(source:36992.com) [1]

Assignment 1: Blog Posts 1-7

REFLECTIONS ON QUANTITATIVE RESEARCH

Ling Lin 2006204| Applied Quantitative Business Research |27th November 2020

Word count:2977

[1] 36992 pictures. Available at: http://www.36992.com/tupian/42381.html (Accessed:21 November 2020)

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Blog 1: Start Kolb's Experiential Learning Journey

(word count:503)

"Blogging enables communication which makes people more observant, sensitive, and articulate participants of the world around them."[2]Slavich and Zimbardo believe academics should consider transformational teaching practices [3] and transformational learning, the latter occurs when students "engage in critical reflection and then evaluates and modifies assumptions, which ultimately leads to personal growth."[4] And this makes sense of my first blog writing task of DBA.

Kolb's theory facilitates learners' learning and transforms what they learnt into new knowledge through four stages of learning cycle.[5] It helps me understand my learning trajectory as a novice researcher and give me vision, serving as a conceptual framework for my reflection and learning.

Concrete Experience

As a novice on my doctoral journey, I always feel perturbed and plagued due to the little prior knowledge to become a qualified researcher. Meanwhile, I also feel curious about what knowledge and skills I will acquire on the journey. The concrete experience of my knowledge and skills acquisition from past and present blog writing let me be cognisant of the journey's right commence. However, merely following the rules will produce a poor performance in the real world.[6]

Reflective Observation

"Reflective observation is about critically analyzing the learning and considering the impact of

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[2] Blood, R. (2002) The Weblog Handbook: Practical Advice on Creating and Maintaining Your Blog, *Cambridge, MA. Perseus Publishing.*

[3] Slavich, G. M.& Zimbardo, P. G. (2012) Transformational teaching: Theoretical underpinnings, basic principles, and core methods. *Educational Psychology Review, 24(4), 569–608*

[4] Long, S.J., Shapiro, S. A., & McClintock, C. (2012) Passionate scholars: Transformative learning in doctoral education. *Adult Education Quarterly: A* Journal *of Research and Theory, 62(2), 180–198.*

[5] HA, C.M. and Verishagen, N. (2015) Applying Kolb's Learning Theory to Library Instruction: An Observational Study. *Evidence-Based Library and Information Practice, 10(4), pp. 186-199.*

[6] Dreyfus, S. E. (2016) The Five-Stage Model of Adult Skill Acquisition. *Bulletin of Science, Technology & Society, 24(3), 177–181.*

