

Jacob Smith study skills assignment

by Jake Ian Smith

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Jacob Smith OME Degree apprenticeship Reflection on Study Skills Assignment

Introduction

In this document we are going to look at Jacob a engineer about to embark on an Ordnance Munitions and Explosives (OME) degree as part of his professional development.

We are going to see an introduction presentation which introduces Jacob, what his hobbies are, his likes and dislikes and many other different areas about him. We will also find out about key traits employers like to look for in a candidate and how Jacob's self-evaluation fits into these aspects

It will also cover his strengths and weaknesses when it comes work and how Jacob conducts himself whilst carrying out tasks he has to do with work and university.

This document is also going to cover off other aspects that effects everyone and not just Jacob with the likes of personal and professional data security, how to best keep this data safe as well as potential threats this data might encounter.

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1 Section 1: Presentation

As part of his study skills module for his OME degree apprenticeship Jacob was asked to produce a power point presentation introducing himself. During this presentation where he introduced himself going over a basic overview of himself (Age, marriage status, where he lives etc) see figure 1. In other parts of the presentation, it included information about his employment, hobbies/interests, his past as well and his future goal and aspirations both professionally and personal.

As seen in figure 1, Jacob is a 31-year-old male living in the Forest of Dean. He is married with 2 children and lives with a dog and 3 cats. He works as an engineering manager and enjoys listening to Metal music.



Figure 1

In Figure 2 we can see where Jacob briefly went over his current employment and what he does. We can see that he is an engineering manager for a 30mm cannon that is used by the Royal Navy. We can also see that he used to work in the Short-Range Air defence sector which shows the other systems he worked with



Figure 2

In figure 3 we can see the hobbies that Jacob likes to enjoy, this includes shooting firearms, hiking and that he also runs an Instagram page where he tries to promote shooting within the UK as well as trying to encourage people to get out into the outdoors. We can also see Jacob has made a small selection of hats specifically for his page to help promote himself.

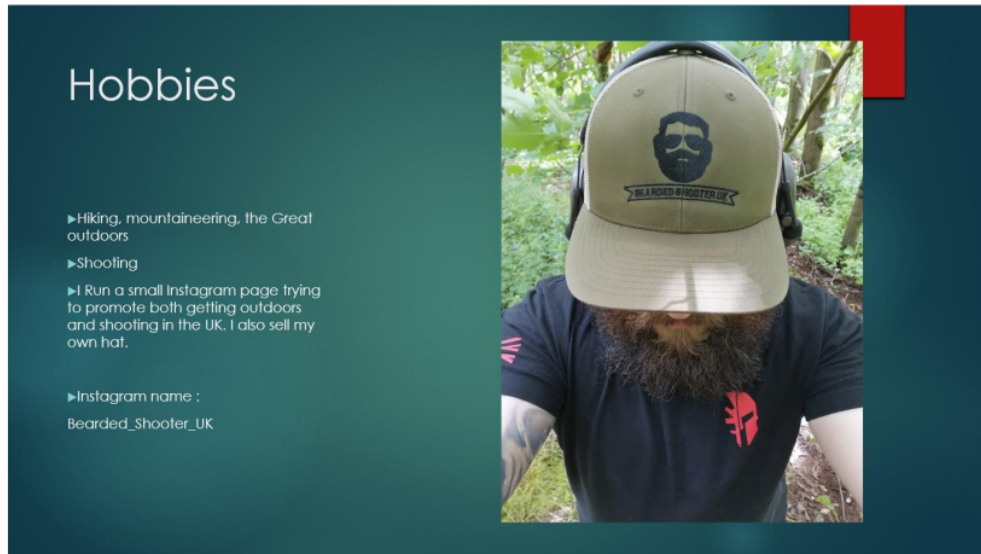


Figure 3

In figure 4 we can see the goals and aspirations Jacob wishes to achieve within the next 5 to 10 years. He has split these down to professional and personal goals. By doing this it allows people to see how he intends to better himself not just professionally by completing a Degree and trying to gain chartered engineering status. But by also trying to get better at his hobbies, by setting goals for shooting as well as more physical challenges like the Three peaks challenge, climbing a mountain like Mt Blanc but also at home with the goals of building a BBQ area in his garden.



Figure 4

During the production of the presentation Jacob was met by various challenges that anyone would have faced. For example, what sort of personal information to be included, what photos to use or even what to say during the presentation.

The challenge around what information to include is especially tough as you wish to include as much information as possible whilst also not giving away too much personal data. This could potentially leave you vulnerable to your personal data being used by criminals if they managed to get their hands on it.

Another thing that Jacob learned during this process was how not to bore people with his presentation style. He has sat through many presentations at work where the person delivering the presentation just read exactly what was on the screen. This style of presentations is usually very boring as they do not add anything extra to the presentation. The best approach to use when delivering power point presentations is to fill the slide with plenty of images and also bullet point key information. The presenter should then add the meat and bones to the bullet points by discussing certain background information and filling in the gaps. Jacob has always found this style of presenting to be much more beneficial for the audience.

