THE HONG KONG POLYTECHNIC UNIVERSITY
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Research Informed Teaching

Capstone Seminar Workshop 1 – Proposal Stage

Literature Review

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Outline

- What is literature review?
- Why is literature review needed?
- Where is literature review positioned in the context?
- How can we write a good literature review? Examples.

Download this presentation file:
https://github.com/kkfyuen/ResearchInformedTeaching/blob/main/LRkkfyuen.pdf

What is literature?

A collection of (scholarly) writing on your selected topic.

- Journals
- Conferences
- Books
- Dissertations
- Theses
- websites
- ….

What is literature review?

- LR is a part of academic writing presenting knowledge and understanding of the academic literature on a specific topic in your selected context.
- LR is a **CRITICAL** evaluation of the established works;
- LR is not a literature report or summary.
- LR demonstrates what you have learnt from others as a starting point for YOUR new ideas. Your project should/must be connected to, extended from, or integrated to the prior work shown in LR.

Where: Different types of literature review

Explicit forms:

- There is a individual part for literature review ;
- in a long / comprehensive review
  - A thesis or dissertation usually has a chapter for literature review
  - Full review papers
- in a short review;
  - several paragraphs form a LR section in journal/conference papers

Implicit forms:

- there is no individual section for literature review, but in the other forms.
- in a short review; Journal articles or conference papers may not have a section of literature review, but usually in introduction section.

Why & how: The Purposes

1. Summarize and analyze established research: theories & applications; (Why your selected topic is so interested? You have to choose your selected LR references carefully!)
2. Identify areas of controversy topics;
3. Identify particular gaps to highlight the values of your study. What is your motivation for your new ideas?

How: Examples

1. C. Guan, K.K.F. Yuen, F. Coenen, Particle swarm Optimized Density-based Clustering and Classification: Supervised and unsupervised learning approaches, Swarm and Evolutionary Computation, Volume 44,2019, Pages 876-896, https://doi.org/10.1016/j.swevo.2018.09.008 .
2. Chun Guan, "Evolutionary and Swarm Algorithm Optimized Density-Based Clustering and Classification for Data Analytics", University of Liverpool, PhD thesis, 2018 https://livrepository.liverpool.ac.uk/3021212/
3. Koczkodaj W.W., Mikhailov, L., Redlarski, G., Soltys, M., Szybowski, J., Tamazian, G., Wajch, E., Yuen K.K.F. (2016) Important Facts and Observations about Pairwise Comparisons, Fundamenta Informaticae, 144, pp.1-17. https://doi.org/10.3233/FI-2016-1336
4. K.K.F. Yuen, Analytic hierarchy prioritization process in the AHP application development: A prioritization operator selection approach, Applied Soft Computing, Volume 10, Issue 4, 2010, https://doi.org/10.1016/j.asoc.2009.08.041.
5. Yuen K.K.F. (2014), "Fuzzy Cognitive Network Process: Comparison with Fuzzy Analytic Hierarchy Process in New Product Development Strategy", IEEE Transactions on Fuzzy Systems, 22(3), pp.597-610. http://dx.doi.org/10.1109/TFUZZ.2013.2269150
6. Yuen KKF (2012), "The pairwise opposite matrix and its cognitive prioritization operators: the ideal alternatives of the pairwise reciprocal matrix and analytic prioritization operators", Journal of the Operational Research Society, 63, 322-338. https://doi.org/10.1057/jors.2011.33
7. Yuen, K.K.F. (2009) "Cognitive network process with fuzzy soft computing technique in collective decision aiding", The Hong Kong Polytechnic University, PhD thesis. http://hdl.handle.net/10397/85185

How: Examples

1. L. H. Garcia Paucar, N. Bencomo. K.K.F. Yuen, ARRoW: Automatic Runtime Reappraisal of Weights for Self-Adaptation, The 34th ACM/SIGAPP Symposium On Applied Computing (SAC2019), pp. 1584-1591. https://doi.org/10.1145/3297280.3299743
2. L. H. Garcia Paucar, Requirements-aware Models to Support Better Informed Decision-making for Self-adaptation using Partially Observable Markov Decision Processes, University of Aston, PhD thesis, https://publications.aston.ac.uk/id/eprint/41929/1/GARCIA_PAUCAR_LUIS_HERNAN_159211456_2019.pdf

Publications with undergraduate students

Hu Q., Yuen K. K. F. and Craig P., "Towards a recommendation approach for university program selection using Primitive Cognitive Network Process," 2017 International Conference on Service Systems and Service Management, 2017, pp. 1-4 (Year 2 undergraduate students)

Di Y., Yuen K.K.F, (2017). Towards an MCDM-based evaluation framework for regression algorithms, 2017 IEEE International Conference on Smart Computing, pp.1-3. (Year 4 student).

Chen, V.Q. and *Yuen K.K.F.*, (2015) "Toward a Hybrid Approach of Primitive Cognitive Network Process and Self-Organizing Map for Computer Product Recommendation", IEEE international conference on Intelligent Computing and Internet of Things, pp.9-12. (*Year 4 Undergraduate Student*)

Su, J.S., and *Yuen, K.K.F.*, (2014), "Towards A Hybrid Approach of Primitive Cognitive Network Process and Weighted Iterative Dichotomiser 3 for Customer E-payment Adoption Analysis", 2014 7th IEEE Joint International Information Technology and Artificial Intelligence Conference, pp.218-222. (*Year 3 Undergraduate Student*)

Zhou, N.Y., and *Yuen, K.K.F.*, (2014), "Towards A Hybrid Approach of Primitive Cognitive Network Process and Fuzzy Cognitive Map for Box Office Analysis", Proceedings of 2014 IEEE International Conference on Fuzzy Systems, in 2014 IEEE World Congress on Computational Intelligence, pp.*1094-1053*. (*Year 3 Student,* who awarded **IEEE WCCI 2014 Outstanding Student Paper Travel Grant**, USD$400).

Zhang, G., and *Yuen, K.K.F.*, (2013) "Toward A Hybrid Approach of Primitive Cognitive Network Process and Particle Swarm Optimization Neural Network for Forecasting", The First International Conference on Information Technology and Quantitative Management, Procedia Computer Science, Vol.17, (Elsevier), pp.441–448. (*Year 4 Student*)

Conclusion: Key points to remember

- It is not a descriptive list.
- It is not a book by book and article by article summary.
- It is not a survey of every single thing that's ever been written about your topic.
- It must be defined by a guiding concept i.e. essay question, research project or objective.
- It must tell the reader what knowledge and ideas have been established and agreed in your area and outline their strengths and weaknesses.

Source:
https://www.rlf.org.uk/resources/key-points-to-remember/

End
Thank you

https://github.com/kkfyuen/ResearchInformedTeaching/blob/main/LRkkfyuen.pdf