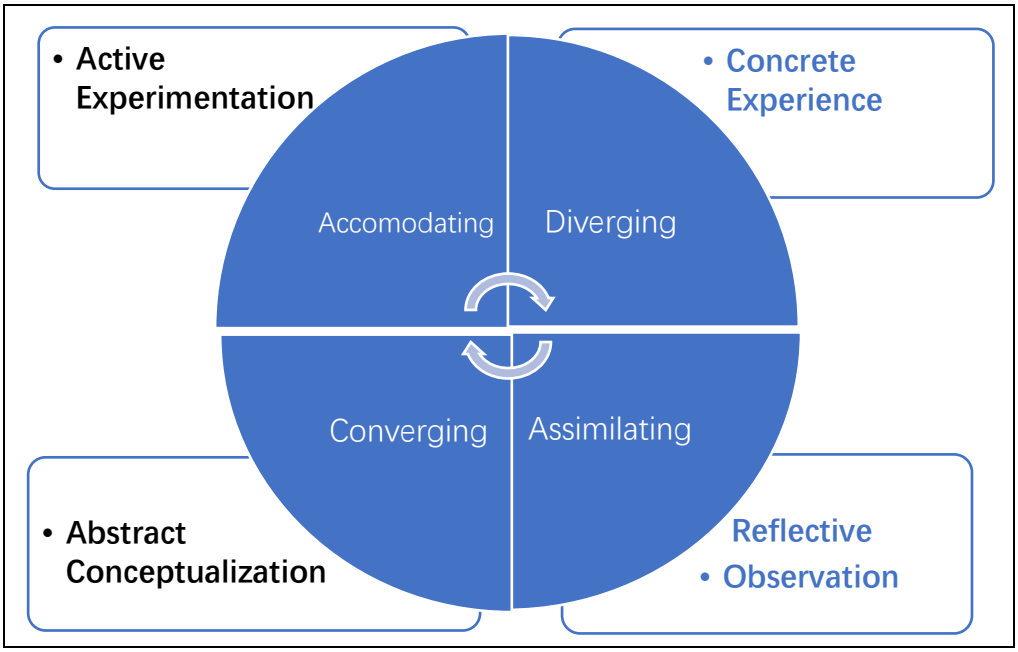

Figure 1 Kolb's Experiential Learning Theory (Adapted from Source: Kolb,2014)[7]

what has been learned."[8] That is exactly what I am doing. Dr Opute facilitates reflective conversation during the seminars each week in which fellow students and I discuss and interact with what we have acquired. He leads us to learn systematically on the journey by elaborating on how to carry out a quantitative research step by step.

Abstract Conceptualization

This is an "internal, personal, and individualized cognitive process." [7] It is essential to try to internalize what I have been learning and how to apply them to accomplish my performance project assignment. This task requires me to think critically, synthesize the prior and new learning experience to create an individualized view and method. Hopefully, I could make it through.

Active Experimentation

At this stage, I am expected to form my style to accomplish the module task, more importantly, whether I am capable of merging the quantitative research methods with any previously successful learning strategies in my DBA research. This is the biggest challenge for me.

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[7] Kolb, D. A. (2014) *Experiential Learning: Experience as the Source of Learning and Development.* 2nd edn. Pearson Education.

[8] HA, C. & Verishagen, N. (2015) Applying Kolb's Learning Theory to Library Instruction: An Observational Study. *Evidence-Based Library and Information Practice, 10(4), pp. 193.*

Blog 2: Does survey research in the real business world differ?
(word count: 344)

(source: import.io)[9]

Information gathering plays a significant role for businesses within the world to do SWOT (strengthen, weakness, opportunity, threat) analysis in terms of their competitors, their target consumer behaviours, their potential to upgrade, and any threats that would jeopardize their performance.

There are diversified ways to collect information, surveys have been prevalent among quantitative researcher[10] for business research to investigate target consumer behaviour, marketing performance, and so on. Frippiat and Marquis argue that survey design is economical and capable of yielding a quick turnaround in the data collection process.[11] Is the survey research process carried out with the same robustness in the real business world?

Comparing with academia, the business world is more dynamic, flexible, and hard to manipulate. The lower survey response rate trend is quite common in empirical family business studies,[12]management accounting studies.[13] This situation also appears in the empirical studies

[9]Import.io (2019) *Data analysis: what, how and why to do data analysis for your organization*. Available at: https://www.import.io/post/business-data-analysis-what-how-why/ (Accessed: 1 November 2020)

[10]Adzeh, K.J. (2014) *The challenge of conducting quantitative business research: Analysis of issues with survey design, sampling, validity, and reliability.* Research Gate.Available at: https://www.researchgate.net/publication/261562480_The_challenge_of_conducting_a_quantitative_business_research_Analysis_of_issues_with_survey_design_sampling_validity_and_reliability(Accessed: 2 November 2020).

[11] Frippiat, D.& Marquis, N. (2010) Web surveys in the social sciences: An overview. *Population, 65(2), 285-311*.

[12]Pielsticker, D.I. & Hiebl, M.R.W. (2020) Survey Response Rates in Family Business Research, *European Management Review*, vol. 17, no. 1, pp. 327-346.