After the presentation was completed, Jacob was given a feedback document which can be seen below (figure 5). This information is invaluable in helping someone improve their skills. It allows them to see things they might not have considered or noticed.

One thing Jacob was aware of was his time keeping, he over ran the 5-minute time limit which meant he had to go quicker over the final slides than planned. In future it would be beneficial for Jacob to have practice this presentation a little more beforehand.

The feedback provided was fairly small with only a few little changes suggested, it is believed this is in part down to the previous experience Jacob had delivering a PowerPoint presentation to a group of school kids about his employment. Many of his learning and confidence from delivering that presentation transferred over into this presentation. The biggest challenge was again the time keeping as trying to get a lot of information across in 5 minutes is difficult to do whilst also trying to keep it clear and concise. As with most things if Jacob continues to improve his PowerPoint presentation deliver and takes on feedback after each one his ability, skills and in turn his PowerPoints will improve.

4. Practical Application and Deployment Deployment of methods, materials, tools and techniques; application of concepts; formulation of innovative and creative solutions to solve problems.	50	75
Excellent incorporation of visuals/images/photos to help convey the story and to keep the audience engaged Good choice of a clear, professional looking template. Appropriate layout, use of fonts and text size – although don't go ANY smaller!		
5. Skills for Professional Practice Attributes in professional practice: individual and collaborative working; deployment of appropriate media; presentation and organisation.	50	68
Be careful saying 'Ummm' ... 'errr' etc too many times. Most people do it, but its bad practice and can be avoided. Clear, easy to understand. A very professional delivery, seemed confident and well prepared. Be careful you don't concentrate excessively on things YOU are maybe a little obsessive with, when this means you run out of time to adequately cover the other areas needed. Ran a little bit over time at: 7.40 Practice with a stopwatch beforehand and edit if required, but pretty close!		

Figure 5

2 Section 2: Skills Evaluation

As with most things in life there are certain sets of skills everybody needs to possess to be successful within certain areas. This is no different for educational skills, everybody needs to be able to learn and according to an article on LinkedIn [1] there are 10 skills everybody should be proficient in to be successful. These are.

- Adaptive thinking
- Communication Skills
- Critical thinking and problem solving
- Personal management
- Inquiry skills
- Technology skills
- Creativity and innovation
- Soft skills
- Empathy and perspective

Most of these educational skills are easily transferable and are skills employers could potentially look for in prospective job candidates. We are not going to go into details on all

10 skills listed on the LinkedIn article, but we shall discuss what can be described as 3 important skills that can be beneficial for both educational and employment. These are, Communication skills, Personal management and Soft Skills.

Communication skills as mentioned in the LinkedIn article [1] are important because there are a wide range of communication methods in an ever-increasing digital age. There are many ways in today's age to communicate with someone from face-to-face meetings, video conferencing, phone calls and emails to name a few. Having a good ability to communicate means you can convey your ideas and thoughts clearly and by doing this you can effectively achieve an outcome. You also need to be able to listen to your co-workers. On the job recruiting website Indeed it is listed as one of the most important skills to have [2]

Personal management is a key skill everyone needs to master. If someone has good personal management, they have the ability to prioritise their workload, plan what needs to be done as well as to keep on top of their work life balance. Another bonus of having good personal management according to a different article on Indeed [3] is the person is organised, can set goals, good time management, self-motivated, can manage stress levels and has accountability. All of these are greatly beneficial to an employer.

Soft skills are closely linked to personal management when it comes to time management and organisational skills [1] but is also linked to the ability of someone to maintain eye contact whilst communicating with someone or a firm handshake when meeting someone in a professional setting. Having a great set of soft skills makes you more personable when you meet someone for the first time specially in interview settings. It forms part of our manner and impressions we leave on people we meet. [4]

As part of a self-evaluation process Jacob completed six different personality and study style exercises to help him figure out if what he thought about himself in these areas were correct. He completed the Honey and Mumford, 1986 Learning Style Questionnaire, the IPIP Big five factor markers and Jungian/Myers-Briggs Personality type. He also completed a self-evaluation of academic skills questionnaire where he then produced an action plan with the results. The results of all the above-mentioned assessments can be seen below in Appendix A.

Having completed these evaluations, it was interesting to see the learning style Jacob in pretty much middle of the road on the Honey and Mumford where he had a score of 7 for Activist, Reflector and Theorist sections but an 8 for Pragmatist. According to the Pragmatist learning style Jacob would learn best from Practical demonstrations, project work and practical activities. These fit into the typical learning style Jacob seeks out when trying to learn. For example, Jacob would prefer to watch an instructional video on what he is trying to learn than to read about it in a book. This fits well with the area that the Pragmatists learn from the least, where theoretical lecture are involved.

