# **Career Interest Courseware for Youth (CICY)**

by

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Dissertation submitted in partial fulfilment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information Systems)

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# **CERTIFICATION OF APPROVAL**

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A Project Dissertation submitted to the
Business Information Systems Programme
Universiti Teknologi PETRONAS
in partial fulfilment of the requirement for the
Bachelor of Technology (Hons)
(Business Information Systems)

Approved by,

(Mrs Nazleeni Samiha Binti Haron)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK

SEPTEMBER 2011

# **CERTIFICATION OF ORIGINALITY**

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

Muhammad Syafiq Izzat Bin Azmi

#### ABSTRACT

There are many career tests and assessments that have been developed on paper however youth do not utilized them to determine the right career for them in the future. Youth are keen in multimedia form of learning since the technology has bring a new wave to the world. Some youth, they just know certain possible careers and stick to few without knowing in detail about the job they prefer. In addition, the existing career guide and assessments on paper tend to make the youth get easily bored and not interested. The objective of this project is to create awareness for youth about the right career they should go for in the future. This paper suggests a courseware which will determine one's suitable career based on the interests and give more information about the job scope. The waterfall model in the System Development Life Cycle is used in developing the courseware. Survey and comparison for the possible courseware development tools were done in order to collect necessary information. The suggested courseware which is developed in an interactive medium is expected to create awareness to the youth about the career they should go for in the future. The courseware is developed for youth in secondary school at the age of 15 to 17 years old.

## **ACKNOWLEDGEMENT**

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#### CHAPTER 1

#### 1.0 INTRODUCTION

#### 1.1 Project background

Ask youth what they want to be when they grow up and the answer is unlikely to be decisive (Ronan, 2005). The youth are in dilemma of what they would be for years to come. According to the Standard United Nations definition, youth comprises young people aged between 15 to 24 years old. The Malaysian government defines youth as those between 15 to 40 years while the Malaysian Trade Union Congress (MTUC) says youth are those between 15 to 34 (Doraisamy, 2011). In this research, youth is considered to be from 15-17 years old. The range of age between 15 to 17 is just right for the youth in deciding on their career path in the future. The Career Interest Courseware for Youth (CICY) is intended to help the youth in giving the clear picture of career opportunities they have out there. It is designed in form of pictures and videos to attract the youth in guiding them to the right choice of career. List of picture form questions based on interest will then lead to possible careers that they would most likely be. The result will show which type of personality the person is and it is based on code of Holland (Holland, 1959). Holland characterized personality into several categories; Realistic, Investigative, Social, Conventional, Enterprising or Artistic and match them with suitable career opportunities. The courseware also works like a motivation for the students to work harder in order to achieve what they want to be in the future. It gives them clear career path and goal for future undertakings so they can start planning now.

## 1.2 Problem Statement

• Lack of exposure on possible career opportunities among Malaysian youth.

Less exposure in school about career keep them away from knowing more about possible careers they could have in future. Selecting the right career is never an easy matter (Agarwal, 2008). They do not have a sturdy career to hold and it keeps changing over time.

Many career tests have been developed on pencil-based and web-based, not
in interactive and courseware form to attract the youth.

Table 1: Exisiting Career Test Assessments

Careers Tests	My Career	My Personal	The Career Key			
	Profile	Job				
		Coach				
Number of Questions	75	41	5			
Theory Used	Holland Code	Jungian Theory	Holland Code			
Recommends Careers	Yes	Yes	Yes			
Provide Job	Yes	Yes	No			
Descriptions						
Easy to Navigate	Yes	Yes	Yes			
Web-based	Yes	Yes	Yes			

Table 1 shows few existing career test assessments which are developed on websites. Young people like youth are more interested with pictures and videos compared to words (Kail, 2002). They tend to get easily bored and not interested with current career's evaluation and assessment test.

# 1.3 Objectives

- To create awareness for the youth about their future career.
- To develop a courseware which will determine one's personality and propose suitable career.

## 1.4 Scope of Study

According to the Seventh (1996-200) and Eight (2001-2005) Five Year Malaysia Plan, youth population between the age group 15-24 has increased 2.1% a year from

3.58 million in 1990 to 3.97 million youth in 1995. A further increase of 1.6% is recorded from 4.03 million in 1995 to 4.37 million in the year 2000. This is a good indicator and shows that the target audience for the courseware is high.

The courseware is developed for youth at the age of 15 to 17 years old in Malaysia. Deciding upon a career path is a process that should start early since in high school and continue as that person moves into college (Agarwal, 2008). Some teenagers are lucky enough to know what they want to do with their lives after graduating. They can plan earlier and better for their future undertakings.

