirez, Cruz and Alcanatar (2014) it was concluded that the fields of specialisation and school-acquired skills and competencies of the graduates, are relevant to their chosen occupations and these greatly help them in the performance of their jobs. The results of the same study concluded that there is a significant relationship between the two variables: Fields of specialisation vs academic-acquired skills and competences, was explained by the obtained chi-square value of 217.168 in a degree of freedom of 12, with significant value of .000 which is less than the $\alpha = .05$. This explains that the employed graduates' fields of specialisation are related to their school-acquired skills and competences which are relevant to their chosen occupations.

In the 2018 European skills index published by Cedefop (2019a), it was highlighted that the three main aspects that make up a country's skills system are the following: Skills
development; skills activation; and skills matching with the appropriate job. In the report Continuing vocational training in EU enterprises: Developments and challenges ahead (Cedefop 2019f), it is clear that the acquired skills and competences have a significant positive relationship with graduates’ employment potential since the report analyses the reasons indicated by EU enterprises for not providing (further) training to employees in 2015. A large majority of enterprises who did not provide training to their staff (82%) indicated no need for it (in the sense that they perceived available skills as matching their current needs). Even among large enterprises, a clear majority (69%) stated that available qualifications, skills and competences match current needs. This emerged as the main reason for not providing training.

Cedefop’s role is at the intersection between education, training and employment. When Margaritis Schinas, chief spokesperson for the European Commission was asked about the importance of the Commission’s research and policy monitoring in VET, skills, qualifications, and its work with EU Member States, he explained that Cedefop has always been a player in VET and skills. Its presence is well known to the skills constituency and its link to the educational system. Over the years, Cedefop has managed to project itself as a success story in bridging the main elements of the issues discussed in this study, especially with the thematic constituencies: Employers, employees and member states. But there also is a challenge for Cedefop, as for most agencies in the years to come, to reach out beyond their traditional constituencies, in this case VET and education. These will be fundamental societal choices. Schinas, claims that he would urge Cedefop not to miss the opportunity to contribute to this broader societal debate (Skillset and Match, Cedefop 2019e).

In the Higher Education Strategy for Malta, (NCFHE 2015), it was explained that a good quality education must ensure that all the educational programmes offered allow for an adequate balance of work, study and family life. An important aspect for students is their compatibility with other responsibilities, such as family and work. Therefore, programmes offered by higher educational institutions should have a range of modes, some of which are designed with the adequate balance of work, study and family life. This refers to the mode of delivery, the time at which these programmes are offered, as well as the workload associated with them. All of this reflects a good quality education.

Conclusion and Observations

The research objective of this study was to determine whether the student academic performance, quality of instruction and acquired skills and competences are related to the graduates' employment potential. The main aim of this research project was to develop a clear picture of the situation faced by MCAST graduates after completing their Level 4 studies. This research should be able to assist stakeholders in their decision-making processes regarding the responsiveness of education on the supply side, to the situation of the labour market on the demand side.

There is a need for regular graduate surveys to allow for monitoring over time, especially to investigate the way in which graduates transition into the labour market and their labour market outcomes. This cross-sectional graduate survey does not allow capture of long-term or mid-term development of the graduates. Little can be said about employability, career stability and long-term success on the labour market. It is, therefore, equally important to have longitudinal panel graduate surveys to trace the situation of graduates periodically, over a longer timeframe.
The success and impact in the use of graduate studies is highly dependent on the availability of accurate data about graduates, along with their contact details, to be able to invite them to participate in the research. In this regard and due to the General Data and Protection Regulation (GDPR), a strong cooperation from MCAST registrar is pivotal to be able to reach the target audience of this research. For this study a random sample was collected through Facebook, which limited the number of participants.

The key limitations of this study were time and resource constraints since this had to be carried out within timeframes stipulated in the Masters programme, and no financial budget was available outside the students' own resources. Since time was one of the main constraints in this study, methods such as focus groups, which would have given the study more insight into the students' perspective, were not included. Interviews would also have been time consuming and would have detracted from the rigorous quantitative study planned. The research instrument used for this study, that is the closed survey, is the ideal research method for this study, but closed surveys also have disadvantages. One of the main disadvantages is the loss of spontaneous responses and insight due to the rigid nature of answers. The choice of sampling technique was also dictated by these factors. The convenience sampling technique was chosen to obtain as many responses as possible in order to achieve an adequate sample size to allow for multivariate analysis. This technique is often used in situations where precise representativeness is not necessary and is commonly used in tracer studies. This means that the sample is only truly representative of the collective respondents to the survey, and to the selection criteria adopted, such as age, income and education levels. The argument that the sample is either totally random – therefore inferable to a wider audience – or totally non-random – with zero inferability – looks at sampling from a polar perspective and not as a possible continuum between the two extremes. The fact that caution was taken not to bias the choice of respondents in any way, except for accessibility, means that an element of representativeness should indeed exist. A further limitation is in the cross-sectional nature of the research that has been carried out, again due to the time and resource constraints.

References


A STUDY OF THE FACTORS THAT INFLUENCE THE EMPLOYMENT POTENTIAL OF MCAST LEVEL 4 GRADUATES


A STUDY OF THE FACTORS THAT INFLUENCE THE EMPLOYMENT POTENTIAL OF MCAST LEVEL 4 GRADUATES


Ho, R. 2006. Handbook of univariate and multivariate data analysis and interpretation with SPSS. Chapman and Hall, CRC.