Another part of the evaluation Jacob also carried out a personality assessment in the form of the Jungian/Myers-Briggs Personality type. Although Jacob had a good idea, he sided more towards the introvert type of personality which was confirmed in the results. It was

also interesting to see Jacob had more of a Sensing and Judging personality as Jacob thought he was more of an intuitive personality than sensing as well as thinking he perceived things instead of judging things. Although the results shown below are very marginally in these directions it sits closely with how the results were shown for the Honey and Mumford test are middle of the road.

Having completed a self-evaluation questionnaire seen in Appendix A, Jacob filled out a Skills action plan against these results. As part of the evaluation Jacob determined he was good at the following four items:

1. Confident to try new things and express my ideas
2. I can meet deadlines
3. Finding information
4. Reading and Understanding complex subjects

He also made a similar list on four things he needs to work on, develop or improve. These are:

1. Starting a new task/assignment and not procrastinating
2. Self-motivate and persevere with difficult tasks
3. Deciding what is relevant and irrelevant in text
4. Reflect and evaluate my own work

It is quite interesting to see these four items listed within both sections could be considered opposites. For example, finding information as a strength but having Decided what is relevant as a weakness could be considered the same thing. What Jacob is listing here is that although he is very good at finding lots of information of specific subjects, he does not always do a good job of determining what information is best to use. If Jacob is able to improve the areas, he is not good in within his list he would intern be strengthening his good points as a result.

As seen in the PowerPoint presentation Jacob delivered (figure 6 below) which was referred to at the start of this report, we can see he has several personal and professional goals he would like to achieve over the next 5 to 10 years.

Next 5 to 10 year plan

Professional

- ▶ Complete this Degree with the highest grade I can
- ▶ Gain a promotion (We all want more money)
- ▶ Become an OME SME for DE&S
- ▶ Potentially continue onto a Masters in OME
- ▶ Chartered engineer

Personal

- ▶ Climb all of the UK's highest mountains
- ▶ Complete National and Yorkshire three peaks
- ▶ Climb Mt Blanc
- ▶ Become the best shooter I can be in mini rifle, shotgun and long range
- ▶ Get my house to how I want it to be and build my BBQ area.

Figure 6

They range from completing training courses to climbing mountains. Like with any goal be it professional or personal they can all be put into the SMART format. In the table below we can see 4 of the goals mentioned in figure 6 put into this smart format.

SMART is an acronym which when broken down means the following:

- S – Situation: State what you will do
- M – Measurable: Provide a way to evaluate it
- A – Attainable: Within your scope/possible to accomplish
- R – Relevant: Make sense within your job and personal like
- T – Time based: When will this be achieved by

By putting a goal into this format, it easily breaks it down into manageable chunks and allows us to easily concourse it. Jacob has put 4 of these goals into the smart format below in table 1.

Situation	Measurable	Attainable	Relevant	Time-based
Complete OME Degree	Degree results at the end of the course	I am on the course and being supported fully by my employer	It fits in with my job and will help me develop my career	In 5 years', time at the end of the degree course
Chartered engineer	Gain chartered accreditation through the IEXPE and various stages before this	I am currently working towards the first stage of professional registration	It is part of my job and would allow me to progress within my engineering field	Within the next 5 to 10 years. I will have the knowledge by the end of 5 years but will

				need to gain more experience to get this accreditation
Climb UK's highest mountains	Make a list of every UK mountain and tick them off as I do it	I have already started climbing some of the UK's highest mountains and I can do them all	This is a hobby I enjoy, and I enjoy doing this in my spare time	There is no real time frame associated with this task and can be completed over a number of years
Become best shooter I can be	Get the best timing and score within my club at shooting events and also take part in national competitions	I am already a consistence performer within the mini rifle shooting days	I already take part in this and will continue to develop my skills to get better	As it is a personal goal there is not a steadfast timeline associated and is all based on marginal gains at every event.

Table 1

3 Section 3: Application

As part of Jacobs personal and professional data he employs a robust way of securing his data and information with the rule of 3 different locations for important information.

For his professional work he has a laptop provided to him from his employer which also gives him access to a Microsoft OneDrive service as well as a Microsoft SharePoint services as well. Jacob uses his Laptops internal storage as the main point for him to save all is work and information he uses. He then proceeds to back up all this data to the OneDrive location once a week. Any important and contents that is available for others within his immediate organisation to see is saved to a SharePoint folder. By doing this he is following the rule of 3 different locations for storage. Due to the nature of his work Jacob is unable to use external storage devices such as USB sticks due to the risk of the whole of his organisation's computer network being at risk from such devices.

For his personal data Jacob follows the same principles as above with the laptop being the main point for all his important documents. This also includes backing up information from his mobile phone to the laptop. He then makes sure this data is backed up to a personal Microsoft OneDrive account providing secure cloud storage. HE also employs the use of an external hard drive to store all this data which he backs up once a month. This hard drive is stored in a separate location to his laptop. For very important documents and information

Jacob also backs these files to his work laptop but this is only done to a very small selection of very important documents. For example, he does this with his university work.