Scope of study for the project involves in the current research papers, books, websites and to develop a courseware in an interactive form. There are many possible platforms to develop the courseware however Adobe Flash is more preferable since it meets the requirements.

#### 1.5 Relevancy of The Project

The project is relevant since it aims to expose youth about career opportunities. The courseware also works as a motivation form. Once the students have the ambition, they would strive hard in their study since they already have goals in life. It is important to have goal in order to know what to achieve in the future (Rees, 2002). The youth will have opportunity to know about the right career which suits well based on their personality as well as knowing its job scopes.

#### 1.6 Feasibility of The Project

The project is developed using Adobe Flash and it is feasible to be done in the time frame. Among the materials to be included in the courseware are videos and pictures. Both play important role since they give the right and strong impact while the courseware is been played. It is necessary to search for the materials in the time frame other than the technical part of coming out with the algorithm to match the interest of the youth with the personality and right career for them to go in the future. The time frame given is enough and ample for the courseware to be developed.

#### **CHAPTER 2**

#### 2.0 LITERATURE REVIEW

Characteristics of Youth

Holland Codes Career Model

Visual Learning

Courseware-based Learning

Related Works

#### 2.1 Characteristics of Youth

Young adults between the ages of 15 and 24 are about 20 percent of the 26 million Malaysian population (Rahim & Pawanteh, 2009). They are considered by the government as national asset and the future of the nation. Griffin (1997) considered young adults as the key indicator of the state of a nation, it is expected to reflect the cycle of booms and troughs in the economy, shifts in cultural values over sexuality, morality, and family life, concepts of nationhood, and occupational structures.

Youth are facing career dilemma and expected to find their own career development road. They challenged themselves continuously and try to improve themselves with the help of the organization. It is partly because they have particular individual characteristics and the special needs of career development (Bing & Xiaoyan, 2009). Youth have interest and curious about their career development in the future.

Lubinski & Humphreys (1992) developed and compared psychological profiles of normative groups of students both boys and girls. From their findings in terms of abilities, males demonstrated superiority in spatial, technical and scientific areas, while females showed superiority in English. Some males are however tended to be

more variable in these areas. As suggested by their work, the gender differences in abilities and in career interests appearing during adolescence seem to be of major relevance for future educational and career attainment.

An emerging trend in media used in Malaysia is the duration of time spent on computers and playing video games. The study revealed that if total time spent on computers is taken collectively it surpasses the time spent on television or radio.

Youth in range of 16-20 years old spend 36 hours weekly utilising the various aspects of facilities offered by computer technology (Rahim & Pawanteh, 2009). The popularity of video games and computer related activities unveils an emerging trend of media use among youth in Malaysia. This indicates that developing CICY is relevant and the youth would utilize it well when they are using computer since they spend lot of time discovering computer technology.

It was observed that the young people tend to experiment with and evaluate a technology if it is convenient, affordable, supports their actual rather than hypothetical activities or satisfies their needs for style or fashion. Media literacy should be an open, lifelong and continuous education, which should be oriented to all members of the society (Zichen & Lifang, 2010). It should be linked up with people of all ages, rather than be limited or fixed in a particular group or a certain stage of individual growth.

#### 2.2 Holland Codes Career Model

The Holland Code Career Model is originally developed by John Holland in 1957. The theory identifies one's personality type and ideal work environments. The Holland Code consists of six different groups which are Realistic, Investigative, Artistic, Social, Enterprising and Conventional (RIASEC).



Figure 1: Holland Codes Personality

(Source: Askew, 2011)

According to Holland (1959) Realistic is a group of people who have athletic ability, prefer to work with objects, machines, tools, plants or animals, or to be outdoors while Investigative group is those who like to observe, learn, investigate, analyze, evaluate, or solve problems.

On the other hand, Holland (1959) justified Artististic as a group of people who have artistic, innovating, or intuitional abilities and like to work in unstructured situations using their imagination and creativity while Social group of people is those who like to work with people to enlighten, inform, help, train, or cure them, or are skilled with words.

He added that Enterprising people are those who like to work with people, influencing, persuading, leading or managing for organizational goals or economic

gain. Conventional people like to work with data, have clerical or numerical ability, carry out tasks in detail, or follow through on others' instructions.