[13]Hiebl, M.R.W. & Richter, J.F. (2018) Response Rates in Management Accounting Survey Research, *Journal of Management Accounting Research*, vol. 30, no. 2, pp. 59-79.

of the logistics industry I am working for. What might be the reason?

As novice researchers, they need to understand research paradigms when they embark on their researching journey.[14]Bielefeld et al. claim that "survey research is grounded in the positivist paradigm according to which reality is objective, unbiased, and completely independent of both the researcher and the subject"[15];however, Clark also argued that quantitative research could not be rooted in a single paradigm.

[14] Elshafie, M. (2013) Research Paradigms: The Novice Researcher's Nightmare. *International Peer Reviewed Journal*. AWEJ Volume.4 Number.2

[15]Baruch, Y. &Holtom, B.C. (2008) Survey response rate levels and trends in organizational research. *Human Relations*, Volume 61(8): 1139–1160. DOI: 10.1177/0018726708094863

Blog 3: Don't underestimate the sampling!

(Word count: 409)

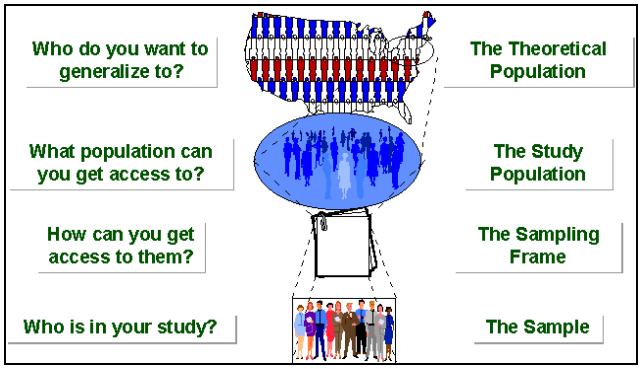

Figure 2 Sampling breakdown (source: 'Sampling Methods')[16]

Reliable data are the basis of all quantitative analyses.[17] Quantitative research strategy emphasizes "quantification in the collection and analysis of data".[18] However, there are different data categories, and the researchers can collect, analyse, and demonstrate them in diversified ways. One of the most common ways should be sampling. What is sampling?

'A sample is a proportion or subset of a larger group called a population…A good sample is a miniature version of the population of which it is a part-just like it, only smaller.'[19]

The relationship between the sample and a wider population should be noticeable from the above definition. To test all the population is ideal but impossible due to countless resources spending. It makes no sense that the biscuits company to test each package of biscuits to ensure their quality. So sampling aims to get reliable data about an entire population by looking at a relatively small number of observations.[20] When you read an advertisement states 'nine out of ten cats prefer' of particular pet food, the underlying meaning could be that the nine out of ten cats' owners was surveyed under certain conditions to hold their opinions about their cats' preferences for this particular brand pet food comparing to the others. However, the pet food

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[16] Chaturvedi, K. *'Sampling Methods'*, University of Pittsburgh.
Available at: www.pitt.edu/~super7/43011-44001/43911.ppt (Accessed 14 Nov 2020).
[17] Waters, D. & Waters, C. D. J. (2011) *Quantitative methods for business*. 5thedn. Pearson Education.
[18] Bryman,A. (2004) *Social Research Methods*, 2nd edn. Oxford University Press Inc. New York. Pp.19
[19] Fink,A. (2003) *How to sample in surveys.* 2nd edn. Thousand Oaks: Sage.
[20] Waters, D. & Waters, C. D. J. (2011) *Quantitative methods for business*. 5thedn. Pearson Education.

company could not expect that every nine out of ten cats prefer their company-made pet food, so they need to choose a sampling frame. A sampling frame is used to define a researcher's population of interest. It must be representative of the population.[21] The sample taken from a wider population should have traits or qualities explicitly in common. Meanwhile, it is essential to justify why the research prefers to focus on these particular traits. It is noticeable that the population would differ in a different context. The nature of that relationship between the sample and a wider population is of fundamental importance to how we conceive our quantitative research's nature and purpose.[22]

