

Development of a New Research Methodology Tool 'Pearsons Visual Relationship Framework'

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Abstract: Academics and researchers are often faced with reading significant numbers of publications to identify and extract the relevant information that is required for their research, which can be time consuming and difficult to keep track of. The aim of this study was to find an alternative solution to current research methodologies used for publication review information storage and retrieval. The objectives were to develop a system utilising a relationship management format, that is visual and easy to create, providing access to documents, notes, abstracts and other relevant information at the click of a button. Following extensive research into methods of achieving this, it became apparent that there was a gap in the knowledge on how to achieve it efficiently. The visual relationship tool was developed and evaluated in practical use in academia and manufacturing, with extremely positive results as to its suitability in both fields. The conclusions were that the tool is not limited to academic research but can also be used in manufacturing, industry and small business management as well.

Keywords: Publication review, Journal articles, Framework, Visual relationship, Article review, Journal review

1. Introduction

During publication reviewing, endless notes sometimes get created which can be larger than the publications being reviewed. It may also result in the requirement for additional notes relating to the notes taken, none of which is ideal, therefore utilising a tool that will provide all of the information in one location, visually represented, that provides instant access and saves valuable time, is paramount. Commercial software such as Nvivo is available, however, programs such as these can be quite complex and too complex for the research needs. A solution to this has been achieved by using mind mapping software for the creation of a tool that would facilitate visual mapping of topic interactional relationships, for research and publication reviewing. This Framework will be referred to as 'Pearsons Visual Relationship Framework Tool'.

2. Mind Mapping Software

The choice as to which mind-mapping software to use isn't important, provided that it incorporates the following features. a) Free style mapping option, b) Topic linking, c) Note production, d) Branch cross-linking, e) Label attachment f) Outline format display, g) Note display, h) Cloud storage (this will provide multi-platform viewing and editing). The mind-mapping software chosen for use, based upon these features and many more,

is 'SimpleMind Pro' developed by ModelMaker Tools, found at www.edrawsoft.com. It is a very easy system to learn and provides all the requisite features.

3. Pearsons Visual Relationship Framework Template

The layout for the Visual Relationship Framework Template is shown in fig 1 and is a community that consists of a number of duplicate elements. It centres around a central theme which in this case is titled 'Visual Relationship Framework Topic Title'. Under the central framework topic are identical branches, each with a parent group (category), and constituent sibling groups that have two limbs as sub-groups. Multiples of these duplicate parent groups (categories) can be created as are required and these provide the basis for the framework. There are further satellite topics that are independent from the main topic community that provides relationships with members of the main community.



Fig 1: Pearsons Visual Relationship Framework Tool Template

4. Visual Relationship Framework Analogy

An analogy of the framework tool is that it is a community made up of family groups, each with a single parent and two children as family units. Each family member has 2 arms, 2 legs and a head, each of which perform different functions.

5. Collating the information

The first part of the process is to create a folder in which to store the publications that are to be reviewed. For the purpose of this paper, we are going to look at research into entrepreneurs and the file will be called 'Journals for Review'. Having created the folder, it is a matter of searching for the publications relevant to the research and storing them in the folder as shown in fig 2. Once the folder has been populated with some of the publications being reviewed then the population of the 'Visual Mapping Tool' can begin.