The Holland Codes System classified jobs into job categories, interest clusters, or work personality environments. In the Holland Model, these categories represent work personalities. Below are some of the career possibilities for each code:

Table 2: Holland Codes Personality Career Possibilities

Codes	Characteristics	Some of the career possibilities					
Realistic	Practical, independent, systematic, nature lover	Baker / Chef, Carpenter, Farmer, Firefighter, Engineer, Tailor					
Investigative	Analytical, observant, precise, curious, complex, scientific	Archelogist, Pharmacist, Veterinarian, Dentist, Chemist, Programmer					
Artistic	Creative, imaginative, innovative, original, expressive, impulsive	Actor, Dancer, Architect, Fashion designer, Interior designer					
Social	Friendly, helpful, outgoing, patient, cooperative, kind	Air Traffic Controller, Librarian, Nurse, Counselor, Police Officer					
Enterprising	Self-confident, enthusiastic, persuasive, extroverted, sociable	Lawyer, Flight Attendant, Sales Manager, Barber, Stock Broker					
Conventional	Well-organized, efficient, practical, structured, systematic	Accountant, Clerk, Medical Assistant, Typist, Kindergarten Teacher					

### 2.3 Visual Learning

Different images are allowed into some learning contexts and are mobilised for the purposes of teaching and learning in distinct ways. Learning with visual creates a better solution for dynamic progress. In general, people would prefer material which is illustrated (Levie & Lentz, 1982) and regard it as being of higher quality.

Young people like youth tend to be more interested to deal with pictures compared to a paper written with words (Kail, 2002). Video is also another source of information and learning. The presence of pictures relevant to the text will assist learning. Pictures are a potent source of information since it could extend human memory and it is used to amplify or intensify a communication in some other medium (Kail, 2002).

Levin (1989) states that pictures interact with text to produce levels of comprehension and memory that can exceed what is produced by text alone. That is the main reason why many of the findings from studies of the use of illustrations in printed material are transferable to the computer screen (Levin, 1989). Career test in form of courseware is one of the examples that could bring the learning to a new and high comprehension level.

Young people learn more than half of what they know from visual information, but few schools have an explicit curriculum to show students how to think critically about visual data (Jenkin, 2008).

## 2.4 Courseware-based Learning

Learning by computer application has created a paradigm shift to the youth nowadays, it stimulates and developes a new range of skills; from image and text processing to sifting and sorting; from single-task to multi-task acquisition; from passive receipt of material to active participation in the gathering of that material (Passantino, 2010). It dominates the market and used as an effective tool in assisting learning.

Young people today are more excited in participating computer-based application learning, they do not use libraries or read books in the same way like earlier generation used to (Wortley, 2007). Serious computer-based application learning enable learners to undertake tasks and experience situations which would otherwise be impossible and undesirable for cost, time and logistical (Wortley, 2007). There are many education tools which have been developed in digital and multimedia form since youth show more interest on it.

There are a lot of coursewares developed in the market like a courseware for new employee orientation in a company in China, Perisian PraSekolah courseware for kids and Jawi learning courseware for the beginners.



Figure 2: New Employee Orientation e-Learning Courseware (Source: Beyond Technology, N.D.)



Figure 3: Perisian Prasekolah Courseware (Source: Naszuan, N.D.)

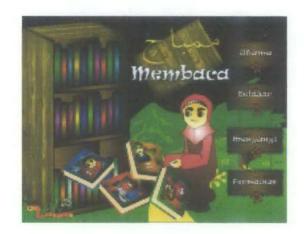


Figure 4: Jawi for The Beginner (Source: Design for You, 2009)

#### 2.5 Related Works

There are already many career test assessments that have been developed. However, there are few lacks in the assessments that could make rooms for improvement. The assessments are found all over the websites and books or papers but there is no courseware-based learning that has been found.

Table 3: Comparison of Exisiting Career Test Assessments

Careers Tests	My Career	My Personal	The Career Key			
	Profile	Job				
		Coach				
Number of Questions	75	41	5			
Theory Used	Holland Code	Jungian Theory	Holland Code			
Recommends Careers	Yes	Yes	Yes			
Provide Job	Yes	Yes	No			
Descriptions						
Easy to Navigate	Yes	Yes	Yes			
Web-based	Yes	Yes	Yes			

CICY is developed in Adobe Flash in more interactive form. Besides, the questions asked are in form of pictures where there are 15 set of questions with 4 pictures on each set. On each set, the user needs to choose one picture he most prefered and the one he least prefered. At the end, the result will come out based Holland Code on which group the user is based on their interest, whether it will be Realistic, Investigative, Artistic, Social, Enterprising or Conventional.

The user can play the videos and read the job descriptions of the suitable careers provided for each of the group. The videos also come along with subtitles to make it easy for the user to listen and catch up the words. The pictures and videos attached in the courseware are very helpful to encourage the learning process.

