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**Sociology 350**  
**Lab Challenge #6**

**Your Name:** \_\_\_\_\_

**Subject: T-Test Applications for Independent Samples**

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After downloading the SPSS program, proceed to open your *Personnel* file named:

**GSS74849404.sav**

First, you are going to click on the **Transform** icon and then select **Recodes** using the **Into Same Variables** option for each of the next two variables:

- 1) For the *total family income* (**income**) variable, you want to make scores from “one” through “eleven” equal to the number “one”, the score of “twelve” equal to the number “two”, and all other scores equal to “**System Missing**”. The effect of these recodes will be to create two categories of *income*---the wealthier half and the poorer half.

To finish this recode click “**Continue**” and then “**OK**”.

- 2) Begin the next set of recodes by clicking on the “**Reset**” icon. This is very important to do because you must be certain to remove the old recode specifications that you used for the “income” variable. If you fail to do this, chaos will result for this next variable and life on the planet earth will be endangered.

Now select the **partyid** variable. you want to make the score of “0” equal to the number “one”, the scores from “one” through “two” equal to the number “two”, the score of “three” equal to the number “three”, the scores from “four” through “five” equal to the number “four,” the score of “six” equal to the number “five,”and all other scores equal to “**System Missing**”.

[The effect of these recodes is to create a continuum of scores ranging from the most Democratic in party affiliation to the most Republican in party affiliation.]

We are now going to conduct a series of T-Tests which will compare the mean scores on selected variables from independent samples. The purpose of these tests is to determine whether or not there is any statistically significant difference between these two variable means. In order to conduct T-Tests we must always define the two groups which we wish to have the computer compare to one another. The computer will then calculate for us the “mean difference” between the two groups we have specified and give us the significance level which comes under the column heading of “2-Tail Sig” in the generated output.

The following set of steps will take you through the process of generating T-Tests:

- 1) **Analyze**
- 2) **Compare Means**
- 3) ***Independent Samples T Test***
- 4) **Grouping Variable**  
Here you select the appropriate *variable name* that you wish to use to create the two groups you are going to compare to each other...For example, first select **year**
- 5) **Define Groups**  
Here you must specify the values that will represent each of your two groups... For example, 1974 as one value and 2004 as the other value... So it would look like this:

<b>Group 1</b>	<b>1974</b>
<b>Group 2</b>	<b>2004</b>
- 6) **Continue**  
Next you need to select all those variable names in your data file list that you wish to test for group differences. You select these variable names by highlighting them and moving them into the **Test Variable Box** on your screen... For example, let’s begin by looking at the three variables – **sibs**, **childs**, and **paeduc** -- before we proceed any further into this lab unit.

Once you have selected these variables, you click “**OK**” and then you inspect your T-Test output to determine whether or not the two group means

are statistically significant or not. The first thing you do here is look at the difference in the mean (average) score for the two groups (1974 respondents versus 2004 respondents). Which group has a higher average number of brothers and sisters? Next, what is crucial is to look at the significance test listed directly underneath the column heading "2-Tail Sig". Is this significance test above or below .055? So, what are we to conclude?

### **T-Tests Testing hypotheses about two independent samples---[Trial 1]**

Now your lab assignment for today is to run T-Tests for the following set of eleven variables where you compare the mean scores on **each of these variables** for the independent samples specified. For your first set of independent variables, you select **year** as the **Grouping Variable** and then **Define Groups** as **1974** and **2004**. Once you have generated this output, write in the following information on the page below.

**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
how the 1974 group differs  
from the 2004 group or if it  
doesn't differ**

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*Ever been divorced  
or separated*

---

*Spouse ever work as  
long as a year*

---

*Age of respondent*

---

*Highest year of school  
Completed*

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**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
how the 1974 group differs  
from the 2004 group or if it  
doesn't differ**

*Race of Respondent*

---

*Number of Persons  
In household*

---

*Political Party Affiliation*

---

*How often R attends  
religious services*

---

*Is life exciting or dull*

---

*General happiness*

---

*Confidence in press*

---

*Family life*

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**T-Tests Testing hypotheses about two independent samples---[Trial 2 ]**

