Ideanet

A menu driven application for concept mapping

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About Idea Networks

Idea Networks helps communities address wicked problems and organizations pursue audacious goals with a state of the art methodology grounded in the science of networks.

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About concept mapping

Concept mapping a method for crowd-sourcing the understanding of and/or the design of interventions of complex challenges. Unlike other group processes which rely on consensus; this process elicits the many and diverse viewpoints on a complex issue. The methodology relies on member of a community to work individually to:

- Generate ideas in response to a specific challenge

- Organize all of the collected ideas into groups of similar ideas that they [participants] individually create and name

- Optionally, assess (e.g., rate) ideas on one or more measure of value (e.g., importance, feasibility).

Algorithms integrate the individual contributions from multiple people into maps that show the detailed ideas, themes and priorities; the collective wisdom of the group. While visualization is driven by sophisticated algorithms, the graphics are intuitive, knowledge of the underlying mathematics is not needed. As such, community members that provided individual input can work together to interpret their group's results and plan actions.

About the Ideanet application

Ideanet is a software application to support concept mapping. The application provides a menu-driven interface for data management, computation, and visualization for a concept mapping project. The application was built in R, a language and environment for statistical computing and graphics and is free software. R is needed to run the application, instructions that follow describe how to install the R program.

This version of Ideanet is a development version, improvements to the code and additional functions are in the process of being developed and tested. The code has been developed and tested in a Windows PC environment. This application has **not** been developed for or tested in a macOS environment.

The Ideanet application is free to use. The Ideanet program is shared in the hope that this will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS

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Send suggestions, questions, improvements, etc. to: info@ideanetworks.io

How to get started with Ideanet

1. Download supporting software

This code has been developed ad tested using version 4.2 of R but should work will earlier versions of R that are at least 4.0 and above. If you need to add R to your computer, I recommend downloading the "patched" version of the newest version of R. Download & Install R 4.2.0 patched.

In next steps I describe how to run code that will install and launch the application. The downloaded R program has an interface that can be used to install and run the code below. You may also use RStudio for launching and running code. If you wish to use RStudio, a free version of Rstudio desktop is available here Download free desktop version of RStudio.

2. Install Ideanet application

Run the installation code to install the application. This code only needs to be run once to install the application. Run this code again, in the future, as needed, to install newer versions of the Ideanet application. Choose which one of the following installation procedures applies to you.

Base R install If you downloaded the file "*ideanet_install.R*" you can double-click on that file to open R or if R is already open then, on the menu, click on *open script* and navigate to the file. Once the code is available then, on the menu click on *Edit*, *Run All*.

RStudio install Double-click on "*ideanet_install.R*" to open Rstudio with the code in the source window. If RStudio is already open then, on the menu click on *File, Open file,* and navigate to the file and click to open. Once the code is visible in the RStudio source window, click on *Ctrl+Alt+R* to run the code or, using the RStudio menu, click on *Code*, *Run region*, *Run all*.

3. Run the Ideanet application

Follow the same procedure as described above for installing Ideanet except, in this case use *run_ideanet.R* to start the app.

Once executed the code will open the program. Sometimes the Ideanet app will open behind other windows applications. Look on your task bar for *feather icon*, this is the icon for the app. Alternatively, use the hot keys (Alt+Tab) to tab through open applications to find Ideanet.

Note that once the Ideanet application is open, R and RStudio will not accept input because the Ideanet application has control of R environment. To stop using the app and regain control of R or RStudio, in the Ideanet menu click *Quit, Close app.*

4. Use the Ideanet application

The following is a brief description of the menu options. Additional details can be found in application.

Data entry Use the menu option to create a blank Excel template for data entry. The Ideanet software is structured to read data from this template.

- Sorting data is required. Depending on how the sorting data was collected the data is added to either the racked worksheet if manually entered or stacked worksheet if downloaded from an online sorting program.

- The text for ideas is required and is entered in the ideas worksheet.

- If rating data is collected, the values worksheet accommodates up to three demographic variables and up to two measures.

Review & define data Sorting data can be checked for errors such as missing cards and data entry errors so that these may be corrected. Rating data can be defined by entering details about demographics and the measures.

Compute maps Multidimensional scaling computes the location of points in two dimensions and computes a stress value for the solution. The map of items is partitioned with hierarchical cluster analysis to produce multiple cluster solutions. Label analysis computes the location for each label from each participant on the map and is used to suggestion names for clusters. The app will create three output files that are useful for choosing an optimal cluster solution for further analysis and reporting:

- An Excel workbook with cluster solutions and cluster labels

- A slide deck illustrating cluster membership and labels for each cluster solution

- A slide deck illustrating cluster membership in a dendrogram.

Create cluster report Once a cluster solution is selected, this option creates a slide deck that is a detailed report for the selected cluster solution.

Analyze values Users may choose to subset data analysis by demographic variables and/or measure and saves results as a PowerPoint file.

- *Pattern Analysis* creates a cluster rating map to illustrate relative value among the clusters with a third (i.e., height) dimension.

- *Pattern matching* compares patterns in values between measures (e.g., importance & feasibility) or between demographic groups (e.g., management & staff). Two types of graphics are created for pattern matching:

  - A ladder graph comparing values at the cluster level
  - A bivariate plot comparing the item means within each cluster.

Assess cluster solution Once a cluster solution is chosen, in some cases, a review of the map may evoke assertions that a given point may be better placed in a nearby cluster instead of the cluster where the point is currently located. The analysis done here will validate cluster membership or indicate if the map may be improved by placing an item in a neighboring cluster.