#### **CHAPTER 3**

## 3.0 METHODOLOGY

Aurhor is using Waterfall Model to develop the courseware. There are five phases in the model which are Planning, Analysis, Design, Implementation and Testing.

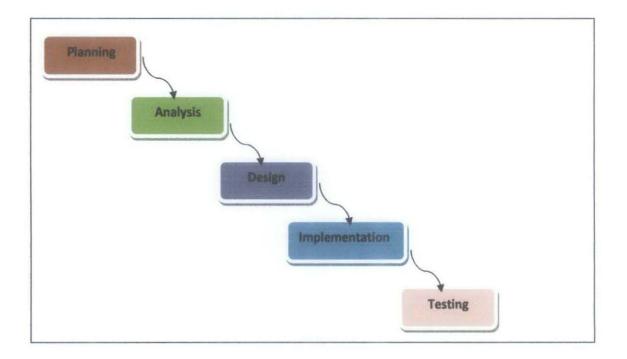


Figure 5: Waterfall Model

(Source: Vorderer, 2009)

## 3.1 Planning

The overall project is intended to come out with a courseware in helping youth to decide suitable career based on interest. The courseware is planned to be in interactive form with pictures and videos to keep it fascinating and informative.

The following is the hypothesis developed for this project:

Ho: Youth who play the courseware are able to identify suitable career for them.

## 3.2 Analysis

## 3.2.1 Survey

Questionnaires about awareness of career would be distributed to the youth in the secondary schools to know their level of awareness in their future career. Surveys are conducted in pre and post test. The questionnaires for the pre test and post test surveys are attached in appendix.

## 3.2.2 Comparison among possible development tools

Table 4: Comparison of Development Tools

Flash	Visual Basic	Web-based
Interactive	Less Interactive	Quite Interactive
ActionScript     programming     language	Visual basic programming language	Java, HTML, PHP language
Plug-in software, can be used anytime	Embedded software	Need to go online

Based on Table 4, Flash is more preferable since it is more familiar and it meets the requirements of how the project would be like. It could be done in more interactive way and therefore result to a promising courseware learning.

# 3.3 Design

# 3.3.1 The flow of the courseware application

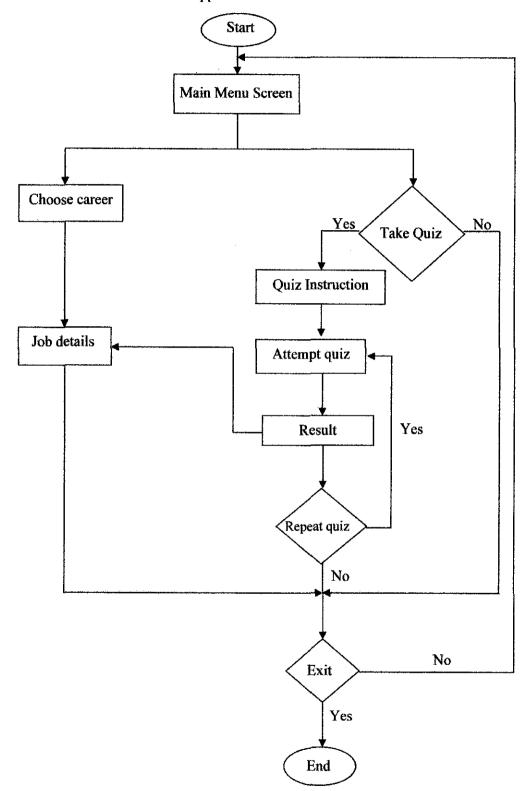
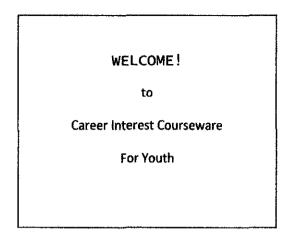


