Concept Mapping for Suicide Prevention: Generating Ideas and Building Consensus

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Introduction

In 2007, the Florida State Legislature authorized the formation of the Florida Statewide Office of Suicide Prevention (SOSP) and the Florida Suicide Prevention Coordinating Council for the purpose of implementing the Florida Suicide Prevention Strategy. Subsequently, the legislature issued an allocation to the Louis de la Parte Florida Mental Health Institute (FMHI) at the University of South Florida to assist the SOSP with implementing the Strategy. FMHI then formed the Florida Suicide Prevention Implementation Project with the following mission:

> *To work cooperatively with the Office of Suicide Prevention and the Suicide Prevention Coordinating Council to develop an implementation process and plan to enhance the capacity of the State and of local communities to convert the Florida Suicide Prevention Strategy into concrete actions.*

In order to generate suicide prevention ideas that represented the consensus of the newly-formed council and its stakeholders, the FMHI project team conducted a scientific participatory process called concept mapping. This paper summarizes the concept mapping activities conducted by the project August through November, 2007.

Method Overview

Concept mapping is a research technique that allows a group of stakeholders to express their ideas on a topic and then study these ideas as they relate to one another. Concept mapping begins with a structured brainstorming process in which participants are given a focus statement and guided to generate statements in response to a prompt. Responses are then classified and rated by selected characteristics. This process results in visual maps that illustrate:

- The group's ideas
- How the ideas are related to one another
- How the ideas can be organized or clustered into general concepts
- How concepts are rated by the group in terms of characteristics such as importance and feasibility.

Concept mapping for the Florida Suicide Prevention Implementation Project was conducted in three phases:

1. Brainstorming
2. Sorting and Rating
3. Analysis and Feedback.

Following is a summary of the activities within each phase.

1. Brainstorming

The first meeting of the Florida Suicide Prevention Coordinating Council was held on August 29, 2007. Over 50 people from across the state attended the meeting. Attendees included mental health professionals, educators, suicide survivors, and other stakeholders in suicide prevention. Some of the attendees were voting members of the council. Others were stakeholders in suicide prevention. Overall, the group had a wide range of knowledge and experience in suicide prevention. Some attendees had been involved in creating suicide prevention action plans at the state and local levels. Ideas abounded. It was imperative to establish the priorities of the council members. To accomplish this purpose, the project turned to a mixed-method research technique called concept mapping.

Brainstorming began during the first council meeting where FMHI staff facilitated a brainstorming session with all meeting participants. Each participant was asked to complete the following prompt:

"In order to move the Florida Suicide Prevention Strategy into ongoing community programs and/or initiatives, a specific activity/task that should/must occur is…"

The brainstorming facilitator asked each person around the room to respond until all participants had responded at least once. Responses were recorded and displayed on an overhead screen. After similar responses were merged, 66 responses remained.

Following the council meeting, approximately 51 individuals including previous participants and other suicide prevention stakeholders continued or joined the brainstorming by entering responses to the prompt via online concept mapping software. Three weeks later, brainstorming was closed with a total of 149 responses, now referred to as statements. The project merged similar statements until 125 remained to be sorted and rated.

2. Sorting and Rating

A select number of individuals were invited to participate in sorting and rating the statements. Participants were asked to sort all the statements into groups in a way that made sense to them. Participants created names or titles for each group that reflected the kinds of statements in the group. For example, some participants placed "Highlight the

role of substance abuse in suicide" and "Promote connectedness and resilience" in a group called "social marketing".

During rating, participants continued to work on the internet-based system to rate the statements in terms of **importance**, **ease of implementation**, and **impact** to reducing the suicide rate. Each statement was rated on a 5-point scale as shown in Table 1.

Table 1 – Rating Scale	
Importance	
1	Not very important
2	Somewhat important
3	Quite important
4	Very important
5	Extremely important
Ease of Implementation	
1	Not easy to implement.
2	Somewhat easy to implement.
3	Quite easy to implement.
4	Very easy to implement.
5	Extremely easy to implement.
Impact	
1	Little to no reduction in the suicide rate.
2	Some reduction in the suicide rate.
3	Quite a bit of a reduction in the suicide rate.
4	Very much of a reduction in the suicide rate.
5	Extreme reduction in the suicide rate.

Table 2 contains statistical information regarding participation in sorting and rating. The response rate was within the acceptable limits reported in the literature.