[21] Currivan, D. B. (2004) "Sampling Frame" *Sage Encyclopaedia of Research Methods,* Available at: srmo.sagepub.com/view/the-sage-encyclopedia-of-social-science-research-methods/n884.xml (Accessed 15 Nov 2020)

[22] Gordon Lynch, Sampling, discussion paper, *UWTSD Moodle.* Available at: https://www.kent.ac.uk/religionmethods/documents/Sampling.pdf (Accessed 16 Nov 2020)

Blog 4: Would you prefer to stay, Truman[23]?

(Word count: 447)

(sources: Baidu picture)

"Netflix, Inc. is the world's leading subscription streaming entertainment service with over 167 million paid streaming memberships in over 190 countries enjoying TV series, documentaries, and feature films across a wide variety of genres and languages".[24] One of the recipes that leads Netflix to appear on the leading streaming platform stage harnesses an AI (advances in artificial intelligence) based system to algorithmically peer what users' preferences to watch to improve its click rates. Ethically, this deployment may come into question.

In "Initially" part of the AI design guidelines[25], "make clear what the system can do" means the platform should let users acknowledge what the AI system is capable of doing. In reality, Netflix does not inform users in advance. Whatever actions the users take on it, the AI system would utilize them to produce relevant influence. For example, the platform would promote what the user will watch in the future.

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[23] Wikipedia (2020) The Truman Show. Available at: https://en.wikipedia.org/wiki/The Truman Show (Accessed: 16 November 2020).

[24] Netflix, Inc. (2019) *Annual report 2019.* Available at: https://www.annualreports.com/HostedData/AnnualReports/PDF/NASDAQ_NFLX_2019.pdf (Accessed:16 November 2020).

[25] Amershi, S. *et al.* (2019) 'Guidelines for Human-AI Interaction.' *Proceedings of the CHI Conference on Human Factors in Computing Systems,4-9th May.* Available at: https://dl.acm.org/doi/10.1145/3290605.3300233 (Accessed: 17 November 2020).

Are those movies and TV shows that the users really prefer to watch, or do the big data and learning machine let them believe they are? Every user of Netflix would become Truman. I spent only 10 minutes surfing Twitter, Yahoo websites to browse news and blogs before the AI algorithm age, after that I switched to focus on my work. At that time, I felt my freedom to choose is respected and championed[26]. However, with the driving force of big data and learning machine, the system will keep promoting the news, probably arouse my interest based on my past actions. As a result, I cannot help clicking, unconsciously, I am led by the system without liberalism anymore. From an ethical perspective, it reminds me of the Emperor's New Clothes story written by Hans Christian Andersen, the big data and machine learning seem like the new clothes for the emperor, which make the emperor (the users in Netflix) stand barely in front of people without awareness.

It is hard for human response, social consensus, policy, law.... to keep pace with the technology development. How to strike a balance between the collection as well as the analysis of Behavioral Big Data and the individual privacy security is always a moot point.[27]

[26]First, D. (2018). Will Big Data Algorithms Dismantle the Foundations of Liberalism? *AI & Soc, Vol. 33 (4) (Iss.4,), pp.545–556.*

[27] Tsui, K. L. & Zhao, Y. (2017) Discussion of "Analyzing Behavioral Big Data: Methodological, Practical, Ethical, and Moral Issues, *Quality Engineering, 29(1), pp. 79-83.*

Blog 5: Be a detective, not a judge!

(word count: 447)

As a reader looking at the quote, the first question arises in my head: What statistical significance is it? According to Redman, "Statistical significance helps quantify whether a result is likely due to chance or some factor of interest", it also means whether the finding is "strategically important" in businesses.[28]

Suppose you are an analyst working in a chip company, running a new package strategy survey in the market, the analysis of the statistical significance make sense; with the hint of the result, you would know whether the new package's popularity has been affected by your findings. If the p-value is 0.02, you would feel confident to adopt the new package; Conversely, if the p-value is 0.2, which means the result is statistically insignificant, however, there would probably have other benchmarks like significant sales boost, lower package cost… you might decide to keep proceeding, meanwhile pay more attention to the process.