Figure 6: Flowchart of the courseware

# 3.3.2 Storyboard of the courseware



MAIN MENU

Choose your career

Take a quiz

Quit

Figure 7: Welcoming Remarks

List of careers

- Accountant -Nurse

- Lawyer - Chef

- Pharmacist - Archelogist

- Firefighter - Librarian

- Architect - Sales Manager

Figure 8: Main Menu

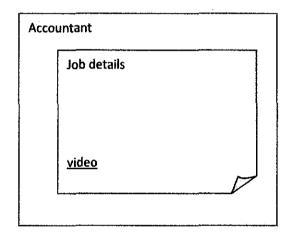


Figure 9: List of Careers

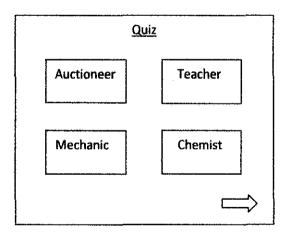


Figure 10: Career's Details

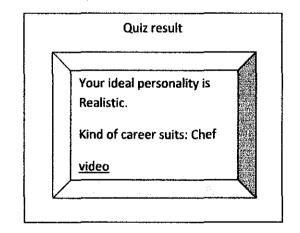


Figure 11: Quiz

Figure 12: Quiz's Result

## 3.4 Implementation

For the development phase, since it is developed using Flash, the programming of the game is done using Action Script 2.0. ActionScript 2.0 adds relatively little new runtime functionality to the language but radically improves object-oriented development in Flash by formalizing objected-oriented programming (OOP) syntax and methodology.

### 3.5 Testing

Testing phase comes next after the courseware has been developed. For the testing purpose, the courseware is distributed and tested to 20 secondary school students from Form 3 to Form 5. Feedback and survey from the students are collected to know if they feel the courseware is a fun learning medium and could guide them to the suitable career.

There are pre and post test. The pre test takes place before the students play the courseware where a survey will be conducted and students will be asked about their ambition and whether they know in details about the job. The aim of the survey is to know youth's level of awareness about their future career.

The post test is conducted after the user plays the courseware and they will be asked if the courseware helps them to know more about jobs and propose the suitable career for them. The aim of the post test survey is to collect the feedback from the user and to know whether the courseware helps in deciding suitable career that best suits them.

## **CHAPTER 4**

# **RESULT & DISCUSSION**

# 4.1 CICY Prototype

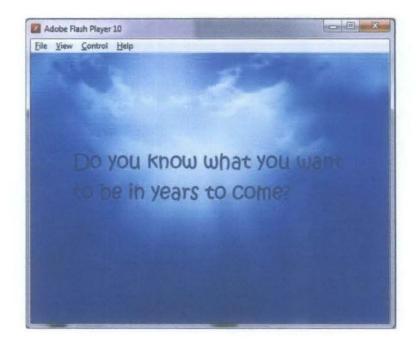


Figure 13: Welcoming Page

User hits CICY welcoming page when first starting the courseware. Next, it leads the user to the main page.

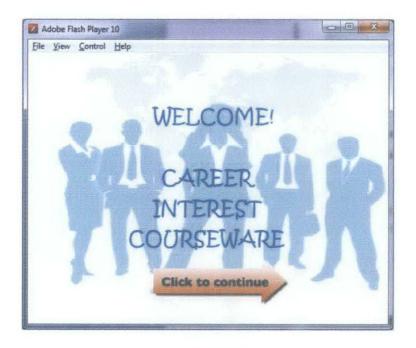


Figure 14: CICY Main Page

On the main page, the user needs to click on the arrow in order to go to the home menu.

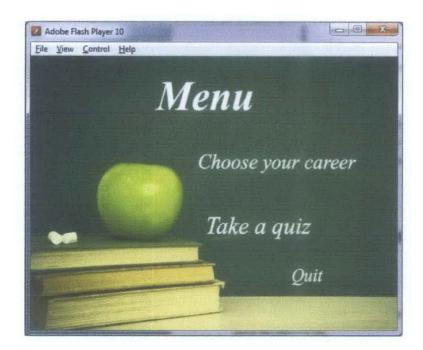


Figure 15: The Home Menu

On the menu screen, there are two options whether the user could choose any career they desire to know more about its details or take a quiz to determine personality. If the user chooses the career, the list of careers will be displayed and the user can view the job descriptions and watch the videos.



Figure 16: List of Careers

There are 18 careers listed and the user can choose any of them in order to know its job descriptions and watch related video.



Figure 17: Selected Job Descriptions



Figure 18: Selected Job Video

On the other hand, if the user clicks to take quiz, the user needs to answer the quiz which consists of 15 questions. There are 4 pictures for each set of questions in which the user needs to choose one picture they most preferred and one least preferred. The user needs to answer the questions based on interest.

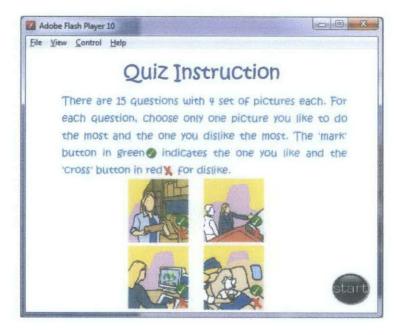


Figure 19: Quiz Instruction



Figure 20: First Page of Quiz



Figure 21: Last Page of Quiz

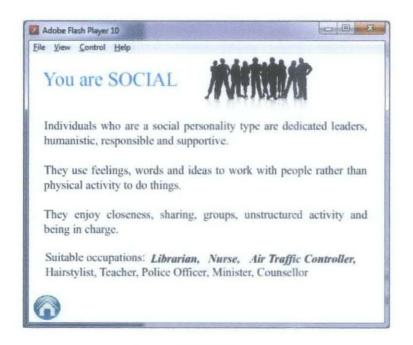


Figure 22: Quiz's Result

Once done, the user can click to 'view result' and the user will know which personality suits them best and what kind of careers are suitable for them.