Table 2	
Concept Mapping Phase	**Number of Participants**
Invited to Participate in Sort & Rate	77
Responded to Invitation	47
Declined to Participate	13
Agreed to Participate	34
Sorted	20
Rated Importance	22
Rated Ease of Implementation	20
Rated Impact on the Suicide Rate	21

3. Analysis and Feedback

The analysis of these data was conducted using the Concept System software package (Concept Systems, Inc.), which makes use of key multivariate statistical techniques including multidimensional scaling and cluster analysis. This analysis was used to create conceptual maps of statements generated by the participants. Several maps and graphs

were generated. This paper will present the results of three of the maps: cluster map, ladder graphs, and go zone plots.

Cluster Map

In a cluster map, statement numbers are positioned by a statistical procedure according to how similar they were perceived to be by the sorters. Statements perceived to be similar are positioned close to each other. Statements perceived to be dissimilar are located farther apart. Similar statements are grouped together in non-overlapping categories called clusters based on their proximity to one another. Using a well-established statistical procedure, cluster titles are generated by software according to what the system determines to be the best of the sorter-provided names. Clusters are useful for organizing action plans, assigning tasks, and coordinating implementation activities.

The software generated several cluster solutions. Analysis revealed that the 6-cluster solution shown in Figure 1 was the most appropriate and workable solution.
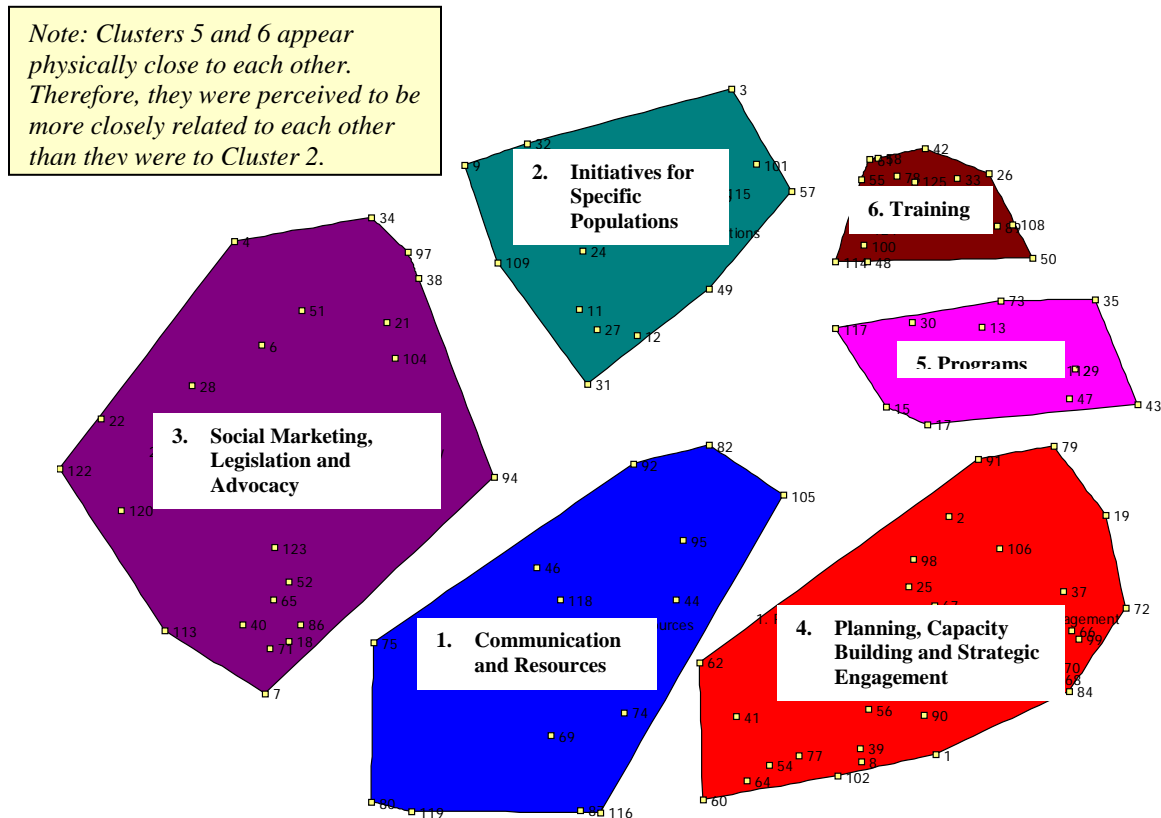

Figure 1 – Cluster Map, 6-Cluster Solution

Ladder Graphs

Ladder graphs are used to compare the group's responses on two ratings or the responses of two sub-groups on one rating. Ladder graphs help to identify differences in how groups made their ratings as well as differences in how the different criteria (Importance, Ease of Implementation, and Impact) were rated.

