Module 6
Effective Use of Technology for Successful Academic Career

Erasmus+ Capacity Building in Higher Education
Assessing and Improving Research Performance at South East Asian Universities

15.4. – 19.4. 2019, Universiti Teknologi Malaysia, Malaysia

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CONTENTS

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Introduction: about me

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Education:
PhD: University of Melbourne, Australia
Master of Architecture: Dalhousie University, Canada
Bachelor of Engineering: Universitas Gadjah Mada, Indonesia

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I want to know you…

Let’s play the game

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Section 1: Digital technology and critical thinking

1. ACTIVITY 1 : Using mindmup to develop research area
2. ACTIVITY 2 : Developing research design with K-Chart method (exercise using draw.io)
3. ACTICITY 3 : Literature search using Openknowledge and Researcher app
4. ACTIVITY 4 : Group presentation of K-Chart + Literature
5. ACTIVITY 5 : Argument mapping exercise with mindmup

Duration: approx. 1,5 training days

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Section 2: Pilot study

1. ACTIVITY 6 : Introduction to online survey tools
2. ACTIVITY 7 : Preparing questionnaire to be sent to your respondents (Group Assignment)
3. ACTICITY 3 : Downloading and presenting the result

Duration: approx. 1,5 training days

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THINK AND PLAN

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Technology in research dissemination

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Why?

Why Professors Are Writing Crap That Nobody Reads

Daniel Lattier | October 26, 2016 | 218,066

Professors usually spend about 3-6 months (sometimes longer) researching and writing a 25-page article to submit an article to an academic journal. And most experience a twinge of excitement when, months later, they open a letter informing them that their article has been accepted for publication, and will therefore be read by…

… an average of ten people.

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Why?

Digital Media has changed the landscape and can help us to reach bigger audience

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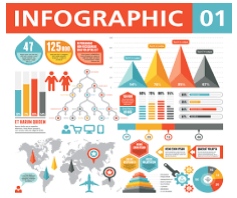
Why?

6 most popular content types



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What?

Video

Infographics

Website

Facebook

Researchgate

Blog

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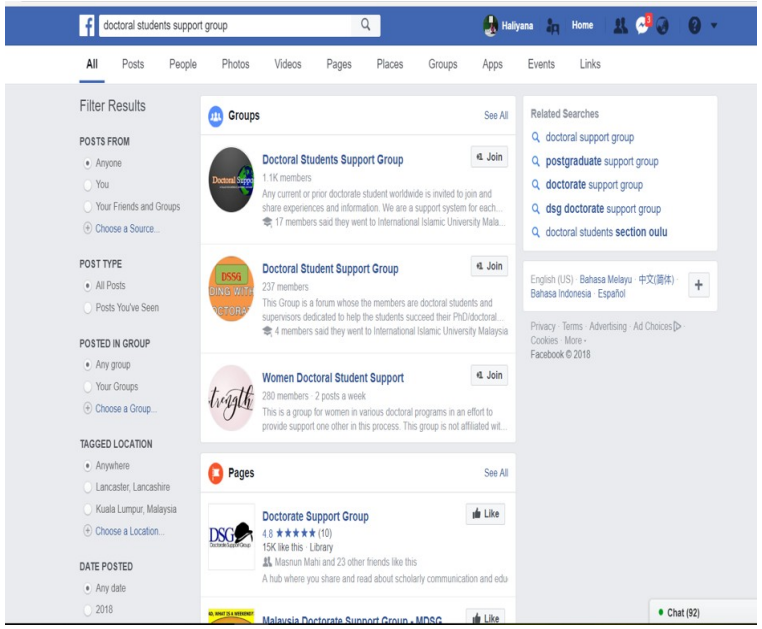
Facebook for research dissemination

Various studies have identified how Facebook can be used as a platform for research dissemination because of its low cost, engaging community and effective communication.

Facebook group for researchers helps to connect researchers with same interests, disseminate information to others and identify potential collaboration.



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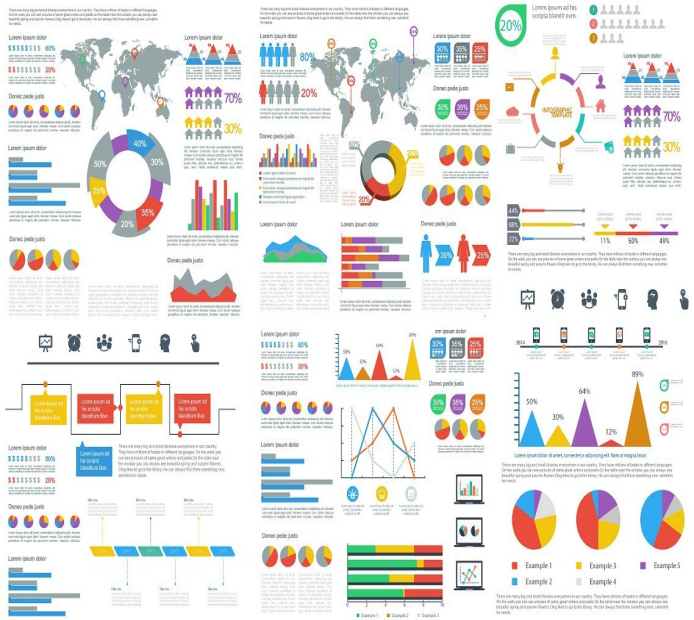
Infographics

Infographics (see Figure 20) *are graphic visual representations of information, data or knowledge inten ded to present information quickly and clearly* (Wikipedia, 2013).



Infographics are normally chosen as a medium to illustrate research findings because it offers appealing visualization with compact information. It shows data, level of data, maps, present many numbers in small space, thus encourage the eye to compare different sets of data.

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BoringME.org

Top 5 Changes to Resuscitation Education

Top 5 Changes to Post-Cardiac Arrest Care

Top 5 Changes to Special Circumstances of Resuscitation

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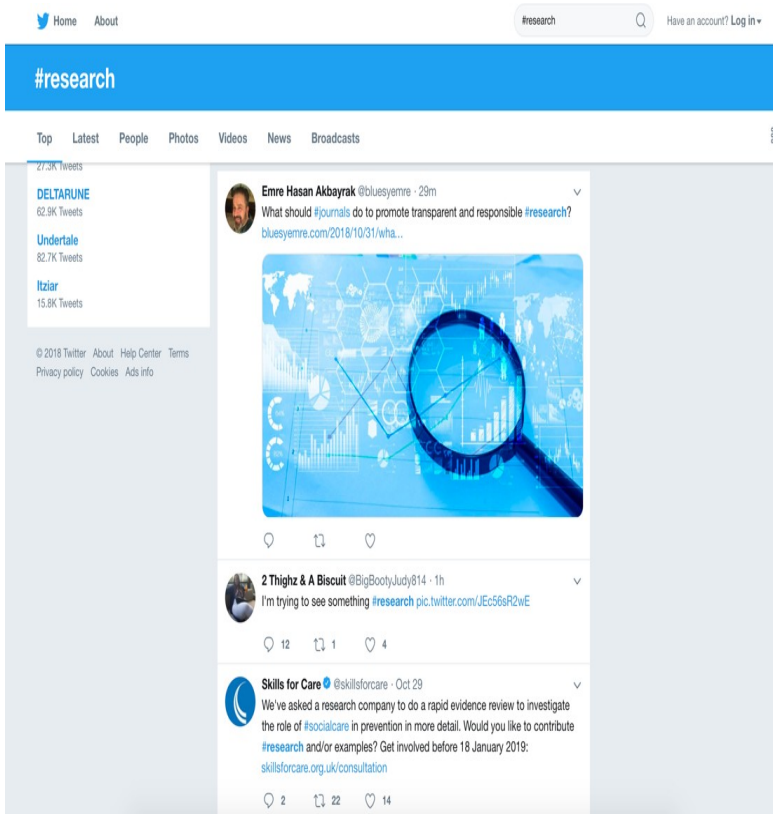
Twitter

Twitter is a widely used social media platform across the world and it is relatively easy for researchers to collect data from it.

The number of audiences are so big that any research that is being shared in the platform will have chances to be share to a greater audience.

The ability to retweet is important for the effect of sharing to multiply. Publishing tweets can bring users to new or larger forms of attention.



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Video

One of the main objectives of research is to have impact to society and its development. However, publication in specialised journal will only yield a small number of audience, thus limiting its impact and reach.

Online video sharing technologies offer promising ways of reaching greater audience and impose more impact. The total number of people who use YouTube is – 1,300,000,000. This huge numbers give potential for wider audience and engagement.