The reason He does this, and it is recommended everyone else follows these types of examples is because having your data saved in multiple locations prevents it being lost forever. No computer or system is ever truly invulnerable and is susceptible to various ways it could lose this data. For examples of these type of situations where this data could be lost are as follows:

- Fire
- Computer virus
- Ransomware
- Flood damage
- Theft
- Misplacing laptop

These are just some examples of how your data could be lost or compromised if only kept in one location. Some of these situations are very similar with the likes of fire and flood damage would result in total loss of the laptop just like Theft or Misplacing the laptop. For the likes of Computer virus or Ransomware might not result in total loss of the system but could prevent you from access files or even delete them altogether.

By using the 3 locations rule you can help prevent total data loss. For the fire, flood damage, theft and misplacing a laptop situation you could recover all your data once a new or replacement laptop has been purchased. You would have to log into your cloud service or plug in the external hard drive and then proceed to download/install all the relevant data back onto the new system. For these situations it is a straightforward and simple resolution.

For the likes of a virus or ransomware this might not always be so straightforward. One way to resolve this could be to revert to a previous save point before the laptop became infected. But this is not always guaranteed to work and comes down to the complexity of the virus in question or Ransomware. Also, if your system becomes infected and remains undetected for some time before becoming active you could have inadvertently backed up the virus to your save point. Jacob has produced a report on ransomware attacks and the impacts it has on computer system as well as potential ways to resolve this. This report can be seen below in Appendix B and is a great source for information on how to combat these issues.

Jacob already employs a pretty robust way of time management and self-organisation with the use of his Microsoft outlook calendar. In figure 7 below we can see Jacob as used various colour coding methods to help him visually see what he has in his schedule. Although this is on his work laptop, he also includes a lot of personal planning information within it. He is able to do these by the use of the “private” option when settings a meeting/reminder in his calendar. By using the private function, he can hide what this is from anybody with access to his calendar. Another reason Jacob uses his work calendar is because for 5 days out of 7 he is sat with it in front of him and is the easiest and most practical way for him to keep tracks of his schedule.

By colour coding his calendar he can quickly see if something coming up is a work or personal engagement if it is a reminder or if it is something that needs to be actioned. In figure seven we can see the following colours and in the bullet points below we can see what they mean:

- Black = Holiday/Leave – This allows Jacob and people to see when Jacob is out the office on leave
- Red = Meetings – This is to remind Jacob of when he has meetings, how long they are for and also to provide information and links for him to join into the meetings virtually
- Yellow = Reminders, these are there to remind Jacob to complete admin tasks such as submitting his time sheet
- Orange = Is used to denote Jacob will be out of office for his University study
- Green = Anything in green is personal engagements or reminders, for example Family birthdays or days where he has things planned with friends.

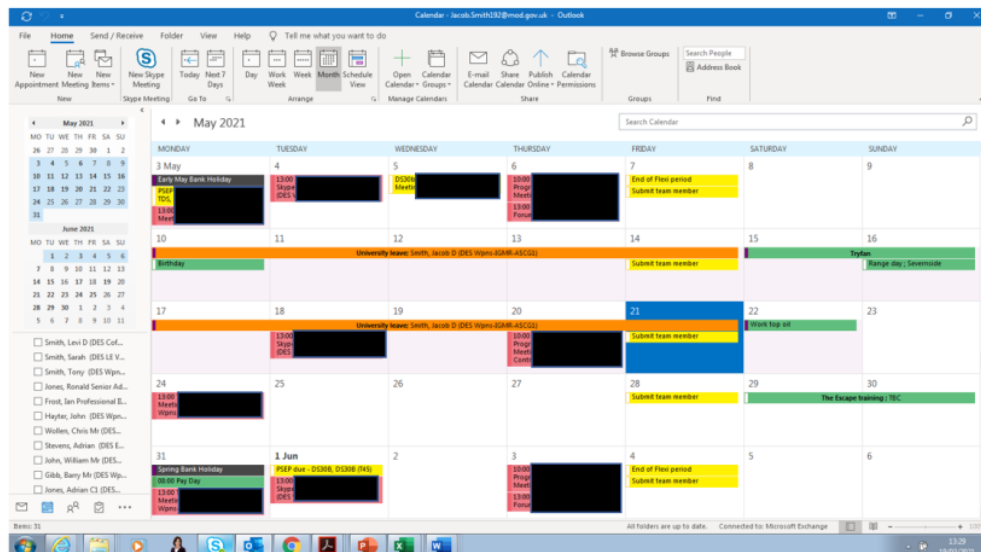


Figure 7

As part of his professional development at work Jacob must complete a document on a system called QUEST. This document is a Personal development plan (PDP). This is used as part of his functional training and is used by his Functional development officer to help Jacob progress professionally. In here you can see Jacob has two plans in place one is to complete the University degree Jacob has enrolled onto and another is to complete a short training course. Both of these will help Jacob progress and develop professionally by gaining qualifications and experience.

The PDP is split into a 70-20-10 formation for development where 70% of the PDP is work based, 20% is Peer-to-peer learning and 10% is professional training. By using this format to plan out the development it allows Jacob's employer to better support him and provide him with the opportunities he requires to progress and develop.