## **4.2 CICY TESTING**

## 4.2.1 Effectiveness Testing

Effectiveness testing is used to measure whether CICY is an effective platform in creating awareness to the youth about future career and whether the courseware succeeded in determining their personality and suitable career. The tests are in two parts; pre test and post test.

#### 4.2.1.1 Pre Test

Pre test is done before the user plays CICY. The goal of the test is to create awareness to the youth about future career.

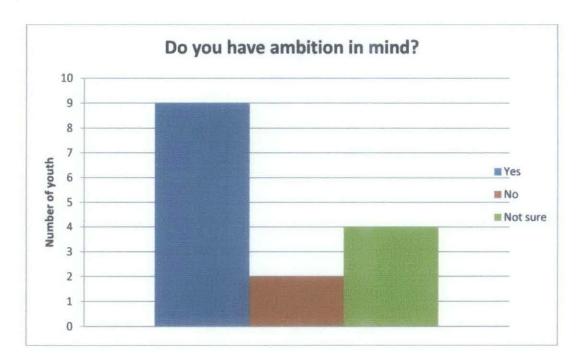


Figure 23: Do You Have Ambition?

Based on Figure 23, 60% of the sample tested have ambition in their mind and only 13% do not have ambition while the remaining 27% are not sure. This indicates that many have already planned their future career path.

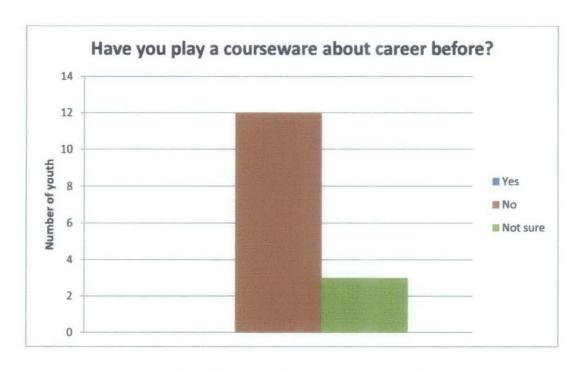


Figure 24: Have You Play a Career Courseware Before?

Based on the figure above, 80% of the sample tested have never played a courseware about career before while only 20% are not sure.

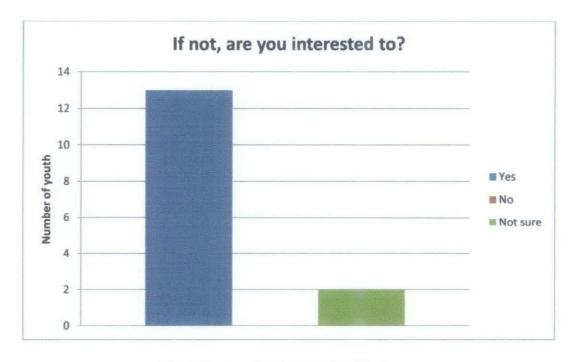


Figure 25: Are You Interested to Play?

According to Figure 25, 87% of the sample tested are interested to try playing the courseware while only 13% are undecided. This indicates that majority of the youth are interested in a multimedia form of learning; a courseware-based.

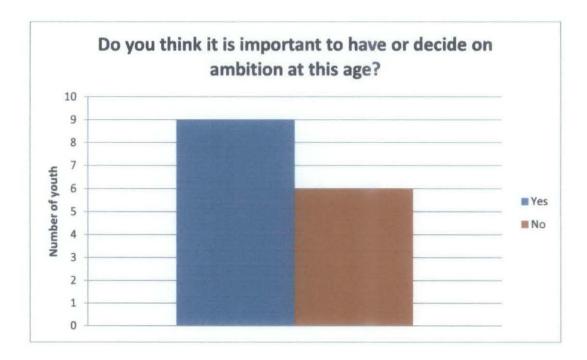


Figure 26: Is it Important to Decide Ambition at Your Age?

Based on the figure above, 60% of the sample answered that it is important to decide ambition at their age while the remaining 40% answered otherwise. Majority of the sample tested have the awareness of their future career.