Figure 2 contains a sample ladder graph comparing the group's responses on two ratings: Importance and Ease of Implementation. The rating scale is represented on the two vertical lines. The clusters are positioned on each vertical line according to the rating they received. Clusters which received different ratings for Importance and Ease of Implementation are in different positions on the left and right vertical line. Cross lines connect each cluster on the left vertical line to its position on the right vertical line. When a cross line is horizontal, the cluster was rated the same for Importance and Ease of Implementation.
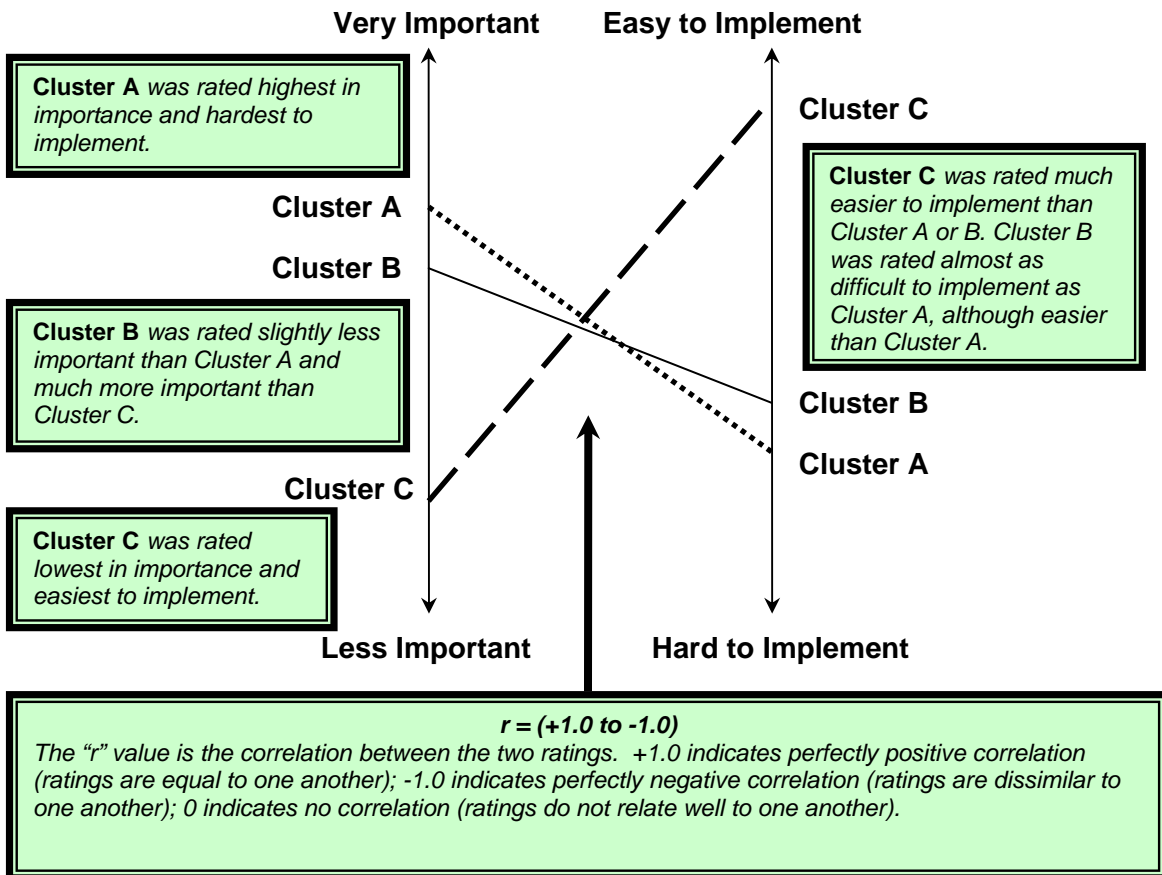
Very Important   **Easy to Implement**

Cluster A was rated highest in importance and hardest to implement.

