Welcome to the Cmap Scoring Tool

In this Help file you will find information about

## 1. Creating and exporting concept maps to CXL

The Cmap Scoring tool was designed to read CXL files exported from CmapTools (https://cmap.ihmc.us/). CmapTools is a free software to create concept maps.

After creating the concept map in CmapTools and before exporting it to a .cxl file, it is recommended to check for misspellings in the Concept map and to check for its hierarchical structure to ensure a good assessment of the Concept map.
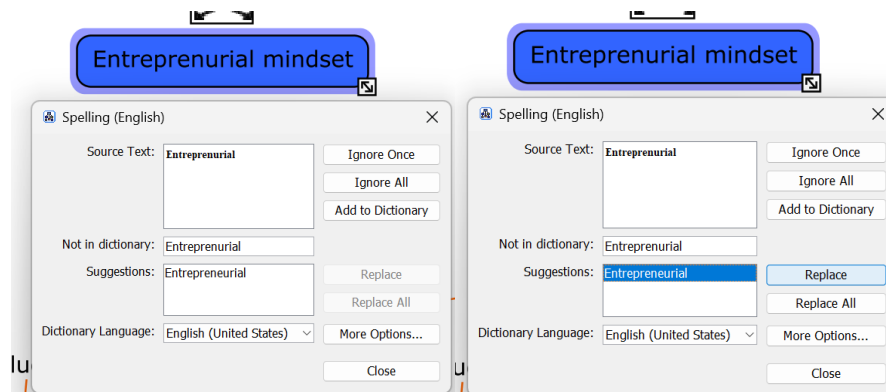
Check for Spelling in CmapTools

In the menu bar:

- Select **Tools** -> **Spelling...**
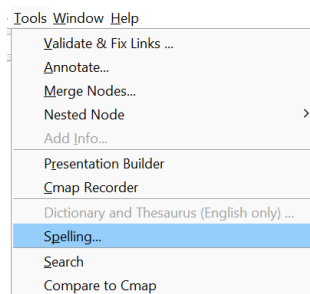
- Go through the Concept map to select and replace the word with the appropriate spelling.

  e.g.,

- The spelling of the root concept should be the same throughout all the concept maps that will be assessed at the same time.

  e.g.

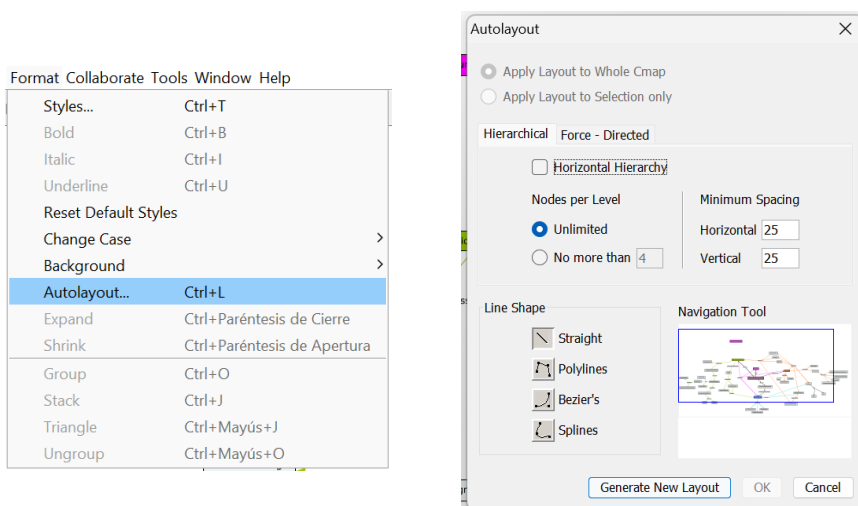| Example	Comments
Entrepreneurial mindset	Correct spelling
Entreprenurial mindset	Incorrect spelling of Entrepreneurial

Check for Hierarchical Structure in CmapTools

In the menu bar**:**

- Select **Format** -> **Autolayout**, then click on **Generate New Layout**, and **OK.**

Export the concept map to a CXL file

In the menu bar**:**

- Select **File** -> **Export Cmap As** -> **CXL File...**
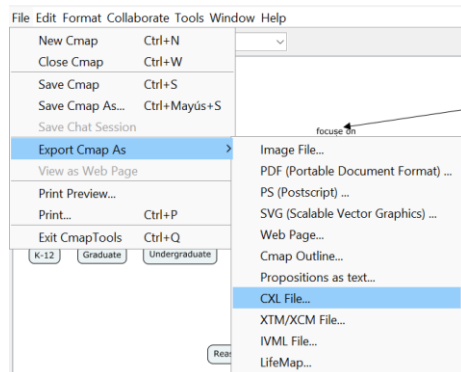
2. Using EM Cmap Scoring Tool