For Neyman and Person, the purpose of statistics isn't to tell us what to believe but to tell us what to do. Statistics is about making decisions, not answering questions[29]or telling the truth from evidence. It is wise to view the significance test as a rule or principle; if you are a pharmacist, the significance test could let you decide whether to approve the drug or not rather than whether the drug works or not.

Table 7.35: Principal Axis Factoring Analysis of Role Flexibility

Measures of Role Flexibility	V1	V2	V3	V4	Loading **ROFLEX**	Commun-ality
A planned Job Rotation of Accounting & Marketing employees is emphasised as a device for developing their Capabilities **(V1)**	1000				**.933**	.870
Accounting & Marketing Functions do rotate Employees **(V2)**	.858	1.000			**.865**	.748
Accounting gather and contribute strategic marketing information to the marketing team **(V3)**	.284	.256	1.000		**.370***	.137
Some of the Accounting members also performed technical Marketing Tasks in the Strategic Marketing Process **(V4)**	.687	.630	.430	1.000	**.767**	.588
Eigenvalue and % of variance explained					**2.642** and **66.06%**	

Note: Varimax orthogonal with Kaizer Normalization converging in 9 iterations. Solution not rotated.
* Loading below .4

Figure 3 Example PFA table (source: Opute, 2009)[30]

[28] Gallo, A. (2016) A Refresher on Statistical Significance. *Harvard Business Review.* Available at: https://hbr.org/2016/02/a-refresher-on-statistical-significance

[29] Ellenberg, J. (2014) *How Not to Be Wrong: The Power of Mathematical Thinking.* The Penguin Press.

[30] Opute, A.P. (2009) *Empirical Investigation of Accounting-Marketing Integration in UK Financial Service*

Let's take the above table as another example. Obviously, the loading number of variable 3 is below .4 and much lower than the other variables. This statistically significant finding gives the researcher a clue, like a detective, but not a judge. Whether to retain or eliminate variable3 needs the researcher's further scientific legitimacy, although the loading coefficient is "minimally insignificant," the "examination of the factor structure concerning variable 3 captured no valid evidence to suggest that inclusion would influence predicting power".[31] This is also applied in a criminal trial. It is essential to obey the rules of evidence; the court is a place to tell us the justice rather than the truth; that is to say, whether the defendant was convicted fair should be based on the evidence rules. If the evidence is not adequate to prove the defendant's presence at the crime scene, he or she should be dismissed, even if everyone presents in the court deems the defendant is not innocent.

Organizations: Dimensions, Antecedents and Strategic Marketing Evidence. PhD thesis. The University of East Anglia, p.259, graph.

[31]Opute, A. P. (2009) *Empirical Investigation of Accounting-Marketing Integration in UK Financial Service Organizations: Dimensions, Antecedents and Strategic Marketing Evidence.* PhD thesis. The University of East Anglia.

Blog 6: A Revolution of Big Data

(word count: 453)

(source: HICX)[32]

The term "big data" has been encountering everywhere in our life when we read. Dependent on big data and machine learning, algorithms keep an eye on where you go, what you do, whom you meet… they get to know you better than you know yourself.[33] When we talk about "big data", the tags of "high-performance data, text mining, predictive analytics, forecasting and optimization and more lately as data science" pop up in our mind[34] within the last two decades.