Now do the T-Tests indicated below but this time use **sex** as your *Grouping Variable* and when you *Define Groups* it should look like this:

**Group 1**    **1**    **(male)**  
**Group 2**    **2**    **(female)**

**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
how the male group differs  
from the female group if the  
p value is below .055**

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*Age when first married*

---

*Age of respondent*

---

*Highest year of school  
completed*

---

*Should marijuana  
be made legal*

---

*How close does R feel  
to God*

---

*Is life exciting or dull*

---

*Vote for woman president*

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**2-Tail Significance**

**Indicate in this column**

Level (P-value)

*how the male group differs from the female group or if it doesn't differ*

*Family life*

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*Opinion of how people get ahead*

---

*Women take care of home or not*

---

*Abortion if woman wants for any reason*

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### **T-Tests Testing hypotheses about two independent samples---[Trial 3]**

Now do the next set of T-Tests indicated below but this time use **Ever been divorced or separated (divorce)** as your *Grouping Variable* and when you *Define Groups* it should look like this:

Group 1    1 (yes)  
Group 2    2 (no)

**2-Tail Significance Level (P-value)**

**Indicate in this column how the "yes" group differs from the "no" group or if it doesn't differ**

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*Age when first married*

---

*Number of children*

---

**2-Tail Significance Level (P-value)**

**Indicate in this column how the "yes" group differs from the "no" group or if it doesn't differ**

*Highest year of  
school completed*

---

*Ones own efforts  
Don't count*

---

*Should marijuana  
be made legal*

---

*How fundamentalist  
is R currently*

---

*Father's highest  
degree*

---

*Geographic mobility  
since age 16*

---

*Is life exciting or dull*

---

*People fair or try to  
take advantage*

---

*Family life*

---

Subjective class  
Identification

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**T-Tests Testing hypotheses about two independent samples---[Trial 4]**

Now do the next set of T-Tests indicated below but this time use **GSS Year for this respondent (year)** as your *Grouping Variable* and when you *Define Groups* it should look like this:

Group 1    1994  
Group 2    2004

**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
*how* the 1994 group differs  
from the 2004 group or if it  
doesn't differ**

*Highest year of  
school completed*

---

*Ever been separated  
Or divorced*

---

*Highest year of school  
completed, father*

---

*Highest year of school  
completed, mother*

---

*Race of respondent*

---

*Was R born in this  
country*

---

*Total family income*

---

*Social security*

---

*Favor or oppose death  
death penalty*

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**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
*how* the 1994 group differs  
from the 2004 group or if it**

doesn't differ

Should marijuana  
be made legal

---

Married wants no  
More children

---

Favor spanking to  
discipline a child

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### T-Tests Testing hypotheses about two independent samples--- [Conclusion]

Now comes the test about how well you are understanding what it is that you have previously done in this lab so far. Suppose that you are overcome with an unquenchable curiosity about how different Catholics and Jews really are in terms of their attitudes and behavioral patterns in the United States today. Using all the data from **GSS74849404.sav** as your source of information, run T-tests comparing the Catholics in this sample with the Jews in this sample. You will need to use **Rs religious preference (relig)** as the *Grouping Variable* here and identify which code number represents Jews and which represents Catholics. Compare these two independent samples by investigating how these groups differ in terms of the **four** variables specified below **plus any four additional variables** of your choosing. Write the variable names you select in rows #5 through #8 below and complete the column responses.

**2-Tail Significance  
Level (P-value)**

**Indicate in this column  
how Catholics differ from  
Jews where the p value is  
below .055**

- 1) **sibs**  
Number of brothers  
and sisters
- 

**2-Tail Significance**

**Indicate in this column**

Level (P-value)

how Catholics differ from Jews where the p value is below .055

2) **abany**

Abortion is okay if the woman wants it for any reason

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3) **attend**

How often respondent attends religious services

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4) **postlife**

Belief in life after death

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5)

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6)

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7)

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8)

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Based upon the sum of all your prior t-test comparisons between Jews and Catholics what, if any, general conclusions do you feel inclined to make? Do you perceive any general pattern to the ways in which these two groups tend to differ from one another?

**This concludes another exciting chapter in your great adventure---“How I came to rule over the kingdom of SPSS prior to becoming rich and famous”**