Main program GUI
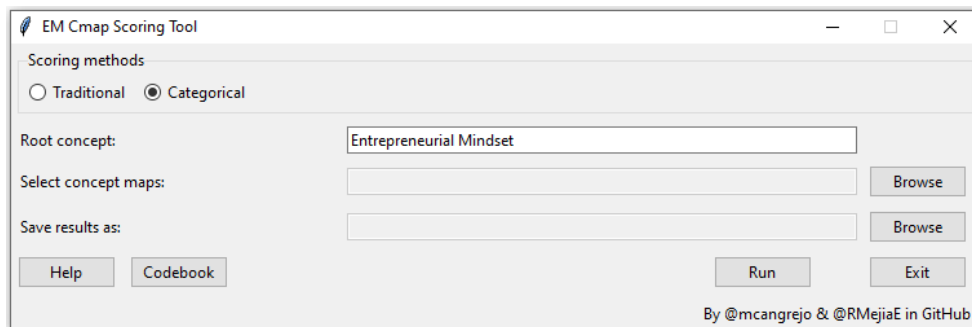
1. Select the scoring method. You can choose either "Traditional" or "Categorical".

2. Write down the root concept on the root node of the concept maps

3. Select the .cxl concept map files from your computer via the **Browse** button.

4. Select the path and filename for the Results Report via the **Browse** button. Results will be exported as .CSV.

5. Click the **Run** button and then open the .csv file Results Report in the folder you selected in Step 4.

Manual categorization GUI:

When the Categorical method is selected, the Scoring tool will display a new window "*Manual concept Categorization*" with the concepts in the Concept Map that were not found in the Wordbank file. The scoring tool will pre-assign these concepts to the category of the higher concept in their hierarchy. In the "*Manual concept Categorization*" window the user can leave the preassigned category or select a different category from a scrolling menu.
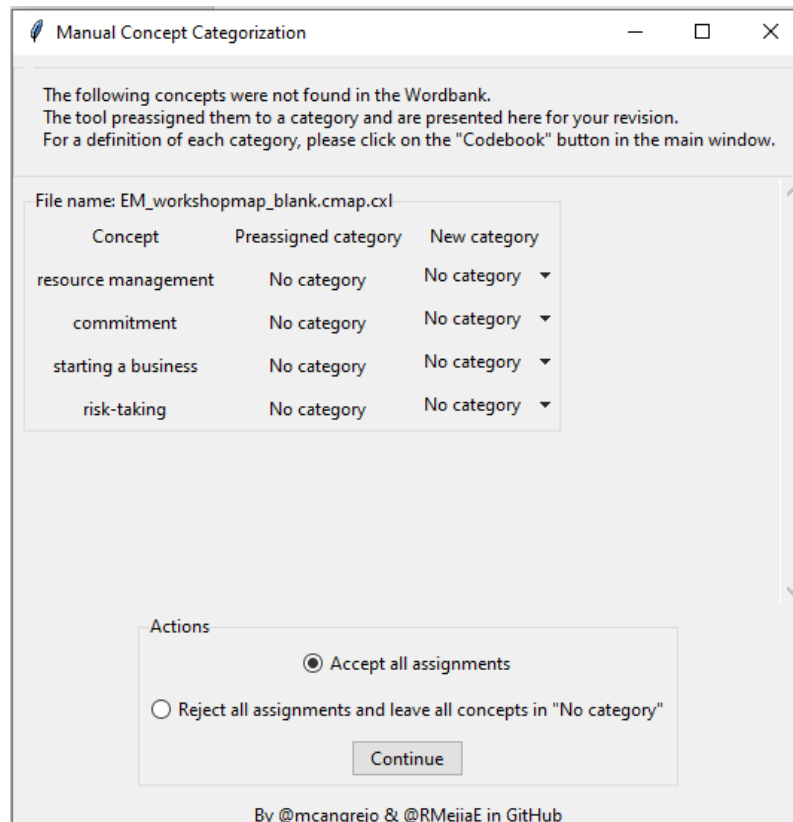
To accept the preassigned or new category, the radio button must remain in "*Accept all assignments*" and the user must press "*Continue*".

The user can also select "*Reject all assignments and leave all concepts* [that were not found in the Wordbank] *in No category*". In this case, those concepts will not count for the Score.