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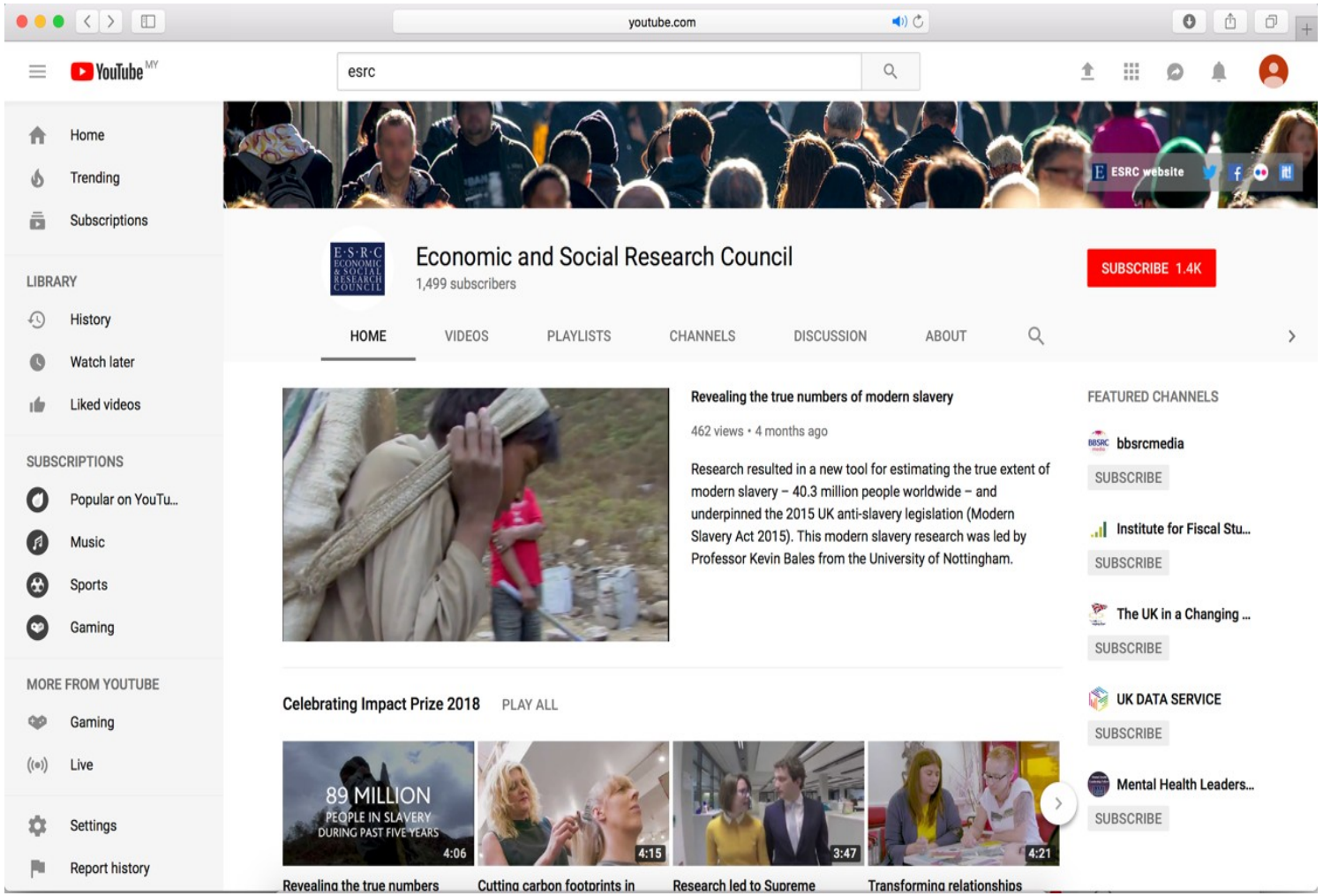

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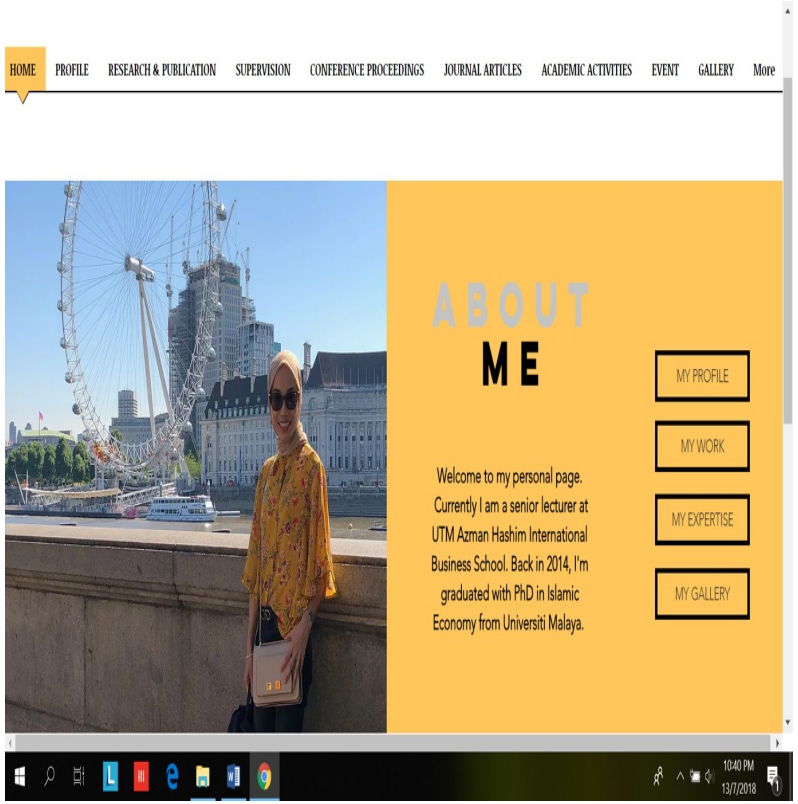
Personal website

Most research on websites shared a passive modes of dissemination. Shared resources such as research reports, summaries and multimedia, although may be good, but only allow one-way interaction. (Cooper, 2012; Chavkin & Chavikin, 2008; Cordingley, 2008; Belhodja, et al., 2007).

However, the existence of personal website helps in disseminating the research work to greater audience. It also helps in improving online visibility of a researcher.



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Personal website

Personal website also can be develop using free website template such as Wix, WordPress and Google Web.

Personal website is important not just to disseminate research, but it also will improve the personal branding.

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Blogging

Blogging will help us to establish writing as a routine. As an academic and researcher, we need to make writing as our habit. And blogging can be the best exercise for us- writing blog requires less time because it is small and self-contained.

In a couple of days, post can be written, publish and get feedback. This cycle can be good motivation to building and sustain regular style of writing. Blogging also helps us to be concise, since the post is normally small and identify our target reader.

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Other dissemination online platform

- Researchgate
- Google Scholar
- Institution repository

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Challenges in using technology for research dissemination

- It lacks of clarity and uncertainty related to various factors including acceptance, authority, moral rights and copyright (Charleston Observatory 2010).

- Some platform requires researchers to pay certain amount of fee, thus budget is also one of the consideration when choosing the right platform for dissemination.

- Consideration in advance for audience is important because researchers can prepare suitable information to be communicated to the group. For instance, sharing research findings in Facebook and journal paper have distinct difference in terms of style of language used.

- Lastly, using technology in disseminating research not only requires awareness but practical skills needed to implement it.

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CREATE

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2. Advantages of using online research tools

1. Accessibility
2. Time
3. Cost

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3. Disadvantages of using Online Research Tools

1. Sampling Issues
2. Self selection bias
3. Random Sampling Issues

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Kevin B. Wright; Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services, Journal of Computer-Mediated Communication, Volume 10, Issue 3, 1 April 2005, JCMC1034, https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

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4. Choosing the Right Online Research Tools

	Great for People Who...	Cool Features	Strengths	Growth Opportunities	Cost-Free Conditions
Google Forms	Need a completely free option	Integrates with Google Sheets	Ad-free	No question logic or page logic	Google Branding
Kwik Surveys	Need a branded survey but don't mind in-survey ads	Has elementary built-in analytics	Has question logic	Have to pay for upgraded customer support	Ads and Kwik Surveys branding
LimeSurvey	Have open-source programming know-how for short non-white-labeled surveys	Support for Google Analytics integration	Unlimited administrators	Only 25 responses a month	Ads and LimeSurvey branding
PollDaddy	Are on small teams who want easy-to-build with little data deep-dive ability	Full Wordpress integration	Real-time results	No Android App; iOS only	Polldaddy branding
Responder	Want a mobile-responsive survey tool	Drag-and-drop survey building design	Unlimited surveys and responses	Fees to pay for multiple users	Responter branding
SurveyGizmo	Need a quick and easy-to-build survey tool that allows for more complicated questions	Reports that autopopulate with the standard deviations for each question	Download your responses for your own data analysis	Only grants 3 surveys per account	SurveyGizmo branded thank you page
Surv	Need a short survey to go out to a medium-sized audience segment	Has a report builder function	Mobile friendly	Only 10 questions per survey	Powered by Survs footer