#### 4.2.1.2 Post Test

The post test is conducted right after the user played the courseware. The goal of the test is to collect feedback whether or not CICY has manage to determine and propose suitable career for the user.

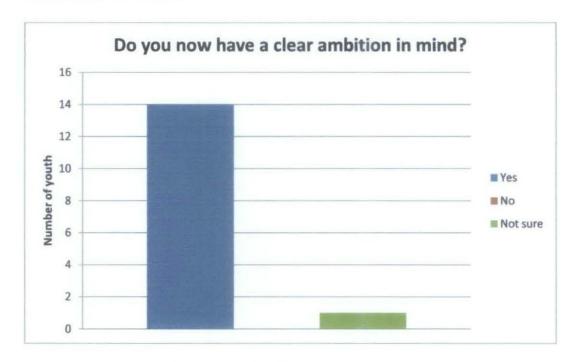


Figure 27: Do You Now Have a Clear Ambition?

Based on the figure above, 93% of the sample have a clear ambition after they played the courseware while only 7% are not sure. This indicates that the courseware is succeeded in guiding the user to have a clear future career.

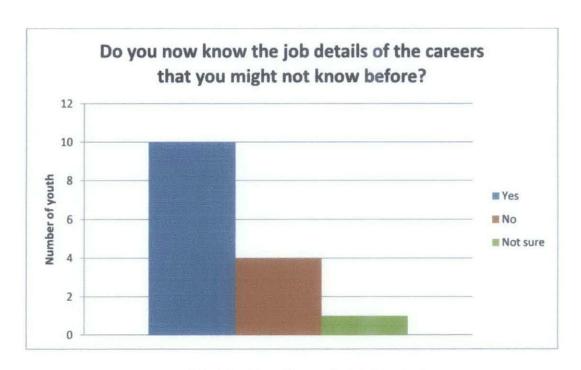


Figure 28: Do You Now Know The Job Details?

According to the figure above, 67% of the sample know job details of selected careers way better than before. Only 27% answered no while the remaining 6% are not sure. The courseware managed to educate the user on job details of few selected careers which are less popular.

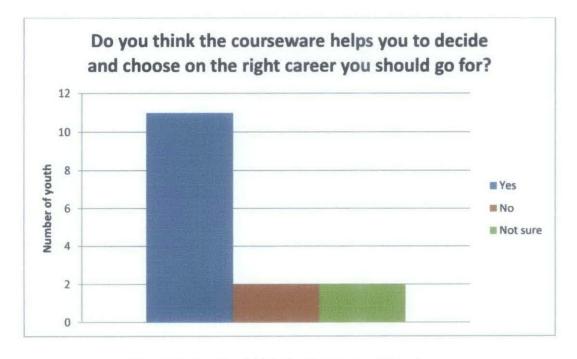


Figure 29: Do You Think the Courseware Helps?

Based on Figure 29, 73% of the sample agreed that the courseware helps them to decide and choose the right career that they should go for. This indicates that the courseware has reached its objective to help the youth in proposing suitable career based on their personality.

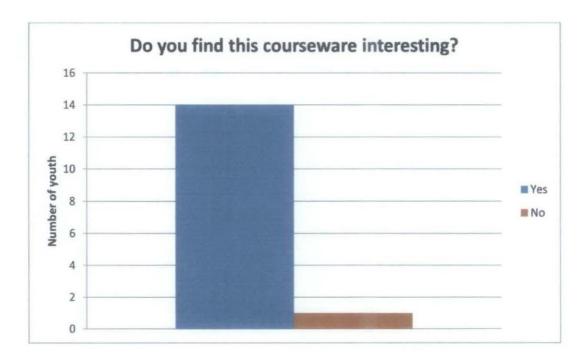


Figure 30: Do You Find the Courseware Interesting?

Based on the figure above, 93% of the sample answered that the courseware is interesting. This proves that youth like a multimedia and interactive learning medium.

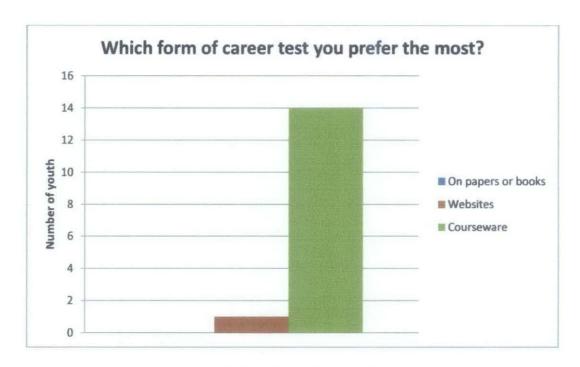


Figure 31: Which Form of Career Test?