Big data analytics plays an increasingly key role in the research area. "It now encompasses all the techniques used to analyze data at large scale spanning across health care, policy-making, astronomy, city planning, education, telecommunications, banking, IT and risk management, advertising, marketing and other strategic business domains."[35] Data collection and analysis quantification are the key emphasis in quantitative research strategy,[36] it mostly uses the sampling survey method to save costs; however, in the context of big data, sampling does not make as much sense as before[37], combined with its characteristics of large quantity, high speed and diversity, the production and obtaining data methods and tools in the process of research

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[32] HICX (2017) *Has big data inspired a data revolution in large companies?* Available at https://www.hicx.com/data-big-data-vogue/ (Accessed:18 November 2020)

[33]Harari, Y. N. (2018) *21 Lessons for the 21st Century.* London: Jonathan Cape.

[34]Provost, F. & Fawcett, T. (2013) Data science and its relationship to big data and data-driven decision making, *Big Data 1(1), pp.51–59*

[35]Gupta, V. *et al.* (2019) A quantitative and text-based characterization of big data research. *Journal of intelligent & Fuzzy systems,* 36(5), pp. 4659-4675.DOI:10.3233/JIFS-179016.

[36] Bryman, A. (2004) *Social Research Methods*, 2nd edn. Oxford University Press Inc. New York. pp.19.

[37] Mayer-Schonberger, V.&Cukier, K. (2015) *Big Data: A Revolution That Will Transform How We Live, Work, and Think.* New York: Houghton Mifflin Harcourt.

diversify. However, diversified methods might lead to deeper insights into research and collate survey data more complicated and challenging.

According to Mayer-Schonberger and Cukier[38], the researcher would collect and save all the data (n=all); they do not need to propose a hypothesis any more. It would be trendy to settle for the "what" (correlation) phenomenon created from the patterns of big data rather than the “why” (causality) phenomenon. That is, "data creates reality." I am running a logistic corporation; it is fundamental for me to think about the types of data to collect, access, and analyze to capture salient value to make critical decisions. It would be significant to “rethink the nature and function of the business in the context of an analytics-driven world.”[39]

[38]Mayer-Schonberger, V.&Cukier, K. (2015) Reviews of *Big Data: A revolution that will transform how we live, work and think. Research-Technology Management.*

[39] Mayer-Schonberger, V.&Cukier, K. (2015) Reviews of *Big Data: A revolution that will transform how we live, work and think. Research-Technology Management.*pp.66.

Blog 7: Circle the Kolb's Experiential Learning Journey

(word count: 374)

Time flies! Six weeks have passed since I started Kolb's experiential learning journey. Transformational learning occurs on the journey, and it will keep going, although the module has come to an end.