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	little data deep-dive ability	integration		iOS only	branding
Responder	Want a mobile-responsive survey tool	Drag-and-drop survey building design	Unlimited surveys and responses	Fees to pay for multiple users	Responter branding
SurveyGizmo	Need a quick and easy-to-build survey tool that allows for more complicated questions	Reports that autopopulate with the standard deviations for each question	Download your responses for your own data analysis	Only grants 3 surveys per account	SurveyGizmo branded thank you page
Surv	Need a short survey to go out to a medium-sized audience segment	Has a report builder function	Mobile friendly	Only 10 questions per survey	Powered by Survs footer
SurveyLegend	Need right-to-left language support surveys for large audiences	Allows you preview your survey on mobile before publishing	Create your surveys on tablets as well as computers	No data export	Ads and Watermark
SurveyMonkey	Want to start with a basic option that is extremely scalable	Allows you to compare your survey results with the global average	508 compliant surveys	Limited functionality for extra team members	SurveyMonkey footer
Survey Planet	Want to use a pre-written survey	Anonymous surveys available	Unlimited surveys, questions, and responses	No data export	SurveyPlanet branding
Typeform	Need their survey tool to integrate with a bunch of different tools	Integrates with Zapier	Conversational data collection	Only 100 responses per month	Typeform branding
Zoho Survey	Want a survey tool that integrates with a CRM (Zoho CRM)	Provides 50+ prebuilt survey templates	Unlimited surveys	Only 15 questions per survey	Zoho branding

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- Writtenhouse, Sandy. 2018 “Google Forms vs. SurveyMonkey: Which Survey Tool Is Right for You?” extracted from **https://www.makeuseof.com/tag/google-forms-vs-surveymonkey/**

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5. Preparing Survey Form

1. Questionnaire – open ended, close ended, multiple choice etc
2. Skip Pattern
3. Code Book

Activity 1: Prepare Survey Form that has open ended, close ended, multiple choice questions

Activity 2: Prepare a code book

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6. Creating Survey Form using Google Form

Activity 1: Creating survey form using Google form

Activity 2: Distributing Google Form

Activity 3: Filling up Google Form

Activity 4: Downloading data from Google Form

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7. Creating Survey using Survey Monkey

Activity 1: Creating survey form using Monkey Survey

Activity 2: Distributing Monkey survey form Activity 3: Filling up Monkey survey form

Activity 4: Downloading data from monkey survey

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8. Data Visualization

1. Frequency Table
2. Descriptive Statistics

Activity 1: Data visualization using Google Form

Activity 2: Data visualization using Monkey Survey

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9. Data Cleaning Up

1. Garbage In Garbage Out
2. Data Entry Error
3. Response Error
4. Data Cleaning up using Frequency Table
5. Data Cleaning up using Cross Tabulation table – Pivot Table

Activity 1: Data Cleaning Up

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10. Data Transformation

- Regrouping of Data
- Regrouping into Meaningful Group
- Transforming of Data
- Transforming into meaningful group

Activity 1: Data Transformation

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What is Critical Thinking?

- Critical thinking is “the process of **using reasoning to discern what is true, and what is false**” (Woods, 2002)

- Critical thinking is the ability to distinguish between facts and opinions, and to be open minded when dealing with certain issue, i.e., **not accepting or rejecting any claim without examination**

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Examples of simple critical question

Elements of Reasoning	Samples of Question
Clarity	• Could you elaborate? • Could you illustrate what you mean? • Could you give me an example?
Accuracy	• How could we check on that? • How could we find out if that is true? • How could we verify or test that?
Precision	• Could you be more specific? • Could you give me more details? • Could you be more exact?

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Examples of simple critical question

Elements of Reasoning	Samples of Question
Logic	• Does all of this make sense together? • Does your first paragraph fit in with your last one? • Does what you say follow from the evidence?
Significance	• Is this the most important problem to consider? • Is this the central idea to focus on? • Which of these facts are most important?
Breadth	• Do we need to look at this from another perspective? • Do we need to consider another point of view? • Do we need to look at this in other ways?

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Argument mapping

- Argument mapping plays an important role in enhancing critical thinking ability. It is an efficient technique to help researchers in **conceptualizing their judgments**.

- While critical thinking is much focused on enhancing the quality of analysis, argument mapping is a tool **to level logical** and **well-structured justifications**.

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Further reasons for using argument mapping

1. To build their critical thinking skills and general reasoning.
2. To make a clear, strong and well organised arguments.
3. To deliver messages to the readers.
4. To do evaluation of reasoning.
5. To resolve disagreement rationally.
6. To analyse difficult issues to make a better research decision.

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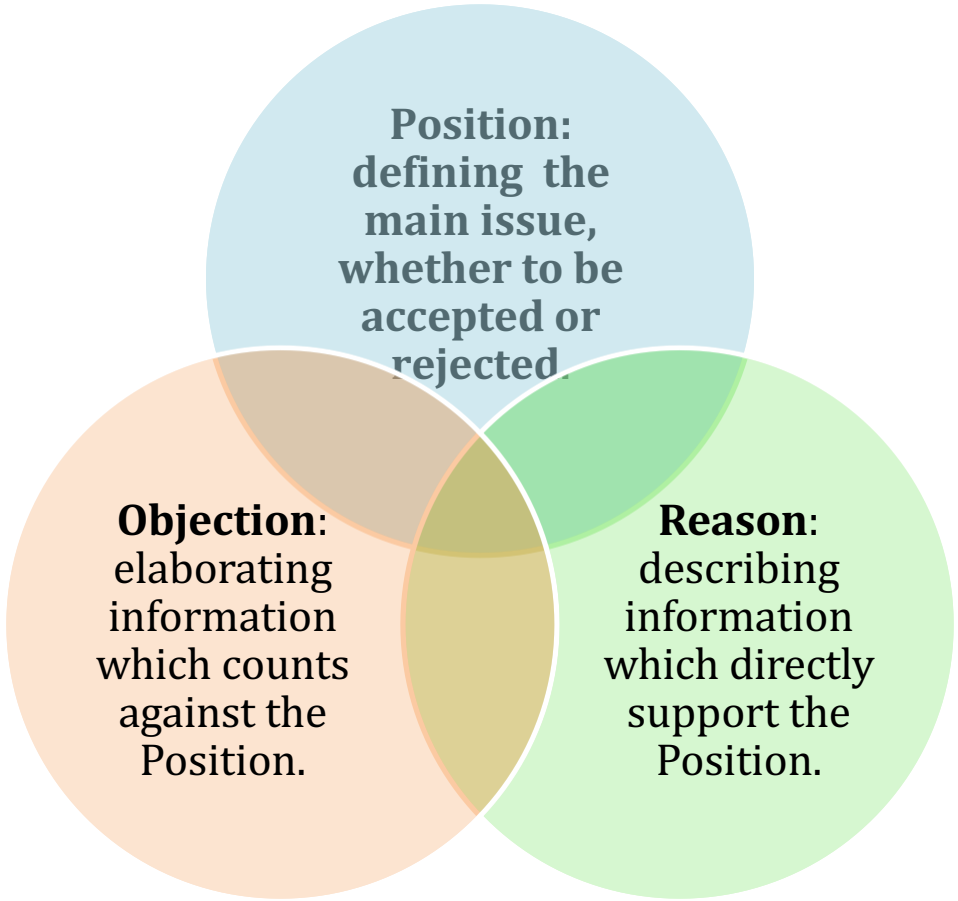