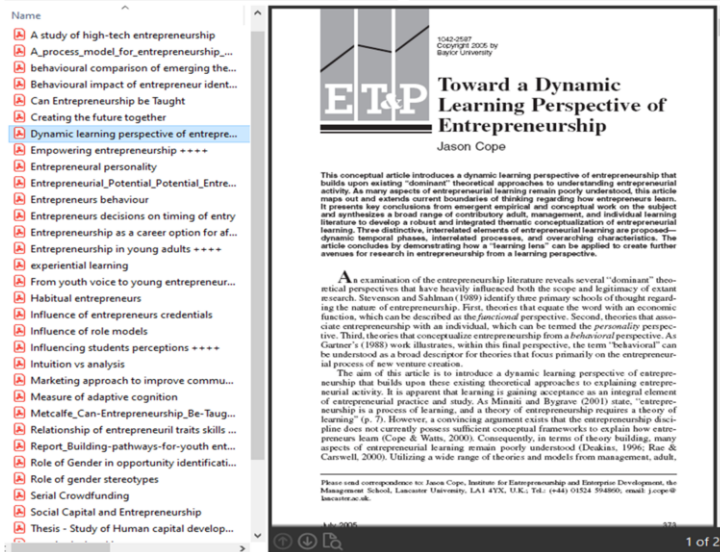


Fig 2: Publication Folders

6. Populating the Pearsons Visual Relationship Tool

The first stage of the tool development is to decide which categories of grouping you want for the classification and reference ability of the information. This doesn't have to be an exhaustive list and can be added to as the reviewing process commences. For the purpose of this paper, the categories chosen are: Adult Entrepreneurs; Young People; Traits; Teaching Entrepreneurship; Key Literature; Statistical Analysis; Entrepreneur Identification; Innovation; Theoretical Templates. Once identified these 'parent categories' are added to the mind map as shown in fig 4.

7. Allocation of publications

As each publication is reviewed a decision needs to be made as to which parent categories are applicable to the publication. Once identified, the title of the publication is added as a child sub-category to the primary parent category allocated to the publication. Once added, features of the software can then be enabled for this 'child sub-category'.

8. Topic Linking

One of the features required for this tool is 'Topic Linking' which enables branches of the mind-map to be linked to external and internally stored documentation and also web pages if required. In this case the 'child sub-category' can now be linked to the relevant document/publication that has been stored in the publication folder previously described. Once linked you are able to click on the linkage icon. This opens up the document without the need to go to the folder and find the document and is instantly accessible.

9. Addition of Notes

Having linked the child sub-category to the original publication and labelled the sub-category, the next thing to create is a note about the sub-category. Adding a note will create the note icon, and will open up a pop-up box into which notes can be written or pasted in. For this example, it has been chosen to add the abstract and conclusions of the publication as an instant summary relating to the publication. Clicking on the note icon will open up the note, as shown in fig 3, or simply hovering the cursor over the child sub-category will bring up a pop-up showing the information as a hover box. Other features such as linking pictures/images to the categories/sub-categories can be utilised, as well as audio notes created using the voice recorder in windows.

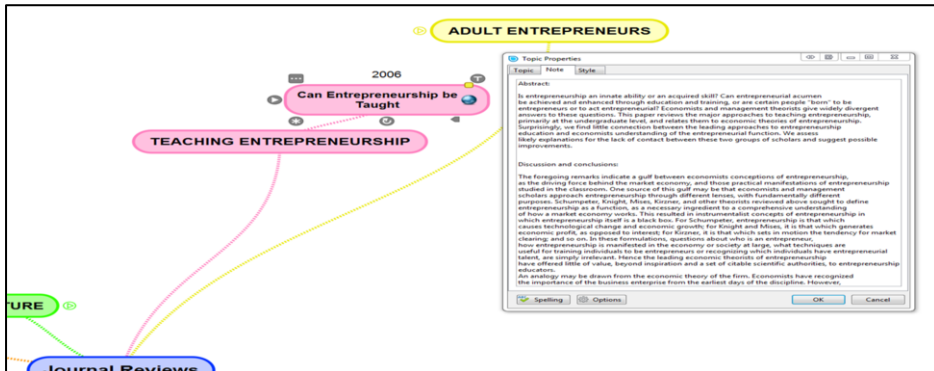


Fig 3: Accessing Notes

10. Sibling Sub-section

Having created the child sub-section and enable the relevant features, the final thing to do, is create a sibling sub-section to the child sub-section and name it 'Key Information. This is another sub-section category which has the same features available as the child sub-section but can be used to store key information copied and pasted from reviewing the publication, that is of particular relevance to the research being undertaken.

11. Association linkage

The child sub-section created can now be linked to other parent categories which are also applicable to the publication and will provide a visual representation of the associations between the publications and the category groups enabling decisions to be made in terms of relevance to the research.

