10/12/2013

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**GAMBLERS ANONYMOUS QUESTIONNAIRE ANALYSIS**

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# EXECUTIVE SUMMARY

We were asked by the Steering Committee of Gamblers Anonymous (GA) to analyze their questionnaire in terms of its predictive capabilities of classifying participants into one of three types of gamblers: Control, Steady, or Binge. To solve this problem, we applied multiple analytical techniques to the Gamblers Anonymous questionnaire and corresponding data as well as to the Diagnostic and Statistical Manual (DMA) questionnaire. We also combined the data from both questionnaires to see how they compared to each other and if better results could be obtained with the aggregated data.

We found that the number of questions on both questionnaires could be significantly reduced while retaining the majority of the predictive capabilities of the questionnaire. The table below identifies which questions should be retained based on the results of each analytical method. (See Appendix A for a list of the questions.)

|  |  |  |  |
| --- | --- | --- | --- |
| Analytical Method | DMA | GA | Combined |
| Decision Trees | 1, 4 | 9, 10, 20 | Same as DMA |
| Logistic Regression | 1, 4 | 6, 9, 10, 20 |  |
| Discriminant Analysis | 1, 4, 8, 2 |  |  |
| Principal Component Analysis |  |  |  |

In the report, we will walk through the methodology and results for each analytical technique we applied for both questionnaires.

### Future Considerations

Prior to reducing the number of survey questions, it will be important to understand the costs of getting a prediction wrong for the Gamblers Anonymous organization as well as for the clients. For example, how do cost and duration of the treatment plans differ based on the classification of a gambler? Would there be any repercussions (i.e. distrust, lawsuits) to the organization or any of its employees if a client was misclassified? Lastly, there must be a shared understanding of what an acceptable level of misclassification prior to any questions being removed.

Once the costs of a misclassification are understood, the costs of respondents not completing the survey due to the current length needs to be investigated. For example, how many potential clients are not completing the survey or are racing through it due to the number of questions?

With this combined cost information, we could find the optimal balance between keeping a minimal number of questions while maintaining a high degree of predictive power.

# ANALYSIS

## Decision Trees

### Diagnostic and Statistical Manual

We were asked by the Steering Committee to…

### Gamblers Anonymous

According to our analysis, …

## Logistic Regression

### Diagnostic and Statistical Manual

We were asked by the Steering Committee to…

### Gamblers Anonymous

According to our analysis, …

## Discriminant Analysis

### Diagnostic and Statistical Manual

We were asked by the Steering Committee to…

### Gamblers Anonymous

According to our analysis, …

## Principal Component Analysis

### Diagnostic and Statistical Manual

We were asked by the Steering Committee to…

### Gamblers Anonymous

According to our analysis, …

# CONCLUSION

Through comparison of …

# Appendix: Questionnaires

The table below identifies the questions that are included in each organization’s questionnaire.

|  |  |
| --- | --- |
| ID | Questions |
| dsm1 | Wished stop thkg re gambling |
| dsm2 | Wished stop thkg re get money |
| dsm3 | Felt need to bet more and more |
| dsm4 | Rely on others for funds |
| dsm5 | Gamble to escape |
| dsm6 | Lie about how much I gamble |
| dsm7 | Relaxing difficult if not gambling |
| dsm8 | Win back money next day |
| dsm9 | Felt I should cut back on gambling |
| dsm1 | Illegal acts to pay for gambling |
| dsm1 | Danger of losing relationship |
| dsm1 | Danger of losing job |
| ga1 | Lost time from work from gambling |
| ga2 | Gambling made home life unhappy |
| ga3 | Gambling affected reputation |
| ga4 | Felt remorse after gambling |
| ga5 | Gamble to get money for debts |
| ga6 | Caused decreased ambition/efficiency |
| ga7 | Felt must return win back losses |
| ga8 | After win want to return win more |
| ga9 | Gambled until last dollar gone |
| ga10 | Borrowed to finance gambling |
| ga11 | Sold things to finance gambling |
| ga12 | Kept gambling money for gambling |
| ga13 | Gambling->Careless of self/family |
| ga14 | Gambled longer than planned |
| ga15 | Gambled to escape worry/trouble |
| ga16 | Illegal act to finance gambling |
| ga17 | Gambling caused difficulty sleeping |
| ga18 | Arguments, frustration -> gambling |
| ga19 | Good fortune-> gambling |
| ga20 | Gambling -> suicidal ideation |