Findings

Through this course of using statistics in social sciences, a research study consisting of a survey was used to answer the question, is there a relationship between enjoying the Sugar Writing Activity and how involved the family was in the activity? From the responses of the survey three statistical tests were used to evaluate if there was a relationship between the enjoyment and involvement in the Sugar Writing Activity. Through the tests the type of relationship, positive or negative, is also determined. The tests used are the t-test, Pearson’s Correlation, and Regression.

The information in Table 1 is all that is needed in order to complete a t-test. If someone was to complete a t-test there are many things they would need to know. First, they would use the information in Table 1 to determine whether it was independent or dependent. Then use the formula provided to plug in all the numbers given about a sample. Once the formula is used to find the value of the t ratio it must be compared to the value of the critical t ratio. This can be done using the ‘Critical Value of t’ table in the textbook on page 277. Once the critical and calculated values of the t ratio are compared it can be determined if the null hypothesis should be rejected or retained. This means whether there is significant difference between the means or not. As a researcher a difference is wanted between the critical and calculated values of the t ratio. RStudio provided the t ratio and the degrees of freedom allowing the calculated t ration to be compared to the critical t ratio in the back of the textbook. After using RStudio to compute a t-test the p-value (0.3676) is given and compared to alpha values. From comparing the p-value given the null hypothesis that there is not a difference between the means is retained.

How many families enjoyed the Sugar Writing Activity was predicted by how involved the family was in the Sugar Writing Activity. Both the variables of enjoyment and involvement were answered using a scale of one to ten. From the use of RStudio completing a Pearson’s Correlation Test the findings indicate that there is a strong positive correlation (r = 0.6725167) between the family’s involvement and the family’s enjoyment in the Sugar Writing Activity. The more involved the family was the more the family enjoyed the Sugar Writing Activity. It is unknown if this would be true to a larger population.

When using a Regression test it was hypothesized that families who are more involved in the Sugar Writing activity would enjoy the Sugar Writing activity more. In other words, the family’s involvement level in an activity would influence their enjoyment of the activity. Family involvement increases 0.5796 units for every one unit increase in how much the family enjoyed the Sugar Writing Activity as seen in Table 2. Therefore, it appears that family involvement and enjoyment of activities are positively related. This finding is significant (p = 0.00000375). The R2 statistic from Table 2 is 0.4523, meaning that this model explains 45 percent of the variation is the dependent variable (enjoyment of activity). A relationship can be discerned between family involvement in the activity and family enjoyment of the activity.

From the three tests above there is a relationship between involvement and enjoyment in the Sugar Writing Activity. Both the Pearson’s Correlation test and the Regression test show a positive relationship between the variables. The t-test does not cooperate with this conclusion, however a different variable was used for that test. With two of our three test showing how there is a positive relationship the conclusion is that there is a relationship between involvement and enjoyment in the Sugar Writing Activity although this cannot be used for the larger population as it is unknown if it would be true.

Table 1

*Independent Sample T-test of Enjoyment and Involvement in the Sugar Writing Activity*

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Number of People Who Answered the Question | Means | Standard Deviation |
| The amount of enjoyment families had participating in the Sugar Writing Activity | 38 | 8.236842 | 2.283125 |
| If anyone else living in the household  participated in the activities. | 41 | 1.292683 | 0.4606464 |

Note: This is an example created using Rstudio

Table 2

*Regression between Involvement and Enjoyment of Sugar Writing Activity*

|  |  |  |
| --- | --- | --- |
| P-Value | R Squared Statistic | Coefficient\* |
| 0.00000375 | 0.4523 | 0.5796 |

Note: This is an example created using Rstudio