3. Changing the Wordbank

The Wordbank can be changed by replacing the csv file name "WordBank.csv" in the same folder where the **Cmap_Scoring_Tool_Launcher** application is. The new Wordbank must have the same file name "WordBank.csv" and the content must comply with some rules that are explained below.

Creating a new Worbank file

To create a new Wordbank follow these steps:
1. Open Excel and create a new blank workbook.
2. Select **File -> Save As**
3. Under the file name write **WordBank** (be aware of the capitalized B).
4. Under filetype select CSV UTF-8
5. Press **Save**
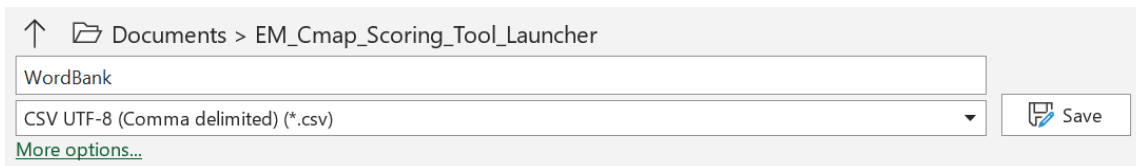
Populating the new WordBank file

The new WordBank must have the following structure:
- Each category (or subcategory) occupies one row:
  o In the first cell goes the number of the category
  o In the second cell goes the number of the subcategory. **If that row corresponds to a category the number must be the same as the first cell.**
  o In the third cell goes the name of the category.
  o From the fourth cell onwards go the concepts in this category or subcategory (if there are no concepts in the category or subcategory these cells can be left blank). Each concept must occupy one cell, you can add as many concepts as Excel allows. Concepts can be composed of two words. Be aware that the Scoring tool will look for the exact match of the complete concept.

- The first row of the file has the headers of each column. In column A goes "Category", column B "Subcategory", column C "Name", and column D "Words". The Scoring tool ignores this first row of the WordBank, then don't include a category in this row, just leave the headers.

The following figure shows the structure of the WordBank that comes by default with the Scoring tool. This WordBank was created for Entrepreneurial Mindset concept maps.

	A	B	C	D	E	F	G	H
1	Category	Subcategory	Name	Words				
2	1	1	Creating value	Value proposition				
3	1	7	Problem identification	real-world problems	grand challenges	world problems	renewable energy	climate change
4	1	8	Beneficiaries	client	customer	customer segments	end user	funding agencies
5	1	9	Types of Value	accesibility	benefit	convenience	economic	energy efficiency
6	2	2	Education					
7	2	10	Education system	degree	degree progression	formal education	institution	pedagogy
8	2	11	Curricular	areas	classroom	course project	disciplines	EM project
9	2	12	Co-curricular	Extracurricular	clubs	co-op	internships	personal experience
10	3	3	Design Process	connections	decision making			
11	3	13	Planning	Strategy	act on opportunities	benchmarking	competition	constraints
12	3	14	Development	Implementation	brainstorming	building a platform	conceptual design	design characterization
13	3	15	Evaluation	Assessment	assessment	compare	design reviews	evaluate
14	3	16	Collaboration	communication	cooperation	discussion	feedback	meetings
15	4	4	Business	Company	Organization			
16	4	17	Channels	branding	customer support	distribution	market forces	marketing a product
17	4	18	Start-up	business plan	business positions	company investment	incubators	investment
18	4	19	Operations	accounting	administration	advertising	budget	competitor positions
19	4	20	Resources	capital	equipment	human resources	infrastructure	labor
20	5	5	Innovation	Intellectual Property				
21	5	21	Novel	New invention	invention	new application	new products	new research
22	5	22	Existing	Modify	adjust	existing product	making changes	modification
23	6	6	KSAs					
24	6	23	Knowledge & Skills	background concepts	background knowledge	conflict resolution	critical thinking	ethics
25	6	24	Attributes & Attitudes	agency	altruism	autonomy	beliefs	charisma
26	25	25	Other	action	assess	blind spots	breakdown barriers	classify

First row is ignored. Don't include categories in this row, just headers.

Example of a category with no concepts in it. Concepts are whitin subcategories

Two-word concept. The Scoring tool will look for a perfect match

Main categories have the same number in the first and second column

4. Changing the Codebook

The Codebook can be changed by replacing the pdf file named "Codebook.pdf" in the same folder where the **Cmap_Scoring_Tool_Launcher** application is. The new codebook must have the same file name "Codebook.pdf" but can have different content.