Edit	What do I need to learn?	Delivered through (mix of 70% 20% 10%)	Business Benefit	DEAS Behaviours	Technical / Functional	Other	Proposed Completion Date	Remove
☒	Complete the OME degree	70% - Apprenticeship work and experienced gained in my job role and other parts of the wider PT, 20% - Learning off SME's within the PT and wider operating centre, 10% - At university with UWTSD	I will become an SME for OME discipline	Changing and Improving, Developing Self and Others, Technical / Functional	I will be a OME SME at the end of my course	-	01/09/2026	☐
☒	Light weapon design course	70% - On the job training learning the other gun systems within the PT, 20% - Learning off other members of the PT about their systems, 10% - enrolling on the Light weapon design course at Shrinvenham	Allow me to better understand gun systems as a whole and how they differ	Changing and Improving, Developing Self and Others, Technical / Functional	gain a better understand of weapon systems	-	01/04/2022	☐

Figure 8

4 Section 4: Conclusion & Evaluation

During the investigation of this report there were some interesting insights into Jacob for example his hobbies as well as his future aspirations both personal and professional.

The results from the personality tests and learning styles were particularly interesting due to how middle of the road the results were. This could be an area Jacob could investigate deeper into to try and narrow down exactly what sort of learning style best suits him. For this it might be best for Jacob to first determine accurately what his personality traits are. Then with that information he can delve deeper into the type of learning style that best suits him.

We can see above that Jacob is very organised with his calendar being a key part of his organisation with the use of colour coding which is a quick and easy way to see what sort of engagements Jacob has on that day.

Jacob also has a few areas to work on for example trying to persevere with difficult tasks and not putting them off. But this is an area he is aware of and is working towards fixing this issue.

5 Bibliography

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[2] Unknown, "Indeed," 2020 12 14. [Online]. Available: <https://www.indeed.com/career-advice/finding-a-job/employability-skills>. [Accessed 26 03 2021].

[3] unknown, "Indeed," 25 11 2020. [Online]. Available: <https://www.indeed.com/career-advice/career-development/self-management-skills>. [Accessed 26 03 2021].

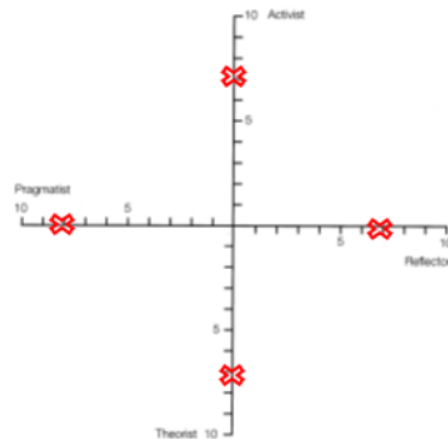
[4] A. Doyle, "The Balance Careers," 17 03 2021. [Online]. [Accessed 26 03 2021].

6 Section 5: Appendices

Appendix A

Honey and Mumford learning style assessment

Activist	Reflector	Theorist	Pragmatist
2 1	11	1 1	4 1
5 1	12 1	3	7 1
8 1	16 1	6 1	9 1
15 1	18	10 1	14 1
19 1	21 1	13 1	20 1
23 1	25	17	24
26	29	22	27 1
35 1	30 1	28 1	31
36	32 1	38 1	34 1
40	33 1	39 1	37 1
Total: 7	Total: 7	Total: 7	Total: 8



Activists learn best from:

- student-centred teaching methods such as task groups, role play, games
- unstructured activities which give them the opportunity to take a lead

Activists learn least from:

- passive learning situations such as lectures, reading alone, observing procedures

- structured teaching approaches, including coaching precision teaching structured demonstrations

Reflectors learn best from:

- any activities which enable them to observe and think things over. They are usually happy to listen to lectures and watch demonstrations providing that they are not too directive
- individual or group tasks which involve collection and research of data
- group discussions and case studies

Reflectors learn least from:

- highly structured teaching/learning programmes
- activities which require action without planning especially if they have to take a lead role

Theorists learn best from:

- structured learning activities which follow a logical sequence
- lectures, demonstrations, well prepared coaching and precision teaching

Theorists learn least from:

- unstructured activities without an obvious purpose
- group-work, especially if it involves exploring feelings and emotions

Pragmatists learn best from:

- practical demonstrations, coaching simulations, work experience, project work
- any practical activity which provides the opportunity to try out what has been learnt
- group or individual activities which involve action planning and project work

Pragmatists learn least from:

- theoretical lectures, and discussions which explore concepts
- unstructured activities with no clear purpose

Big five questions personality assessment

Results summary

Your results from the IPIP Big Five Factor Markers are in the table below. The table contains a raw score and also a percentile, what percent of other people who have taken this test that you score higher than.