Cluster A

Cluster C

Cluster B

Cluster C was rated much easier to implement than Cluster A or B. Cluster B was rated almost as difficult to implement as Cluster A, although easier than Cluster A.

Cluster B was rated slightly less important than Cluster A and much more important than Cluster C.

Cluster B

Cluster A

Cluster C

Cluster C was rated lowest in importance and easiest to implement.

Less Important   **Hard to Implement**

r = (+1.0 to -1.0)
The "r" value is the correlation between the two ratings. +1.0 indicates perfectly positive correlation (ratings are equal to one another); -1.0 indicates perfectly negative correlation (ratings are dissimilar to one another); 0 indicates no correlation (ratings do not relate well to one another).

Figure 2 – Sample Ladder Graph

Appendix A contains ladder graphs for the six clusters identified in Figure 1. Analysis of ladder graphs revealed the following:

- Many of the statements seen as important were not viewed as easy to implement so that there was a very low correlation of .3. (Ladder Graph 1)

- As would be expected, there was a higher correlation (.6) between the statements which were viewed as important and which would have an impact. (Ladder Graph 2)

- There was a very low correlation (-.23) between impact and implementation. Statements having the most impact would be most difficult to implement. Statements having the least impact would be easiest to implement. (Ladder Graph 3)

- Comparison of the average importance cluster ratings between council members and non-council members revealed a very high correlation (.85) which indicates that the council was highly representative of the views of the larger group. (Ladder Graph 4)

Go Zone Plots

Go Zone Plots are visual aids that may be used for planning the next steps. Figure 3 shows a sample Go Zone Plot for Importance and Ease of Implementation, displayed on the vertical and horizontal axis respectively. The plot is divided into four zones. Each statement number appears in a zone and position that reflects the statement's combined rating for implementation and importance.
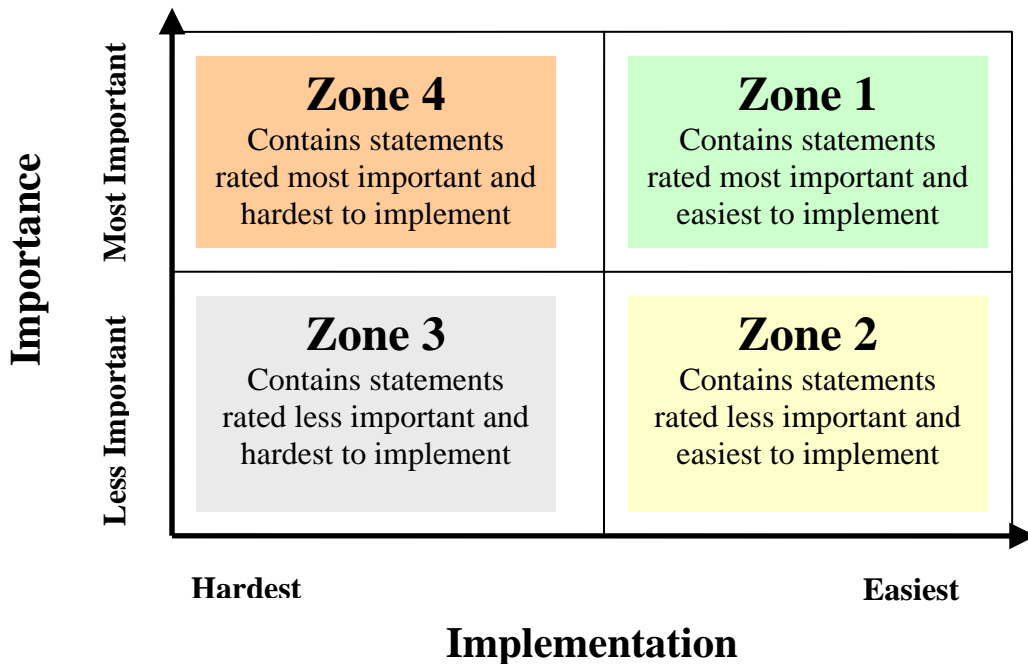

Figure 3 – Sample Go Zone Chart, Importance and Ease of Implementation

The Go Zone Plot in Appendix B contains all 125 statement numbers positioned as they were rated for Importance and Ease of Implementation. Appendix C contains a list of statements in Zone 1 and samples of statements from other zones.