Key elements of argument mapping

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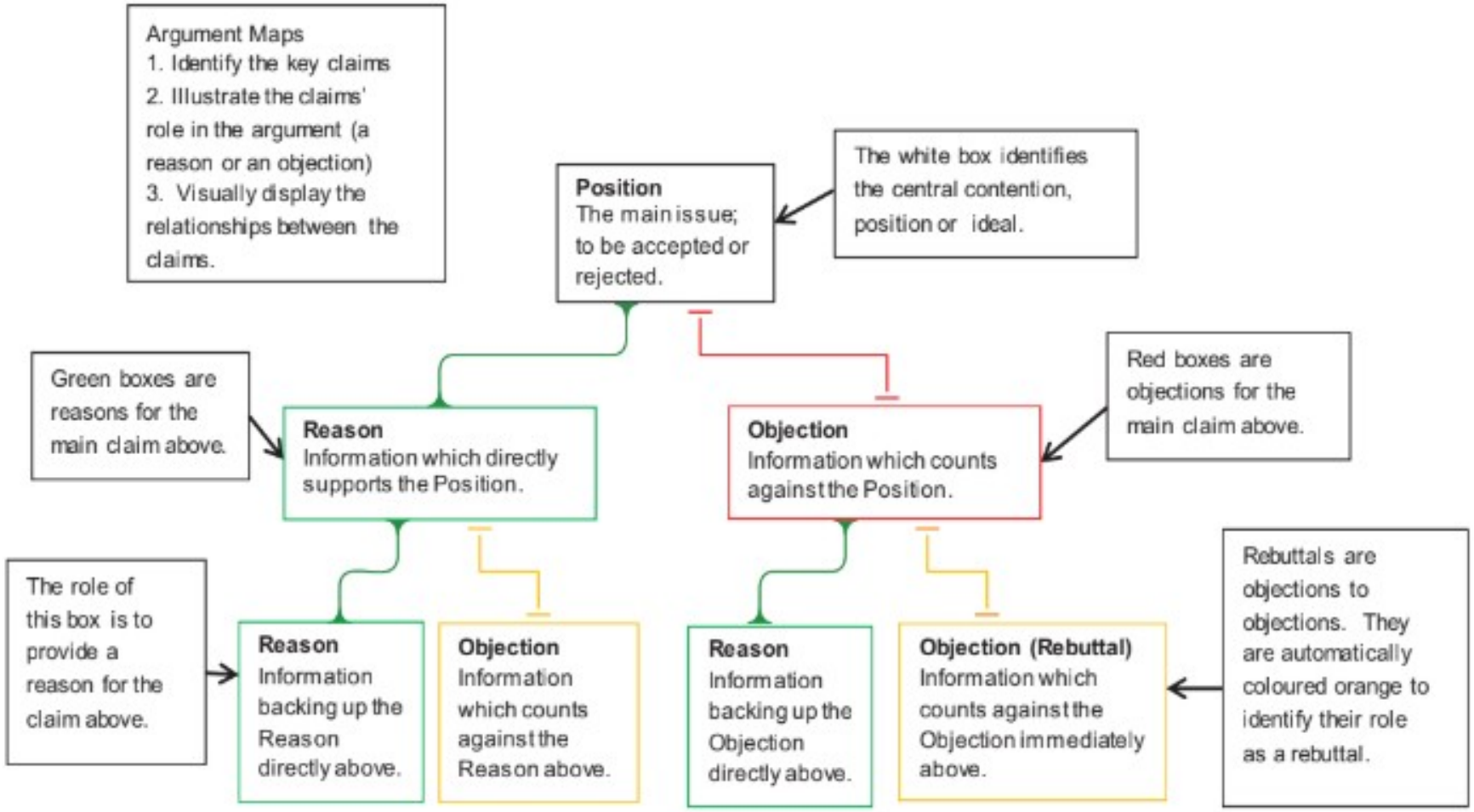
Map of key elements of argument



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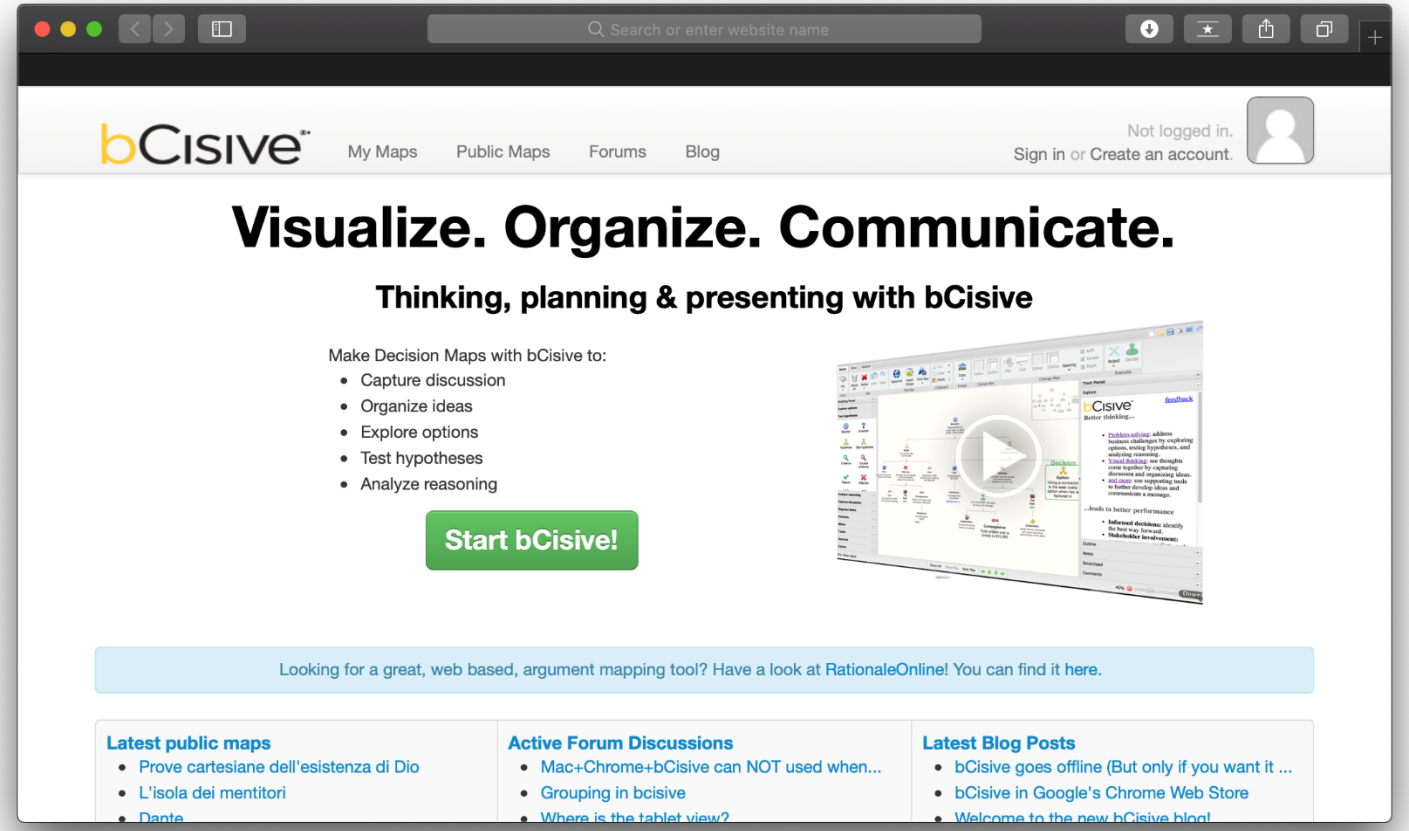
Online platform for argument mapping



bcisiveonline.com

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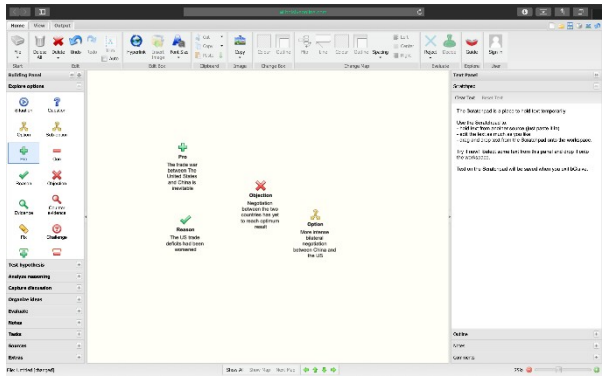
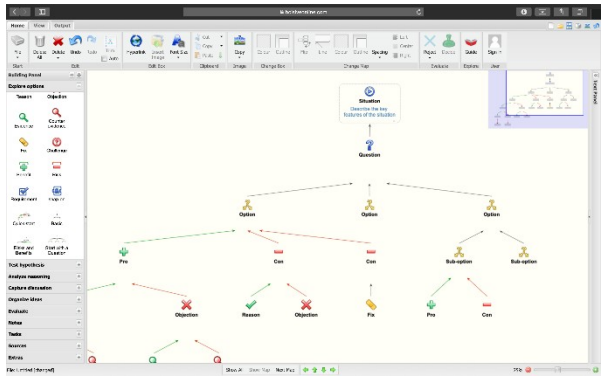
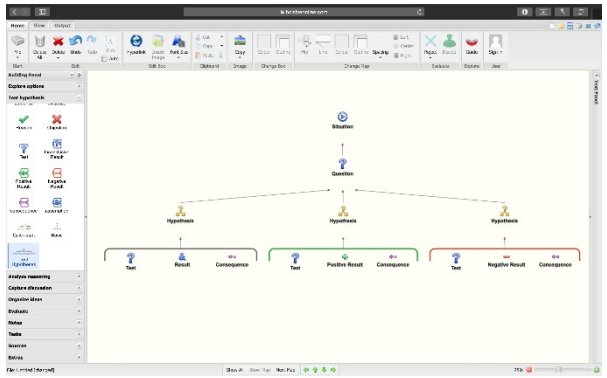
Exploring options on bcisiveonline.com



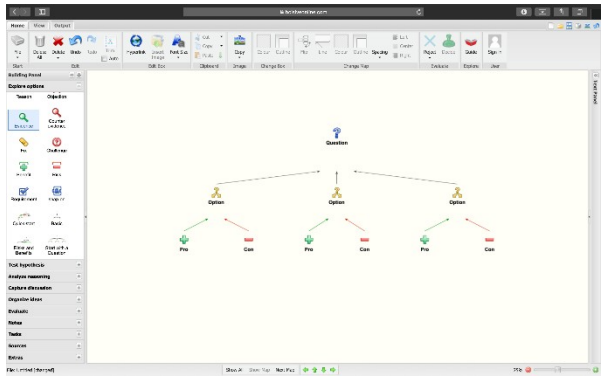
Building from the scratch; or



Using a quick-start; or



Testing a hypothesis; or



Building a simple map.