Factor	Factor label	Raw score	Score percentile
I	Extraversion	45	45
II	Emotional stability	52	52
III	Agreeableness	11	11
IV	Conscientiousness	26	26
V	Intellect/Imagination	40	40

Big five personality trait scores calculated by www.psychmetrics.org

Trait descriptions

Factor I

Factor II

Factor III

Factor IV

Factor V

Factor I was labelled as **Extraversion** by the developers of the IPIP-BFFM. Factor I is sometimes given other names, such as Surgency or Positive Emotionality.

Individuals who score high on Factor I are outgoing and social. Individuals who score low tend to be shut ins.

Trait descriptions

Factor I

Factor II

Factor III

Factor IV

Factor V

Factor II is labeled as **Emotional Stability**. Factor II is often referred to by other names, such as Neuroticism or Negative Emotionality (in these two cases interpretations are inverted, as Neuroticism and Negative Emotionality can be thought of as the opposite of Emotional Stability).

Trait descriptions

Factor I

Factor II

Factor III

Factor IV

Factor V

Factor III is labeled as **Agreeableness**. A person high in agreeableness is friendly and optimistic. Low scorers are critical and aggressive.

Trait descriptions

Factor I

Factor II

Factor III

Factor IV

Factor V

Factor IV is labeled as **Conscientiousness**. Individuals who score high on this factor are careful and diligent. Low scorers are impulsive and disorganized.

Trait descriptions

Factor I

Factor II

Factor III

Factor IV

Factor V

Factor V is labeled as **Intellect/Imagination**. This factor is also often called **Openness to Experience**.

People who score low tend to be traditional and conventional.

Open Jungian personality test

You have completed the personality test.

[Tweet](#)

[Like 2.1K](#)

Jungian/Myers-Briggs Personality Type is based on four preferences, that when combined produce personality type. This page will first cover your scores for each of the preferences then finally give a description for the type that they produce.

Introversion (I)

Extroversion (E)

Introversion-Extroversion is your cognitive orientation. Introverts centre themselves inside their bodies. Extroverts centre their attention outside their bodies. Your score on I-E was -0.875 (scores range from -2 to 2) which indicates that you are introverted (with medium confidence) [\[less\]](#)

Sensing (S)

Intuition (N)

Sensing-Intuition is the first pair of cognitive functions and the preference for how you prefer to be served information; through the five senses or from the subconscious. Your score on S-N was -0.5 (scores range from -2 to 2) which indicates that you are a sensor (with medium confidence) [\[less\]](#)

Feeling (F)

Thinking (T)

Feeling-Thinking is the second pair of cognitive functions, the judging functions, which are used to evaluate goals; either through personal values or objective principles. Your score on F-T was 1.125 (scores range from -2 to 2) which indicates that you are a thinker (with high confidence) [\[less\]](#)

Judging (J)

Perceiving (P)

Judging-Perceiving is what pair of cognitive functions you prefer to use; Judging is a preference for a structured lifestyle and the use of feeling and thinking while perceiving is the preference for a flexible lifestyle and the use of sensing and intuition. Your score on J-P was 0.375 (scores range from -2 to 2) which indicates that you are a perceiver (with low confidence) [\[less\]](#)

Self-Evaluation of Academic Skills

Thinking about yourself, read and mark each statement out of 5, with 5 being 'Totally Agree' and 1 being 'Totally Disagree'. If a statement does not apply to you, leave it blank

Skill	5	4	3	2	1
I have the confidence to try new things and express my ideas		X			
I am self-motivated and will persevere with difficult tasks			X		
I am organised and can meet set deadlines		X			
I am able to find information from different resources easily		X			
I can read complicated texts and understand the general meaning		X			
I am able to select what is relevant and what is irrelevant in text			X		
I can compare different opinions and decide what are the best grounds for deciding who is right		X			
I can write things in my own words		X			

I am able to reflect and evaluate my own work			X		
I have good strategies for starting a new task/assignment				X	
I have good time management skills and can organise my workload effectively			X		
I am able to make, store and find my notes			X		
I am able to manage a range of writing skills appropriately			X		
I am able to think critically and analytically, and evaluate arguments		X			
I have good memory strategies		X			
I know how to use IT to help academic study			X		
I am confident at preparing and delivering oral presentations			X		

Skills Action Plan

Go back over your answers to the self-evaluation forms you have just completed. Focus on the different areas and identify your current strengths, the areas you wish to develop, and the areas that are a priority in aiding you in your future learning.