12. Hierarchical Structure

In addition to showing the visual representation of the relationship between the publications, it can also show the hierarchical structure of the map in a window adjacent to the map. The benefit of this is that the Visual Relationship Tool creates a list of the publications showing which main parent category they are listed under, which can be further expanded to show sibling sub-categories of the child sub-categories, and what the topics of these siblings are.

13. Notes and Annotations

Notes that have been created and attached to the sub-categories both child and sibling can be viewed and annotated where required. With the viewing window open, it is simply a matter of clicking on the publication bubble to display the note in the window. This will allow for quick and easy assimilation of the document if, as in this case, the abstract and conclusions are chosen as the notes. More in-depth information can be viewed by simply clicking on the Key Information bubble where the notes section is a compilation of relevant sections from the publication copied and pasted into it.

14. Citations and References

A Citation sibling category bubble should be added to each of the child sub-categories and the citation and reference for the publication should be added to the note section of this sibling sub-category. A Master Citations category can be added which will provide a note box that contains the citations and references of all the publications reviewed in one central location.

15. Using Pearsons Visual Relationship Framework Tool

Having completed the relationship mapping between each of the publications, it is extremely easy to then identify those publications which are applicable to a particular category. For example if the category ‘Young People’ was chosen for further investigation as to which of the publications directly related to it, all of the other categories could be hidden leaving only those publications visible. Once hidden from view the same exercise is repeated for all other categories thus leaving only the requisite one. Hiding the groups that are not required provides clarity and the ability to focus on the requisite groups in order to focus on the information contained within them.

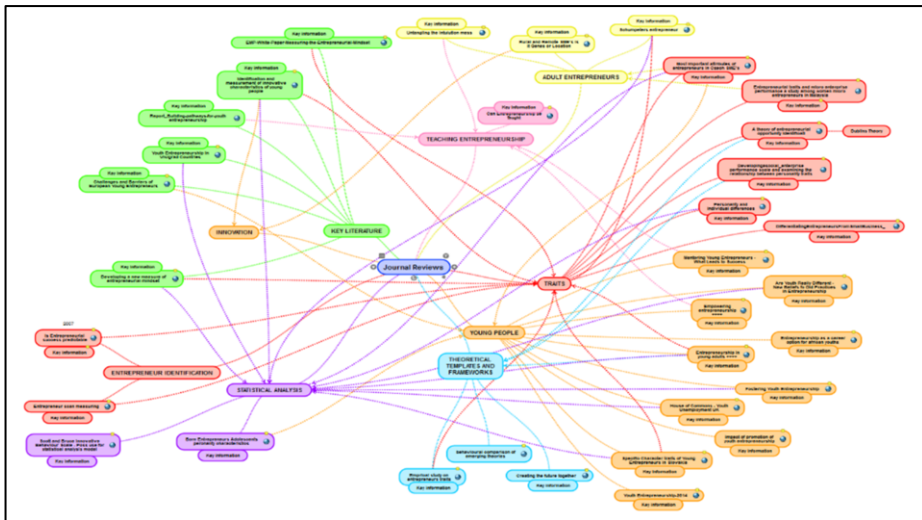


Fig 4: Pearsons Visual Relationship Framework Tool populated with information

16. Limitations

The limitations of the Visual Relationship Tool are based around the mind-mapping software used. Free versions of software may have restrictions on the functionality of the software, or a limited time for use before being required to upgrade to the full version. Different software tools have different features, therefore it is essential that the software used provides the requisite functionality as outlined in section 2, in order to maximise the power of the Visual Relationship Framework tool.

17. Conclusion

The power of this framework is the ability to visually see relationships between, in this case, publications, and access relevant information at the click of a button. It can be concluded that having a wealth of information that is categorised, easily accessible, easy to modify and visual can prove to be an invaluable resource for research. Not only is this a powerful research tool, but it can also be used in Business, Manufacturing and Distribution, such is the power of it for categorising and providing relationship linking.

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