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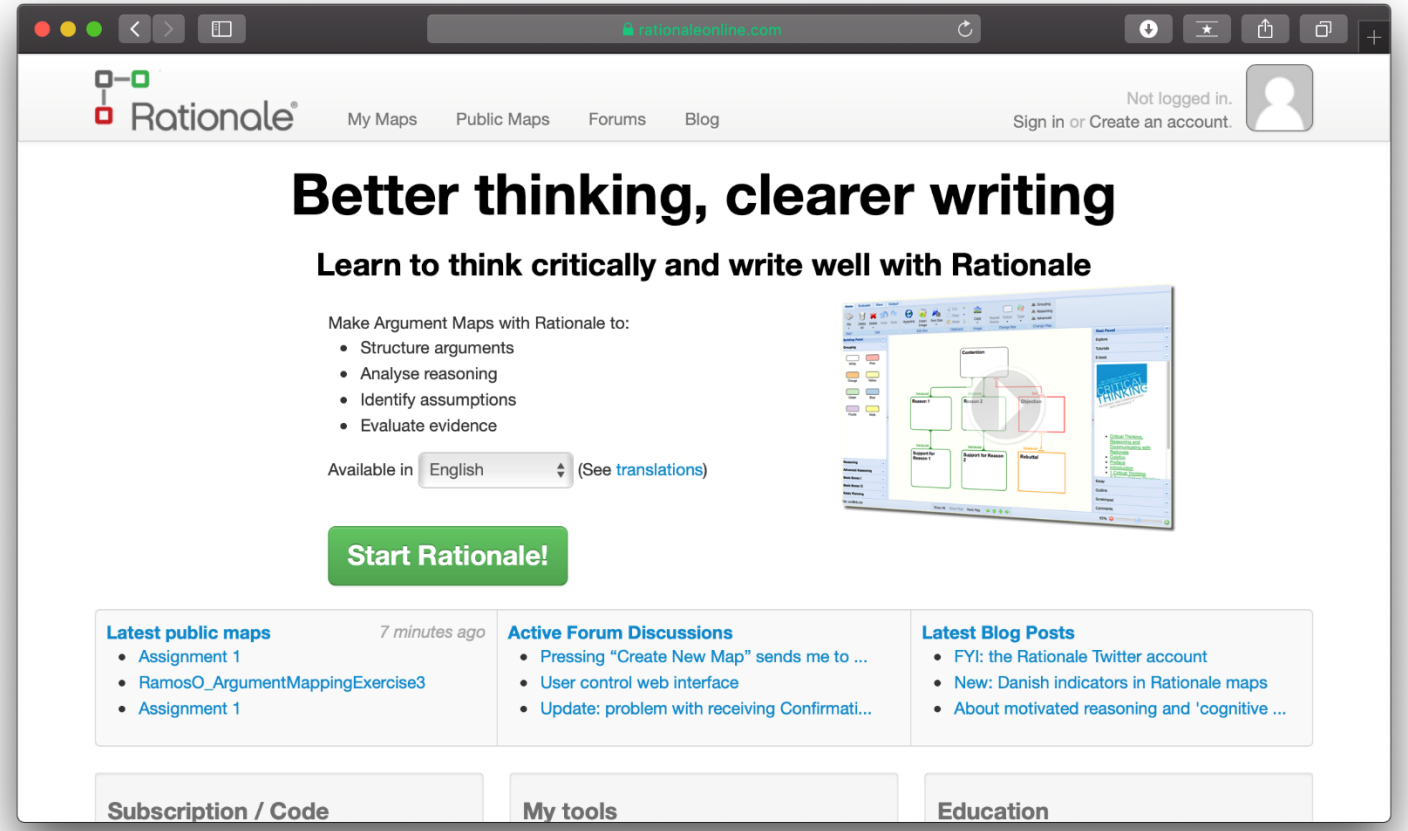
Online platform for argument mapping



rationaleonline.com

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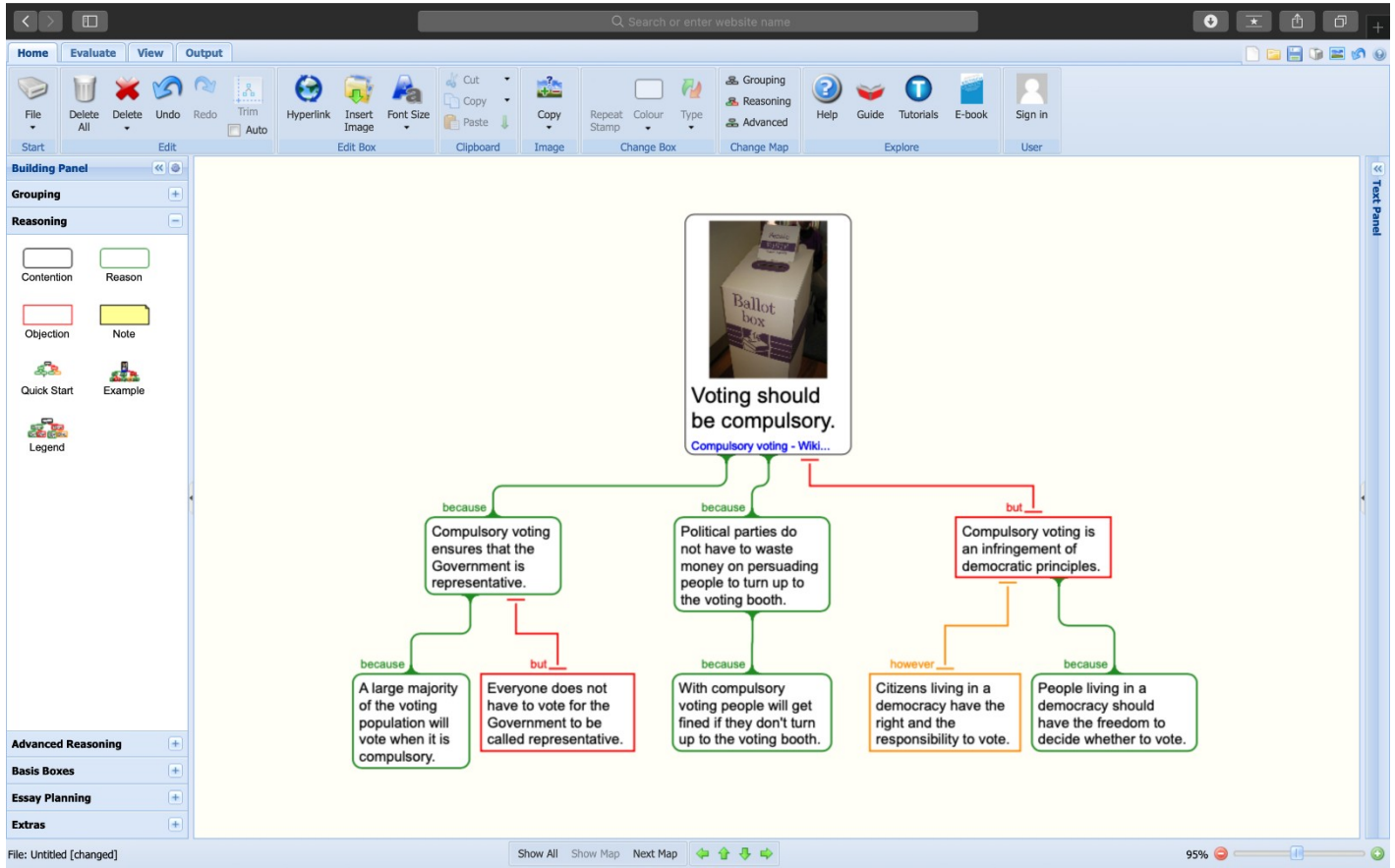
Utilizing rationaleonline.com



Example of argument mapping

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The K-Chart methods

- K-Chart helps researcher to **separate the main focus of research activity from the rest** of the issues that has a little or no relevance to the intention of research.