The statements in Zone 1, rated most important and easiest to implement, are logical choices for next steps and may likely lead to quick successes. The statements in Zone 4, rated most important and hardest to implement, require a major strategic decision as to whether to commit substantial resources to these efforts or to acknowledge that they cannot be addressed at this time. Further examination may reveal that some Zone 4 statements are actually easy to implement and would be suitable for short-term action plans.

Statements in Zones 2 and 3 were rated lower in importance and require further examination to determine their suitability for action plans. An important consideration is each statement's position in a zone. For example, statement number 5 "Engage survivors of suicide and attempts in all local planning efforts" is positioned in the top right corner of Zone 3 close to the other zones. Therefore, this statement may be appropriate for either short or long-term plans. Another important consideration is an estimate of impact compared to effort. If Zone 3 statements are found to have some impact for very little effort, a decision may be made to include them in short-term action plans.

Feedback

A debriefing was conducted at the November 5, 2007 meeting of the Florida Suicide Prevention Coordinating Council. FMHI recommended the following uses of the Concept Mapping results:

- Existing state action plans could be expanded to include the statements rated most important and easiest to implement (Zone 1 of Go Zone Chart).

- Statements may be used to create a web-based menu of suicide prevention activities for state and local efforts.

- Communities may select statements which are locally relevant to start or accelerate their own suicide prevention activities.
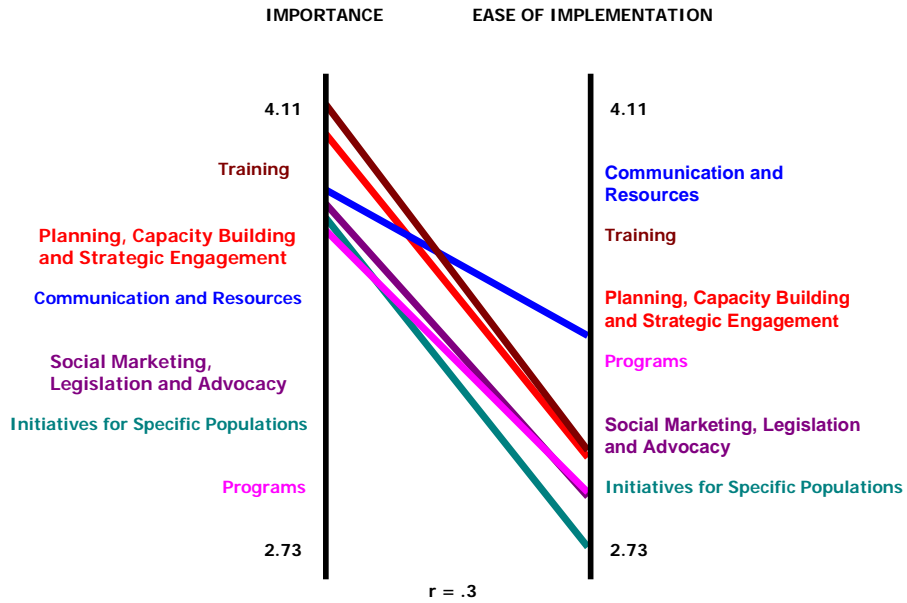
Conclusion

The concept mapping process accelerated the momentum of the newly formed Suicide Prevention Coordinating Council by enabling members to quickly reach consensus on the priority of ideas for moving the Florida Suicide Prevention Strategy into action. In addition, concept mapping confirmed the work which had been conducted by previous coalitions while adding significantly more ideas for implementation. At the local level, the work done on concept mapping at the state level may assist suicide prevention activities in Florida's communities.
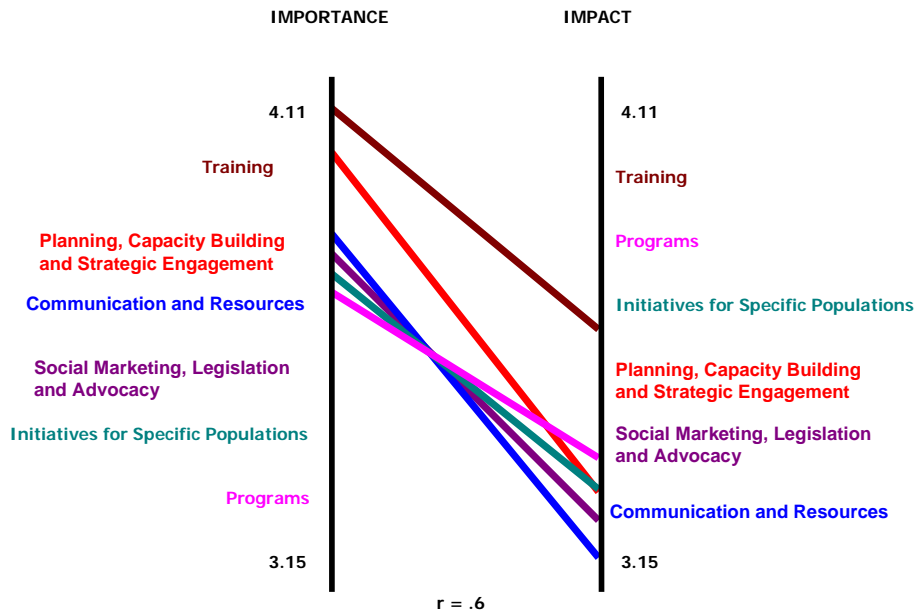
Reference
Concept Systems Incorporated. CS Global software, (http://www.conceptsystems.com). Retrieved June 1, 2008.