Strengths, skills and qualities
1. Confident to try new things and express my ideas 2. I can meet deadlines 3. Finding information 4. Reading and Understanding complex subjects
What I need to work on, develop or improve
1. Starting a new task/assignment and not procrastinating 2. Self motivate and persevere with difficult tasks 3. Deciding what is relevant and irrelevant in text 4. Reflect and evaluate my own work
My Priorities: What I am going to do, When and How

What?	When?	How?
1. Start listing priority tasks	As soon as they come in	Get a dedicated note pad for important tasks
2. Not to put off difficult tasks	When they arrive	Using the note pad above to help priorities
3. Become better at determining relevant information	On next assignment	Priorities what information I need to find
4. Get better at being critical of my own work	On next assignment	Reread my work as if it is someone else's work and not my own.
How will I measure if I have improved?		
1. By how many priority tasks I have on my list 2. By seeing how far ahead of a deadline I get the work done 3. How precise and informative my reports are 4. How many notes I put against my work on tracked changes		

Appendix B

Cryptowall Ransomware report by Jacob Smith

Abstract

In this report I briefly explain the three key malware elements that make up the Cryptowall ransomware software. I describe how this software gains a foothold on a computer system. What it does when it has gained access and the options available to someone if they find themselves infected with Cryptowall. I also provide good practises someone should employ to prevent and limit the amount of damage a ransomware attack could have on a person or business.

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Main chapter

1. Introduction

As computers and other forms of electronic devices become more prevalent throughout our lives there are people out there who wish to use these devices with malicious intent. There are many ways for this to impact on our business from the likes of Trojans and Viruses to Ransomware, these are known as Malware[1]. They have all been designed by someone to help them gain access to and use our information to their advantage. In this report I will briefly go over the three most common forms of Malware and in depth look at Cryptowall ransomware.

2. Trojans and viruses

2.1.1. General overview

Two common types of attacks a computer or electronic system might face would be a Trojan or virus attack. Although the result of having either of these malwares enter a computer system is the same, it is how they go about gaining access to a computer system that is completely different.

A Trojan is a computer programme that is designed to look like a normal computer document, email attachment or programme [1]. For example, it could look like an invoice attached to an email.

A Virus is a computer program which enters a system to carry out malicious activities. These types of infections can vary from simply displaying an obscene image or writing on a computer home screen to deleting and changing files within the infected computer [1].

2.1.2. How they infect your computer

The Trojan was named after the ancient legend of a wooden horse being given as a peace offering during an ancient Greek battle. The horse was taken inside the city walls where at night the hidden soldiers within left the horse and opened the city walls allowing the Greek army to enter the city. This led to the fall of Troy. In modern day terms the Trojan uses the exact same method to gain entry to a computer system by pretending to be a harmless email, programme or document. Once inside the system it can then carry out its malicious activities, the extent of the damage or malicious activities comes down to how the trojan was programmed [2].

A Virus much like the flu virus spreads from one host to the next and replicates itself within the new host. The virus requires a document or programme for it to spread from computer to computer. During this increasingly connected world the spread of a computer virus can be done in many ways. The most common ways can be from attachments on emails, downloading files from websites or multimedia sharing platforms [3].

3. Ransomware

3.1.1. General overview

Ransomware is a type of virus that infects a computer system and then copies, deletes or encrypts the documents held within the computer system preventing you from accessing them. It then produces an onscreen message telling you your files have been encrypted and that you must pay a ransom fee to be able to gain access back to these documents with instructions on how to do so [1].

3.1.2. What to do if infected

Once the system has been infected there are generally 3 options to take pay the ransom, use a decrypting tool or backup strategy. Neither of these options are guaranteed to fix the ransomware attack and the best form of fixing this issue is prevention [4].

Paying the ransom: It is advised that paying the ransom is not the best option as you are not guaranteed to gain access to your files again after paying the ransom. Once you have paid the ransom fee the criminals who wrote the ransomware are under no obligation to provide you with a decryption key or return stolen files.

Decrypting tool: This option is again not the best option as trying to use a decrypting tool can take a very long time owing to the complexity of some of the encrypting tools used by the ransomware users. They are not always

guaranteed to work as the criminals that write these sorts of ransomware programmes are constantly changing them to prevent them from being cracked.

Backup strategy: Like with most of life's ailments prevention is always the best plan. By having a robust and rigorous backup strategy in place these sorts of attacks can be circumvented. Although this method will never be able to retrieve stolen files and documents once taken by the ransomware it will allow the user to restore to a pre-infected state after the initial ransomware data has been removed.

4. The Cryptowall Trojan

4.1.1. Specifics of this threat

Cryptowall Trojan is a hybrid of all the above-mentioned malware. It acts like a Trojan to infect a computer where it then begins to infect the rest of the system like a virus. Once the inside it will begin to search for files both locally and on any connected networks where it will proceed to encrypt all your personal files including but not limited to documents, photos and music files [5].

4.1.2. Infection Methods

The most common way Cryptowall is spread is as a trojan for most companies this could be hidden as a PDF file on an email typically titled as an invoice, receipt or bills. As soon as somebody clicks on the supposed PDF file it will start infecting the host computer [6].

Cryptowall does not just gain access via the Trojan method it also uses exploitations in the operating system of the computers on websites you visit. By using these vulnerabilities, the criminals can implant some malware to initiate the download of Cryptowall without you knowing [5].

4.1.3. File types affected

Realistically there are not any files that will not be affected by a Cryptowall attack. The programme is designed to attack all types of windows operating system [6]. Once inside it will then proceed to infect all your personal files including but not limited to .PDF, .GIF, .JPG. The image 1 below gives a comprehensive overview of the files that could be attacked by a Cryptowall infection.