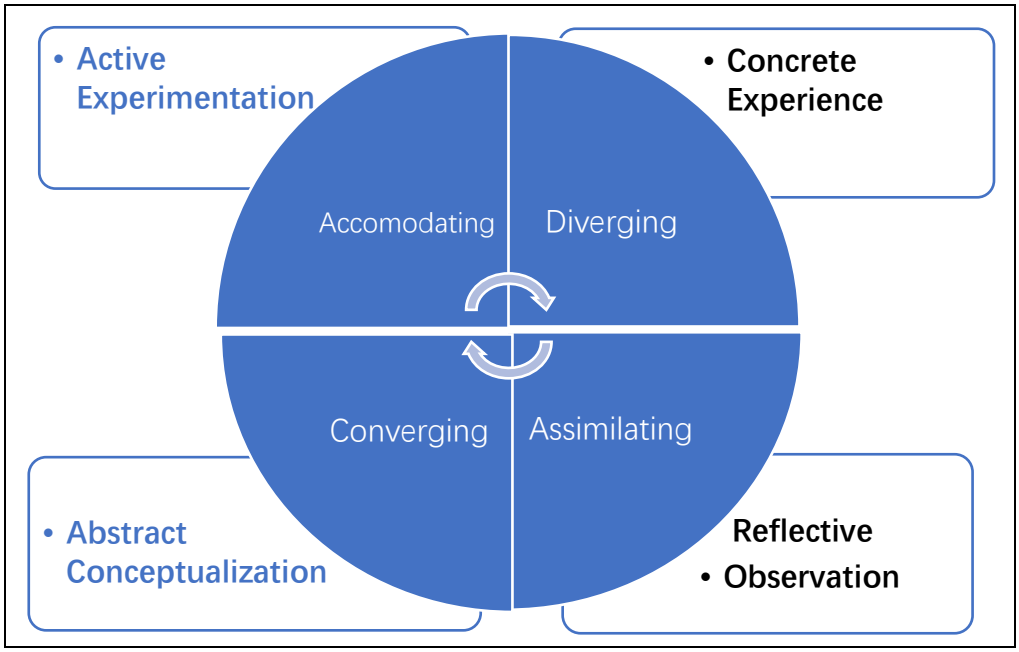

Figure 4 Kolb's Experiential Learning Theory. (Adapted from Source: Kolb,2014)[40]

Concrete Experience

The tension of travelling on the doctoral journey descended on me became even intensified as I learned more about quantitative social science; It still has a long way to go. My experience is similar to Zach[41], who is the main character in a book named *An Adventure in Statistics*. Initially, he had little prior knowledge about statistics and was afraid of numbers, but he has to learn to analyze data to find out the way to search for his lover-Alice, so he learned statistics from other characters he came across on tour. Zach's experience tells you that it is fundamental to have faith in yourself and others during the adventure journey, no matter what obstacles you would encounter.

Reflective Observation

[40] Kolb, D. A. (2014) *Experiential Learning: Experience as the Source of Learning and Development.* 2nd edn. Pearson Education.

[41] Field, A. (2016) *An Adventure in Statistics: The Reality Enigma.* London: Sage.

Surprisingly, the literature relating to quantitative research has become more accessible for me, but I cannot say that I feel quite confident to acquire a better understanding of this module within such a short period. Thanks to the invaluable support from my instructor, programme staff and fellow students acting as my allies,[42]I have faith in myself that I am right here to keep walking on the journey.

Abstract Conceptualization

Six weeks' seminars combined research theory and practice using SPSS software make me realise the big body of background theory and knowledge I need to acquire to conduct robust quantitative research and my learning only scratches the surface of it.

Active Experimentation

I have only been making progress from "novice" to "advanced beginner," the "competent" level[43] might possibly be reached based on plenty of extensive learning and practice in other modules and my DBA thesis. It takes years for an individual to become a proficient and then finally (maybe the whole life) an expert in a single field.

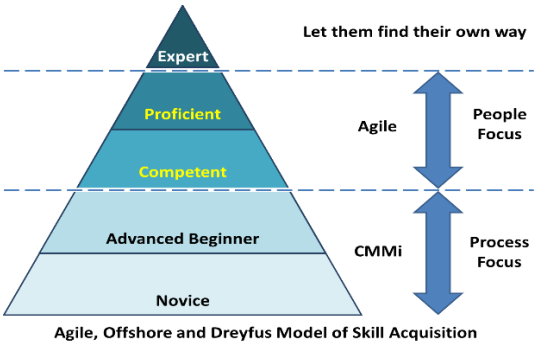

Figure 5 Agile, Offshore and Dreyfus Model of Skill Acquisition. (Source: WordPress,2013)[44]

[42]Gardner, S. (2010) 'Faculty perspective on doctoral student socialization in five disciplines,' *International journal of doctoral education,* 5(1), pp.39-53.
[43]Dreyfus, S.E. (2004) The five-stage model of adult skill acquisition. *Bulletin of Science, Technology &Society,* Vol.24, No.3, pp.177-181. DOI: 10.1177/0270467604264992.
[44]WordPress (2013) *Technology Tread Analysis.* Available at: https://setandbma.wordpress.com/2013/02/21/dreyfus-model/ (Accessed:20 November 2020)