Appendix A

Ladder Graph 1: Importance and Ease of Implementation

IMPORTANCE   EASE OF IMPLEMENTATION

4.11

Training

Planning, Capacity Building
and Strategic Engagement

Communication and Resources

Social Marketing,
Legislation and Advocacy

Initiatives for Specific Populations

Programs

2.73

4.11

Communication and
Resources

Training

Planning, Capacity Building
and Strategic Engagement

Programs

Social Marketing, Legislation
and Advocacy

Initiatives for Specific Populations

2.73

r = .3

Ladder Graph 2: Importance and Impact

IMPORTANCE   IMPACT

4.11

Training

Planning, Capacity Building
and Strategic Engagement

Communication and Resources

Social Marketing, Legislation
and Advocacy

Initiatives for Specific Populations

Programs

3.15

4.11

Training

Programs

Initiatives for Specific Populations

Planning, Capacity Building
and Strategic Engagement

Social Marketing, Legislation
and Advocacy

Communication and Resources

3.15

r = .6

Ladder Graph 3: Impact and Ease of Implementation

IMPACT　　　　　　**EASE OF IMPLEMENTATION**

3.64　　　　　　　　　　　　3.64

Training

Programs

Initiatives for Specific Populations

Communication and Resources

Planning, Capacity Building
and Strategic Engagement

Training

Planning, Capacity Building
and Strategic Engagement

Programs

Social Marketing, Legislation
and Advocacy

Social Marketing, Legislation
and Advocacy

Communication and Resources

Initiatives for Specific Populations

2.73　　　　　　　　　　　　2.73

r = -.23

Ladder Graph 4: Council Members and Other Florida Residents

COUNCIL MEMBERS　　　　**FLORIDA RESIDENTS**

4.24　　　　　　　　　　　　4.24

Training

Training

Planning, Capacity Building
and Strategic Engagement

Planning, Capacity Building
and Strategic Engagement

Social Marketing, Legislation
and Advocacy

Communication and Resources

Communication and Resources

Social Marketing, Legislation
and Advocacy

Programs

Initiatives for Specific Populations

Initiatives for Specific Populations

Programs

3.43　　　　　　　　　　　　3.43

r = .85
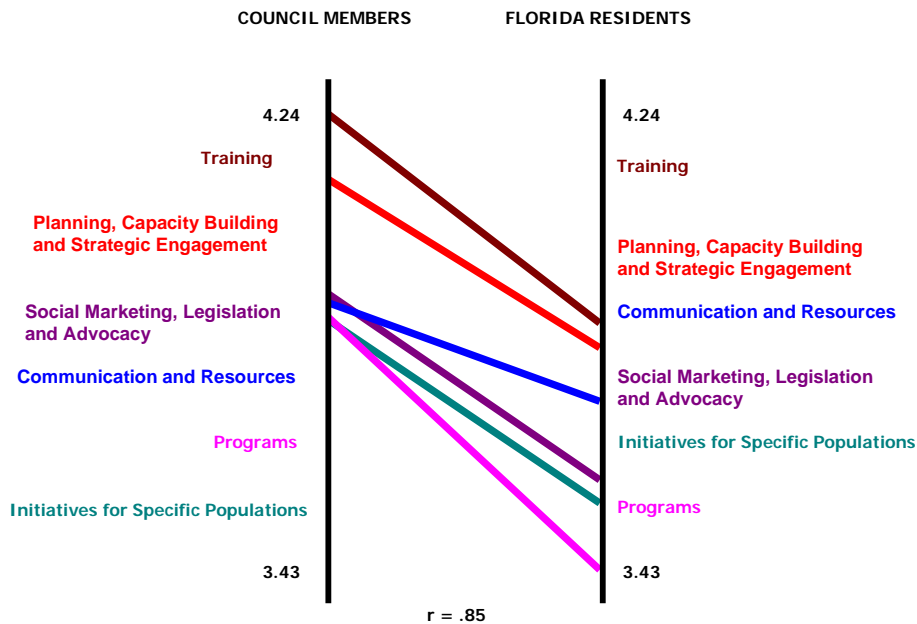
Go Zone Plot for Importance and Ease of Implementation
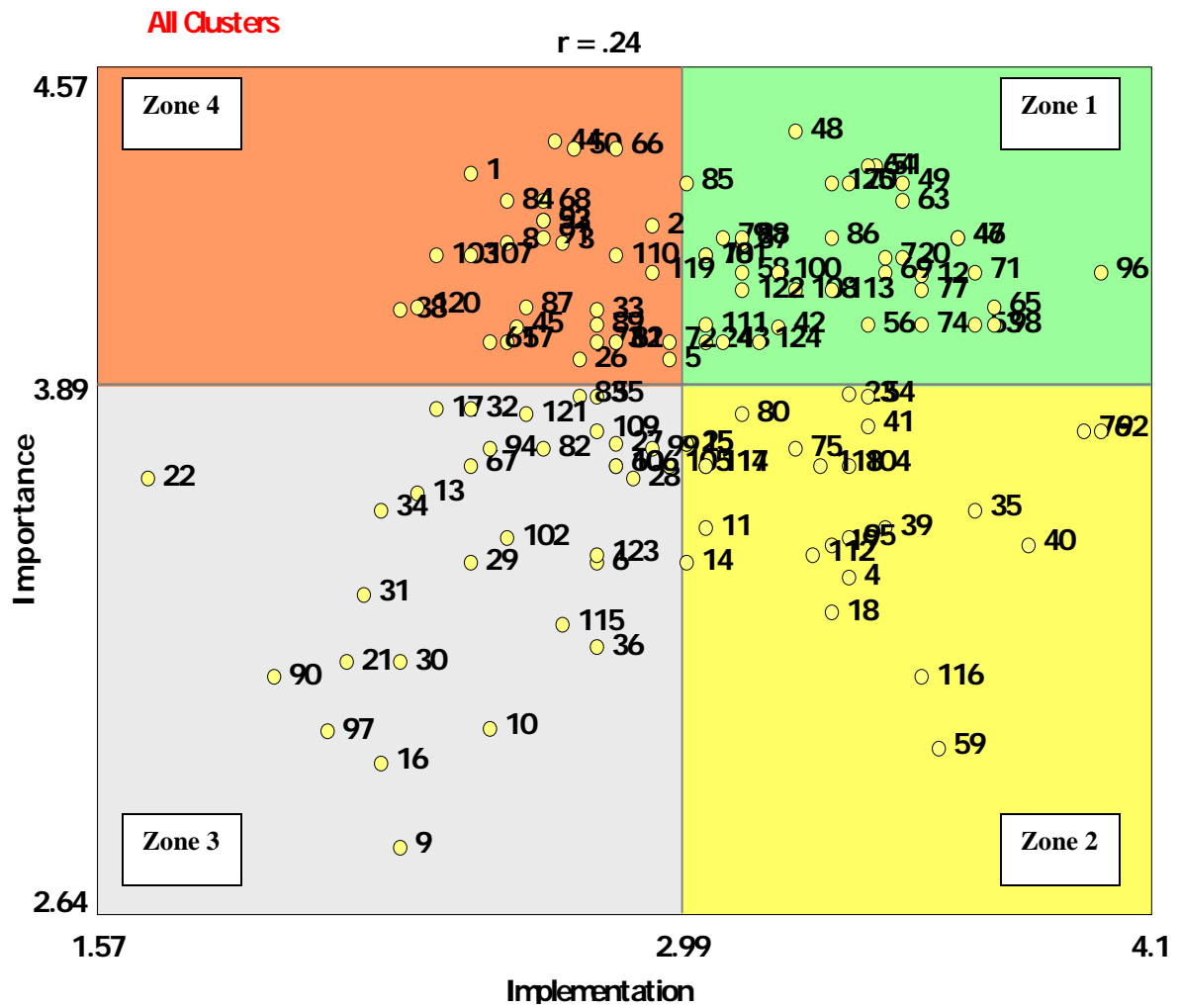
Appendix C