- It also helps researcher to **outline the flow of thinking** from stating the title to drawing the conclusion

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K-Chart structure

K-Chart consists of 4 layers:

No.	Layer's Name	Descriptions
1	General title	The proposed title of research, which include the subject of proposed research
2	Scope	Issues that underline the importance of proposed research
3	Methodology	Choices of how researcher conduct the research
4	Results	The output of research as a response to the research questions indicated in General title

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K-Chart application

- K-Chart can be applied using both **manual** and **online** platform
- Any software and online platform for diagramming - from MS Word to free online platform such as **draw.io** (https://www.draw.io) can be used to create the K-Chart
- The following example is made by using shapes and drawing tools available in the MS Powerpoint software

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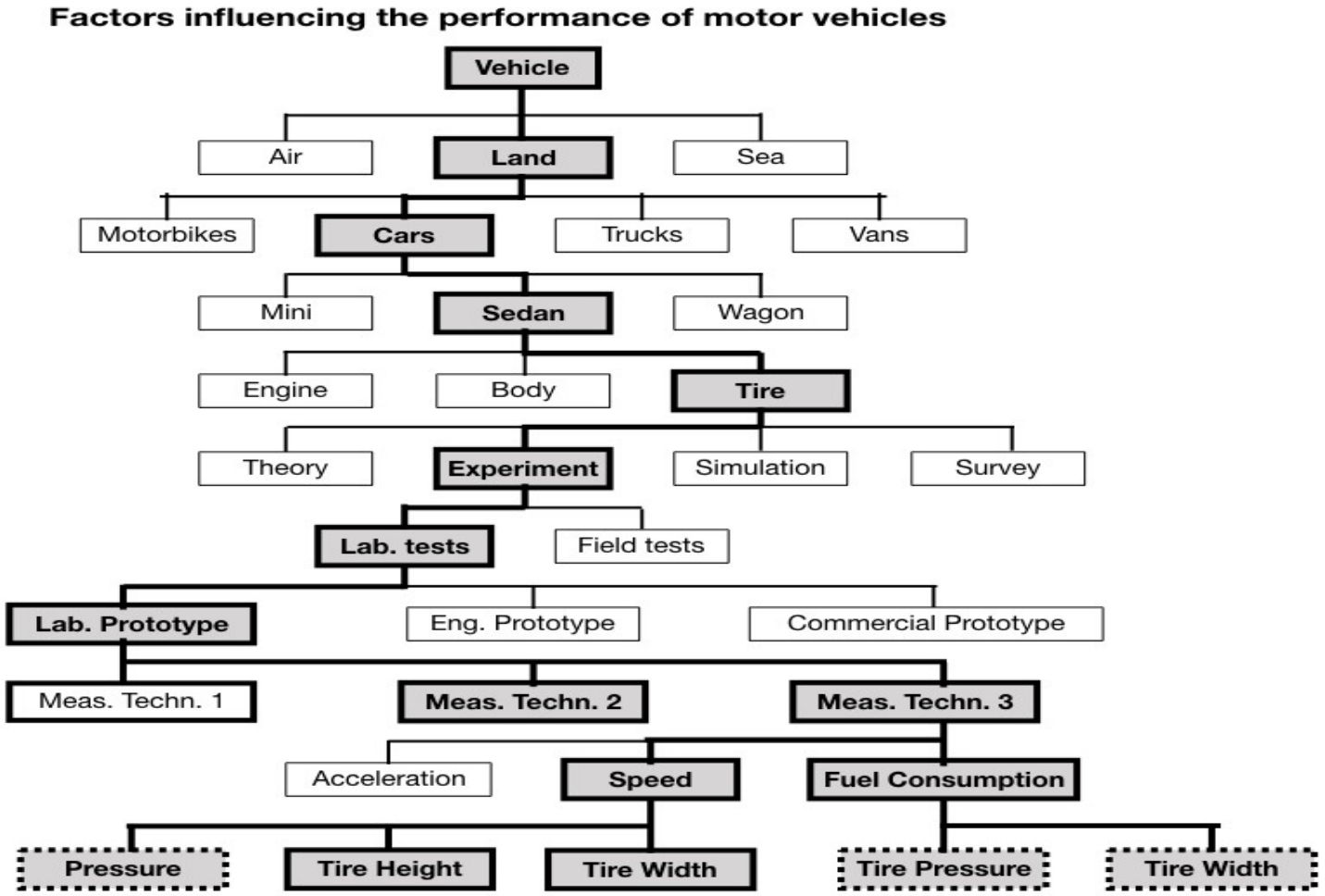
Example of K-Chart

Layer 1: General TITLE

Layer 2: The SCOPE - types & systems within the vehicles

Layer 3: METHODOLOGY

Layer 4: RESULTS



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draw.io: the online free K-Chart Maker

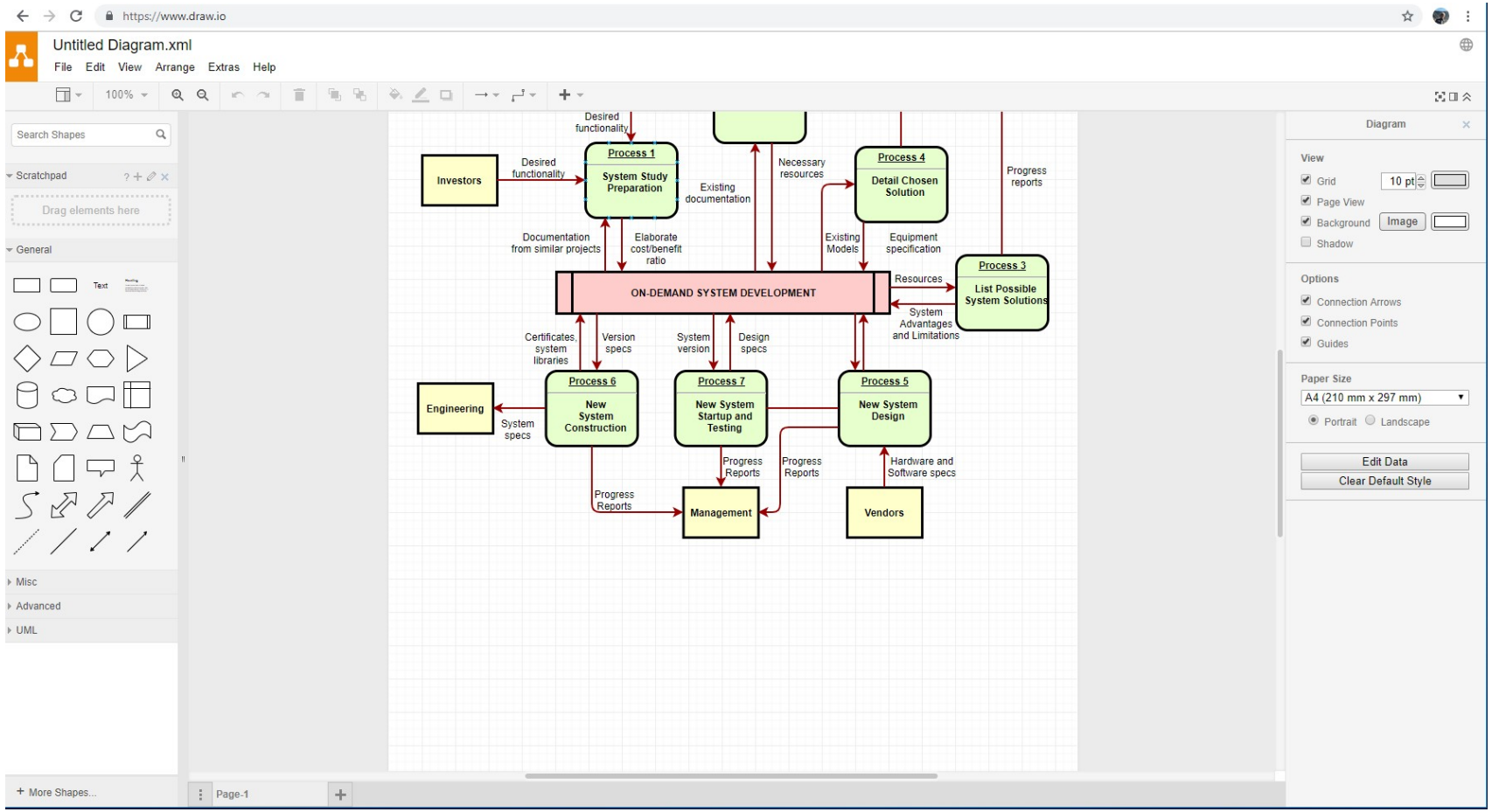

Chart maker form draw.io (https://www.draw.io)

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draw.io: the free online K-Chart Maker

- **draw.io** is perhaps the most cost effective online chart marker found in the internet. Unlike many other platforms, this one is completely free.
- To use it simply access https://www.draw.io

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Activity 3: the K-Chart making exercise

- Using **draw.io**, make a K-Chart that shows the flow of your proposed research outline
- Use your own research or take one of the following examples:
  - Enhancing the quality of public transport services in my city (note: change the words “my city” to your selected city)
  - Developing an inclusive public space to achieve the Sustainable Development Goals
- Discuss the choice in your group, then present it in the class.
- Other groups who are not presenting (the audience) are obliged to give feedback and/or ask questions, as well as to grade the presenter(s).

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Open Knowledge Maps (OKM)

- OKM is a visualization of a topical overview for our search term - created by incorporating 100 most relevant documents for our search term.
- OKM is an instant overview of a topic showing the main areas of research at a glance, and papers related to each area.
- The clustering of information into several sub-topics will make finding the references for our research faster and easier.