Based on Figure 31, 93% of the sample preferred career test in form of courseware rather than books or websites. The users feel more excited to play the courseware since they have not tried playing a courseware about career before.

The following is the hypothesis developed for this project earlier:

Ho: Youth who play the courseware are able to identify suitable career for them.

Based on the findings done, it can be concluded that the hypothesis is proven to be right. 73% of the sample agreed that the courseware is able to guide them in identifying suitable career.

#### **CHAPTER 5**

#### 5.0 CONCLUSION & RECOMMENDATION

Youth are having hard time to decide suitable career for them. There are a lot of career tests and assessments printed on papers and books and developed on the websites however youth do not utilize them because they are not attracted. The idea of CICY is to provide a platform based on multimedia in form of courseware to attract the youth. CICY determines the user's personality and propose suitable career for them. It provides pictures and videos together with job details in words that are not offered by other platforms.

The result of the testing revealed that youth are interested in playing CICY and gave good feedbacks. CICY has managed to assist the youth in determining their personality and proposing suitable career best suits them. CICY has met its objectives.

One of a few recommendations for CICY is to add and include more selection of careers. Currently, there are 18 careers in CICY and it is expected to be more since it is hoped the youth are more exposed to many kind of careers out there instead of sticking to a few careers in mind. Other than that, the interface can be improved to me more attractive and fascinating.

The courseware is hopefully could help to motivate the school children in striving hard in their study to achieve their dream career. Once they know and sure of the ambition they should go for, they stated goal in life and would be motivated to study and achieve well in school. The courseware is a great start to the youth in the schools who are in dilemma of future careers.

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# **APPENDICES**

# APPENDIX A: Questionnaires survey for the pre test

# Final Year Project Survey: Career Interest Courseware for Youth

1)	Do you have	ambition i	in mind? /

Anda ada cita-cita?

- o Yes/Ya
- o No/Tidak
- o Not sure / Tidak pasti
- 2) Have you play a courseware about career before?/

Anda pernah bermain program komputer tentang kerjaya?

- o Yes/Ya
- o No/Tidak
- o Not sure / Tidak pasti
- 3) If not, are you interested to? /

Kalau belum, adakah anda berminat?

- o Yes/Ya
- o No/Tidak
- o Not sure / Tidak pasti
- 4) Do you think it is important to have or decide on ambition at this age? / Anda rase pentingkah untuk tahu kerjaya yang sesuai untuk anda pada umur anda sekarang?
  - o Yes/Ya
  - o No/Tidak

# APPENDIX B: Questionnaires survey for the post test

# Final Year Project Survey: Career Interest Courseware for Youth (CICY)

Adakah sekarang anda sudah ada cita-cita yang pasti?

1)	Do you now have a clear ambition in mind? /	

- o Yes/Ya
- o No/Tidak
- o Not sure / Tidak pasti
- 2) Do you now know the job details of the careers that you might not know before? /

Adakah sekarang anda sudah tahu tentang tugas-tugas pekerjaan yang anda tidak tahu sebelum ini?

- o Yes/Ya
- o No / Tidak
- o Not sure / Tidak pasti
- 3) Do you think the courseware helps you to decide and choose on the right career you should go for? /

Adakah anda rasa program perisian komputer ini dapat membantu anda menentukan kerjaya yang sesuai untuk anda?

- o Yes/Ya
- o No / Tidak
- o Not sure / Tidak pasti
- 4) Do you find this courseware interesting? /

Adakah anda rasa program perisian komputer ini menarik?

- o Yes/Ya
- o No/Tidak

- 5) Which form of career test you prefer the most? / Ujian kerjaya dalam bentuk apa paling anda gemari?
  - On paper or books / Atas kertas atau buku
  - o Websites / Laman web
  - o Courseware / Perisian komputer

# **APPENDIX C: GANTT CHART for FYP 2**

1	Project Activities	Milestones	From	То	Duration (Week)	Wk 1	 CT Wk 3	Wk 4	Wk 1	 OV Wk 3	Wk 4	Wk 1	DE Wk 2	 Wk 4
1	Complete Report	Project Report & Product	26-Sep	28-Dec	13									
2	Progress	Progress Report	01-Nov	14-Nov	7									
		Pre EDX	15-Nov	30-Nov	2									
		Dissertation	30-Nov	7-Dec	1									
		VIVA	8-Dec	21-Dec	2									
		Final Dissertation & Technical Report	22-Dec	28-Dec	1									