Zone 1 Statements: Rated Most Important and Easiest to Implement

Note: Statements are numbered sequentially. Statement numbers are not related to the numbers in the Go Zone Plot in Appendix B

1. Engage the media on advancing state suicide prevention efforts. Florida is welcome to utilize the SPAN USA Media Action Center to reach local Florida media to assist in this effort and to utilize SPAN USA's Engaging the Media Guide
2. All schools need to have "Where to Turn" books listing agencies to help all youth and their families.
3. Use the Strategic Prevention Framework's 5-step process to continue to strengthen state planning so that resources are targeted where there is the greatest need and in a manner that tracks progress and measures outcomes.
4. Address issues (e.g., medical problems, loss of spouse & friends, financial problems) that cause depression in the elderly.
5. Identify an assortment of effective public awareness and educational materials that can be used to carry the suicide prevention message into the state agencies and various organizations.
6. Identify a network of trainers around the state who can train various populations about suicide prevention in a variety of settings
7. Offer counseling and prevention services in schools.
8. Make school administrators aware of the suicide prevention tools they can implement in their districts
9. Support legislation to educate public school employees about youth suicide.
10. Use federal and national public awareness resources (e.g., SPRC and 1-800-273 TALK) and identify state and local avenues through which to disseminate them
11. Integrate suicide prevention activities with other prevention initiatives that are currently ongoing around the state so we can utilize their resources and ensure that we are a part of the broader prevention network.
12. Ensure teachers receive training (and refresher training) on identification of childhood depression and suicidality, as well as how to respond appropriately.
13. Engagement in a regular (e.g. annual) data-driven strategic planning process.
14. Creation of a resource directory that identifies resources and programs around the state.
15. Use PSAs to disseminate messages (e.g., "Suicide prevention is important because each new suicide puts others at risk, promote life as a solution, Stopping one suicide saves more than one life.")
16. Develop a One Stop comprehensive web site.
17. Support collaboration with community based organizations & coalitions to incorporate suicide prevention in their ongoing activities.
18. Construct a well-developed powerful message repeated over and over in many arenas and media sources.

19. Identify influential community leaders to advocate for the project and media sources.
20. Develop an inventory of all mental health resources.
21. Training of all school personnel in suicidal symptoms.
22. Engage the clergy in suicide prevention.
23. Disseminate a message that suicide is a public health problem, a human problem, needing engagement from many people in many roles.
24. Identify and focus targeted messages to specific population combined with education.
25. Promote all of Florida's certified suicide prevention help lines.
26. Make other human service agencies and hotlines aware of the resources available in the state.
27. Assist schools in identifying risk factors and protective factors in suicide prevention.
28. Expand gatekeeper training (e.g., to the staff of community service organizations and corporations).
29. Develop a comprehensive community strategy aligned with the state strategy. **3**
30. Organize and encourage grass-root support for state and federal legislation to support mental health parity and other mental health and suicide prevention issues. Florida could use the SPAN Legislative Action Center
31. Advocate for funding to address the increase in soldiers who are committing suicide.
32. Ensure that university training programs prepare all school mental health professionals with the skills to prevent, assess risk, and intervene effectively with suicidal students.

Zone 2 Sample Statements: Rated Less Important and Easiest to Implement

1. Train counselors, psychologists, psychiatrists and other mental health professionals to address the trauma issues**.**
2. Develop awareness and training programs that recognize that school-site faculty and support staff, not law enforcement or emergency personnel, are often the first responders to student behavior.
3. Conduct "IS PATH WARM" (suicide warning signs) training in retirement and adult communities.

Zone 3 Sample Statements: Rated Less Important and Hardest to Implement

1. Contact corporations and foundations of the state to get money.
2. Engage survivors of suicide and attempts in all local planning efforts.

Zone 4 Sample Statements: Rated Most Important and Hardest to Implement

1. Develop a program for dealing with depression in the workplace.