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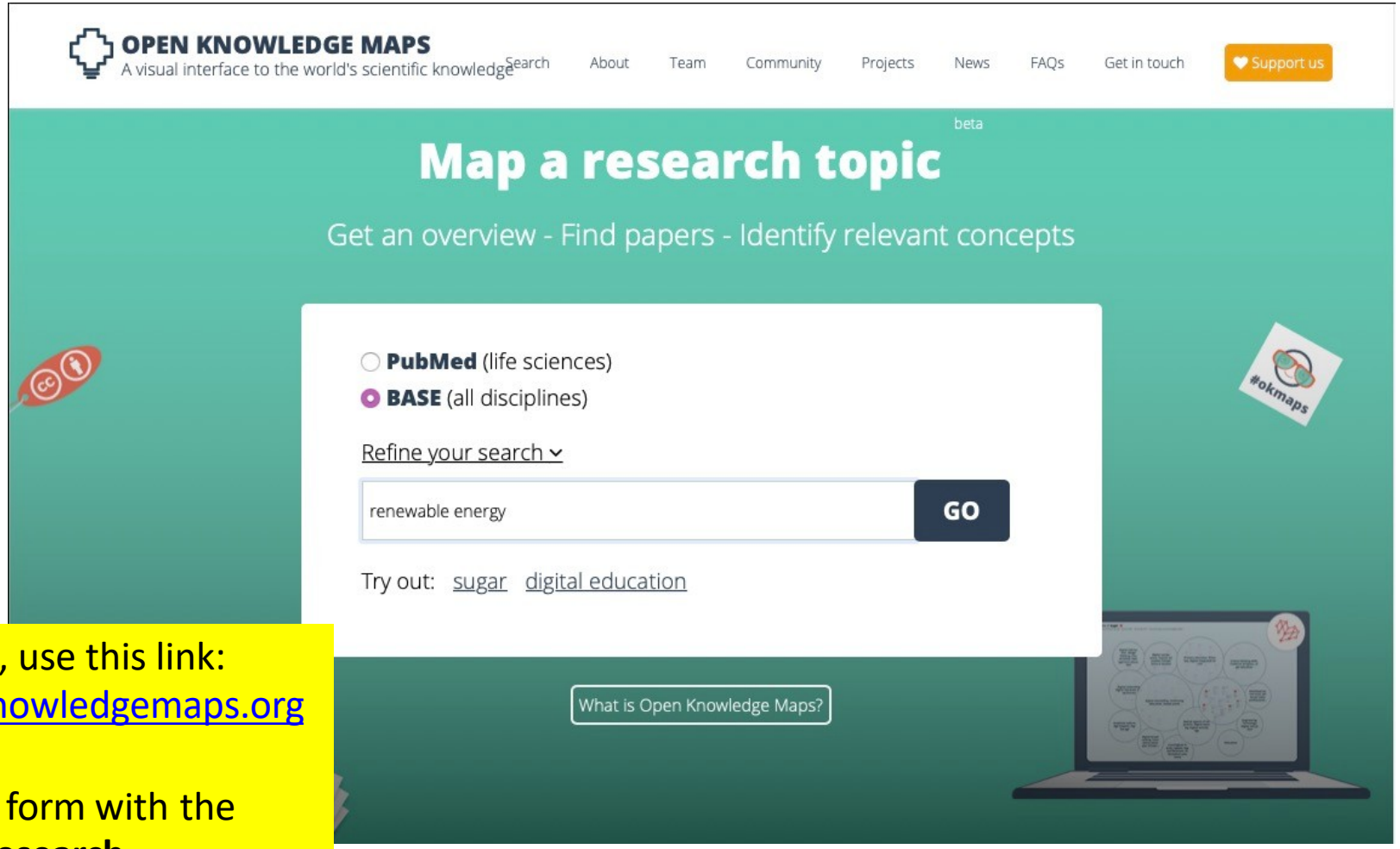
Accessing the OKM



To access OKM, use this link: https://openknowledgemaps.org

Then fill in the form with the **topic of your research**

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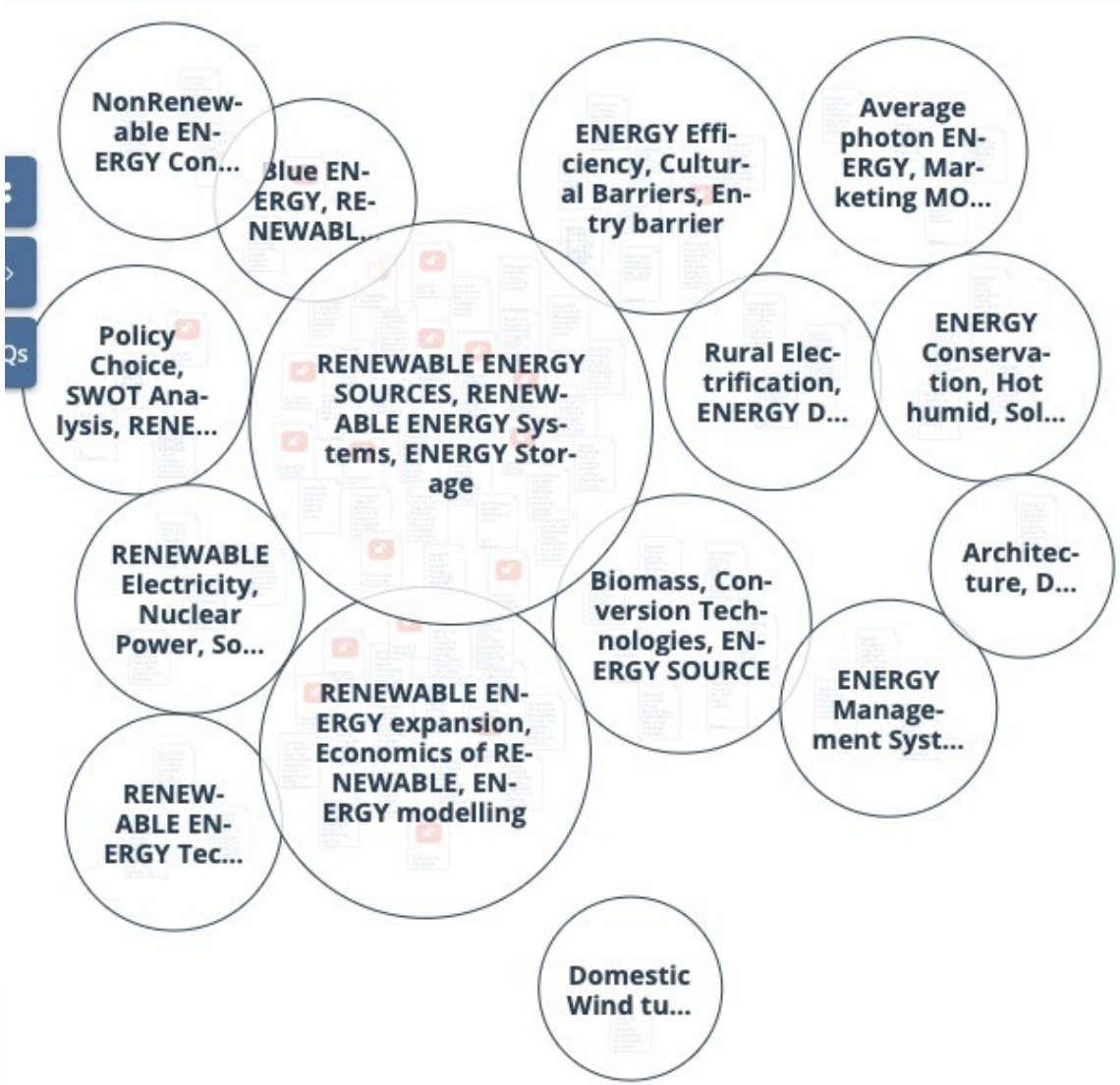
General results of mapping showing the related fields of research