 FILETYPES VULNERABLE TO CRYPTOWALL ENCRYPTION			
.XSL Excel Spreadsheet	.PDF Portable Document Format	.GIF Graphical Interchange Format File	.ASS Aegisub Advanced Substation Alpha
.WPD WordPerfect Document	.PDB Program Database	.EPS Encapsulated PostScript File	.ASP Active Server Page
.WB2 Webshots Picture File	.PAS Delphi Unit Source File	.DTD Document Type Definition File	.JS JavaScript File
.TXT Plain Text File	.ODT OpenDocument Text Document	.DOC Microsoft Word Document	.PY Python Script
.TEX LaTeX Source Document	.OBJ Wavefront 3D Object File	.DER DER Certificate File	.PL Perl Script
.SWF Shockwave Flash Movie	.MSG Outlook Mail Message	.CRT Security Certificate	.DB Mobile Device Database File
.SQL Structured Query Language	.MPG MPEG Video File	.CPP C++ Source Code File	.C C/C++ Source Code File
.RTF Rich Text Format File	.MP3 MP3 Audio File	.CER Internet Security Certificate	.H C/C++/Objective-C Header File
.RAW Raw Image Data File	.LUA Lua Source File	.BMP Bitmap Image File	.PS PostScript File
.PPT PowerPoint Presentation	.KEY Software License Key File	.BAY Casio RAW Image	.CS C# Source Code File
.PNG Portable Network Graphic	.JPG Joint Photographic Experts Group	.AVI Audio Video Interleave File	.M Objective-C Implementation File
.PEM Privacy Enhanced Mail Certificate	.HPP C++ Header File	.AVA AvaBook eBook	.RM RealMedia File
			

Figure 9

4.1.4. Procedure of eradication

Once your computer has been infected it is very difficult to remove the Cryptowall from the system due to the nature of the programme. The easiest and simplest way to do this is as mentioned above in the Ransomware section and that is to do a system restore after removing the ransomware from the infected system. This will not restore files lost after the backup date. Again, the best method is to not fall victim to this type of malware attack.

According to an article on Varonis [5] a way to remove Cryptowall if you have a system backup process in place is to do the following:

1. Boot your computer into Safe Mode with Networking
2. If you have a recent and clean System Restore point, you can restore, if not:
3. Download and install a malware removal application.
4. Run malware removal app and scan all your files

4.1.5. Payment

Although Cryptowall ransomware attack once paid can give you a link to download the decryption key needed. But this is not a quick process and could take several hours for the programme to run. Although paying the ransom is an option it is not always recommended as you are not guaranteed to get the encryption key to gain access to all your documents.

5. Examples of good practice

5.1.1. Initial avoidance

There are many ways to avoid is to make sure you are actively carrying out good practices whilst using a computer system. These practices can include Anti-virus scanners, regularly updating computers software, firewalls, safe browsing habits, not clicking on suspicious links and backing up files. By doing all of these you will limit the possibility of falling victim to one of these attacks.

5.1.2. Backup procedures

Backing up your files is a good practice for everyone to get into in a business environment and personal one too. Without a backup system you must rely on the criminal returning the information after paying the ransom which does not always happen. Having a process in place that includes continuous and automatic backups of files is a good practice as well as having separate and remote locations to store this information. Having several locations holding this sort of information and making sure they are all separately connected will greatly reduce the risk of not being able to recover from a Cryptowall attack.

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Jacob Smith study skills assignment

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

Instructor

56/100

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JAKE IAN SMITH

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RESEARCH-INFORMED LITERATURE



Some research sources used, but this needs to be even more extensive, comprise more independent sources (not ones provided to you during the course of the module), and show in more detail how your reading has influenced or backs up your own comments (and where possible, this needs to be done through ALL sections of the assignment) A bibliography is not a reference section, Make sure you understand the difference.(the cryptowall section seems to be ok though)

45

KNOWLEDGE AND UNDERSTANDING



A reasonable level of understanding demonstrated in most areas. However including more additional independent research material and showing how

60

these are influencing your thoughts and decisions
would have allowed you to obtain additional marks
in this section.

ANALYSIS



Some analysis done, however this could have been
done in more depth, and referring to research
sources would have made this easier.

60

PRACTICAL APPLICATION AND DEP.



No evidence of document filing structure created?
Action plans need more detail to actually be useful
in real life. Other areas covered reasonably well
though.

60

SKILLS FOR PROFESSIONAL PRAC.



All assignments should have a neat, separate cover
page, with your name, student number, course
and title of the assignment. Avoiding using the 1st
person can be done in a more satisfactory method
than referring to your own name (or yourself) as if
it were being written by someone else Would have
benefited from a more formalised layout, such as
breaking down the assignment into more detailed
numbered sections that follow the 1. 1.1 1.2 2.
Style as provided in the assignment template given
in class. You will need to do this for other work e.g.
your major project report. (again - this was done
for the cryptowall report ?!?)

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