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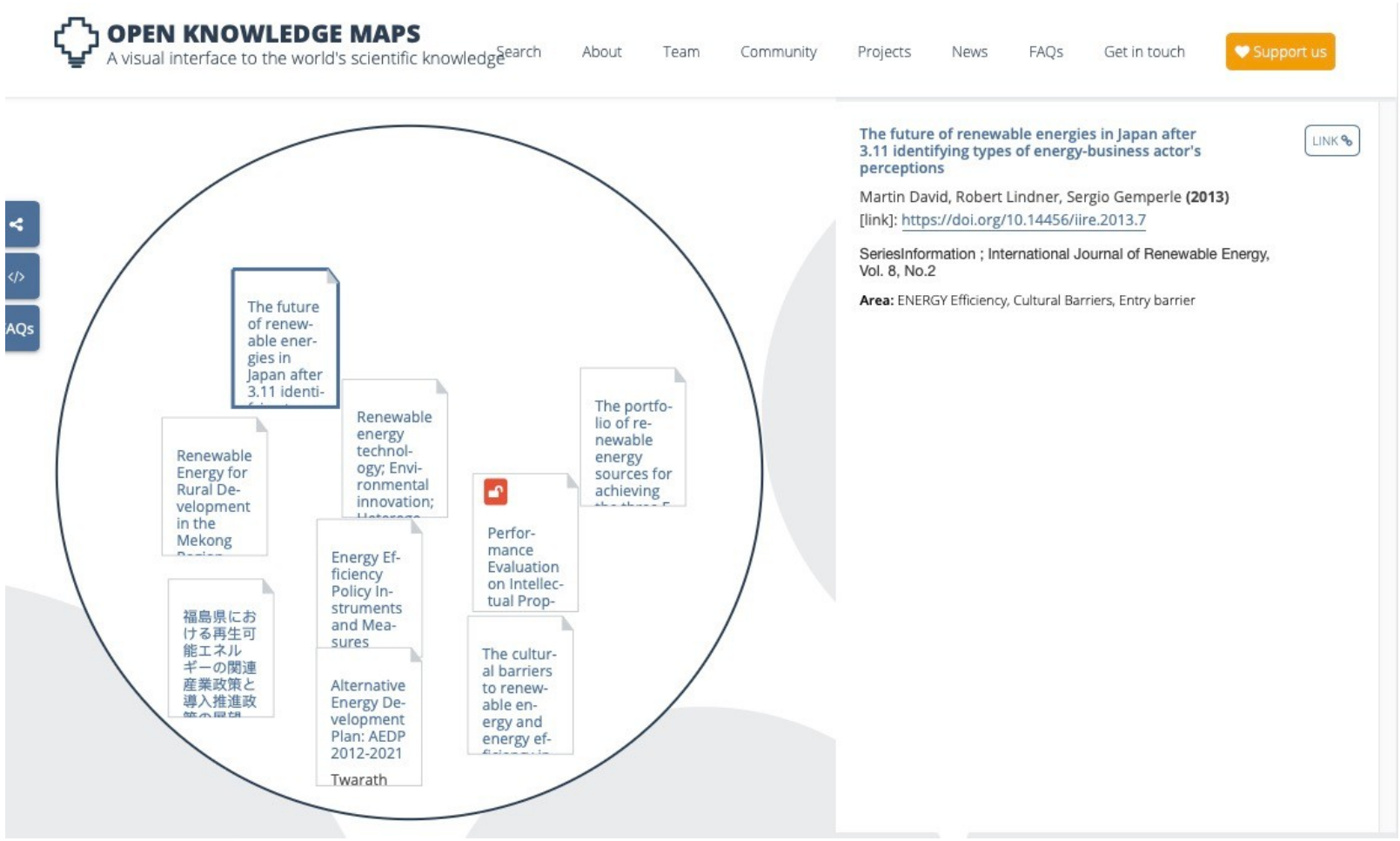
Specific results of mapping showing the related literatures



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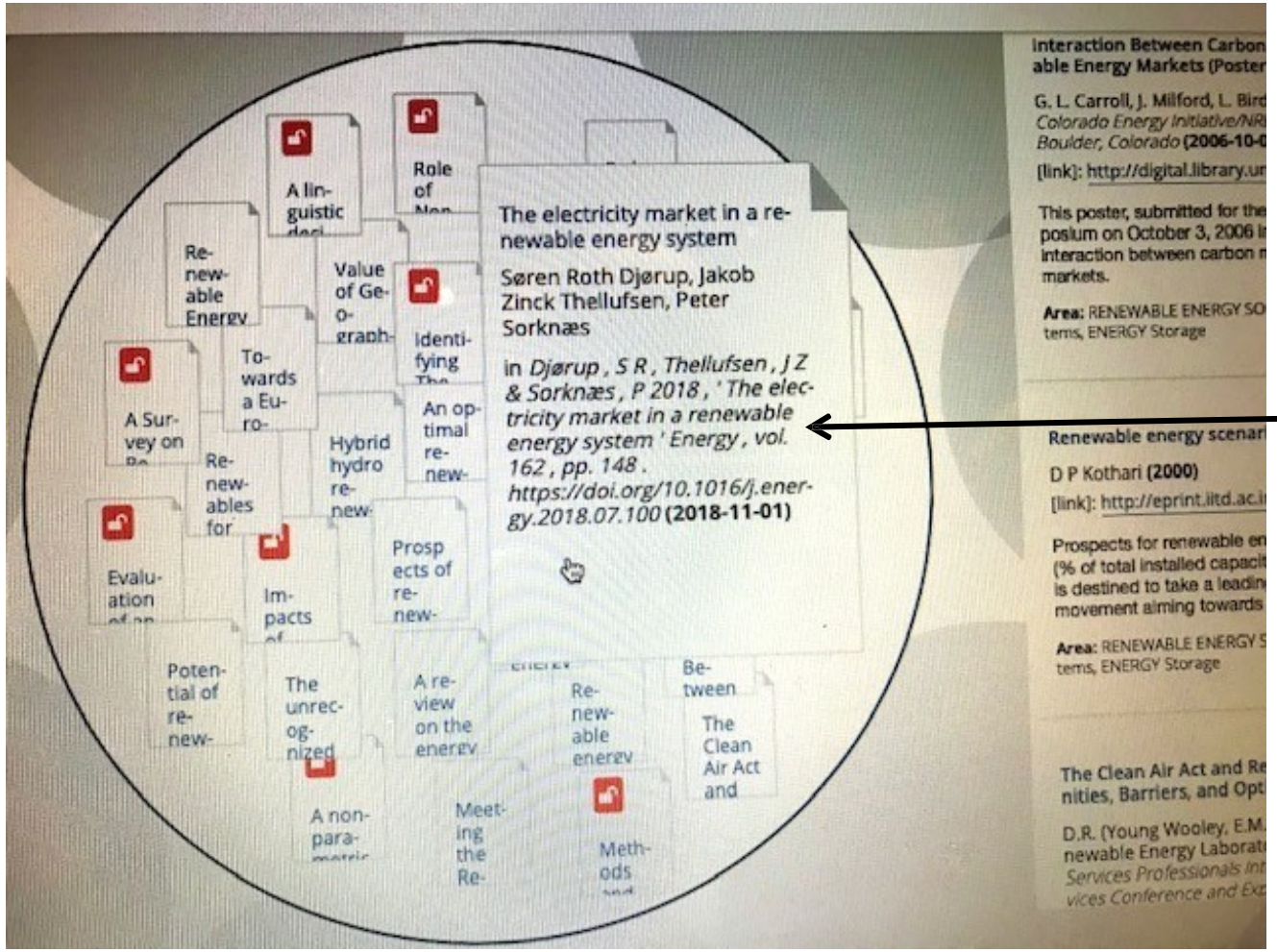
Specific results of mapping: the



Click icon to display the general content of the intended literature

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Activity 4: Using OKM to enhance the K-Chart performance

- Based on your K-Chart from the previous exercise, find references that you think are useful to support your research outline using OKM.
- Create a numbered Bibliography from the references you get from the OKM
- Write the number(s) in the K-Chart that correspond to the number in the Bibliography (see example in the next slide)
- Present your work in the class

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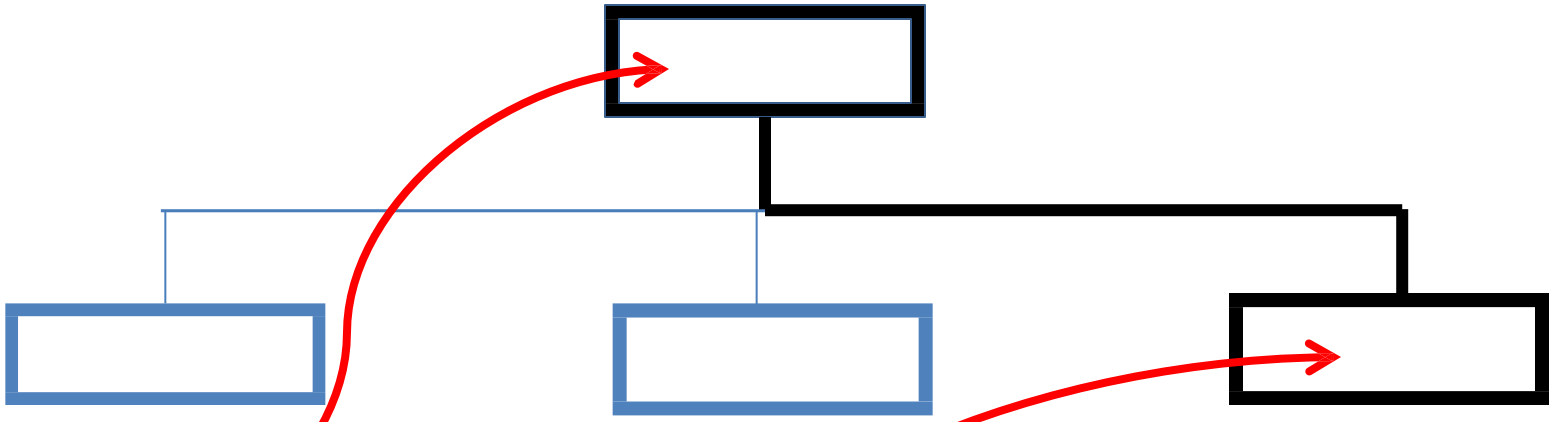
Example of Modified K-Chart



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