

An A+ in Happiness?

the connection between grades and enjoyment

By Jamie Bolan

Introduction

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Many people, including myself, have a tendency to do better in things we enjoy. I decided to see if this was applicable to classes in Washburn by taking a survey. I wanted to find out if students got better grades in classes they enjoyed than in classes they didn't.



The Question:

**Is there an association
between a student's
grade and how much
they enjoy a class?**

Data Collection

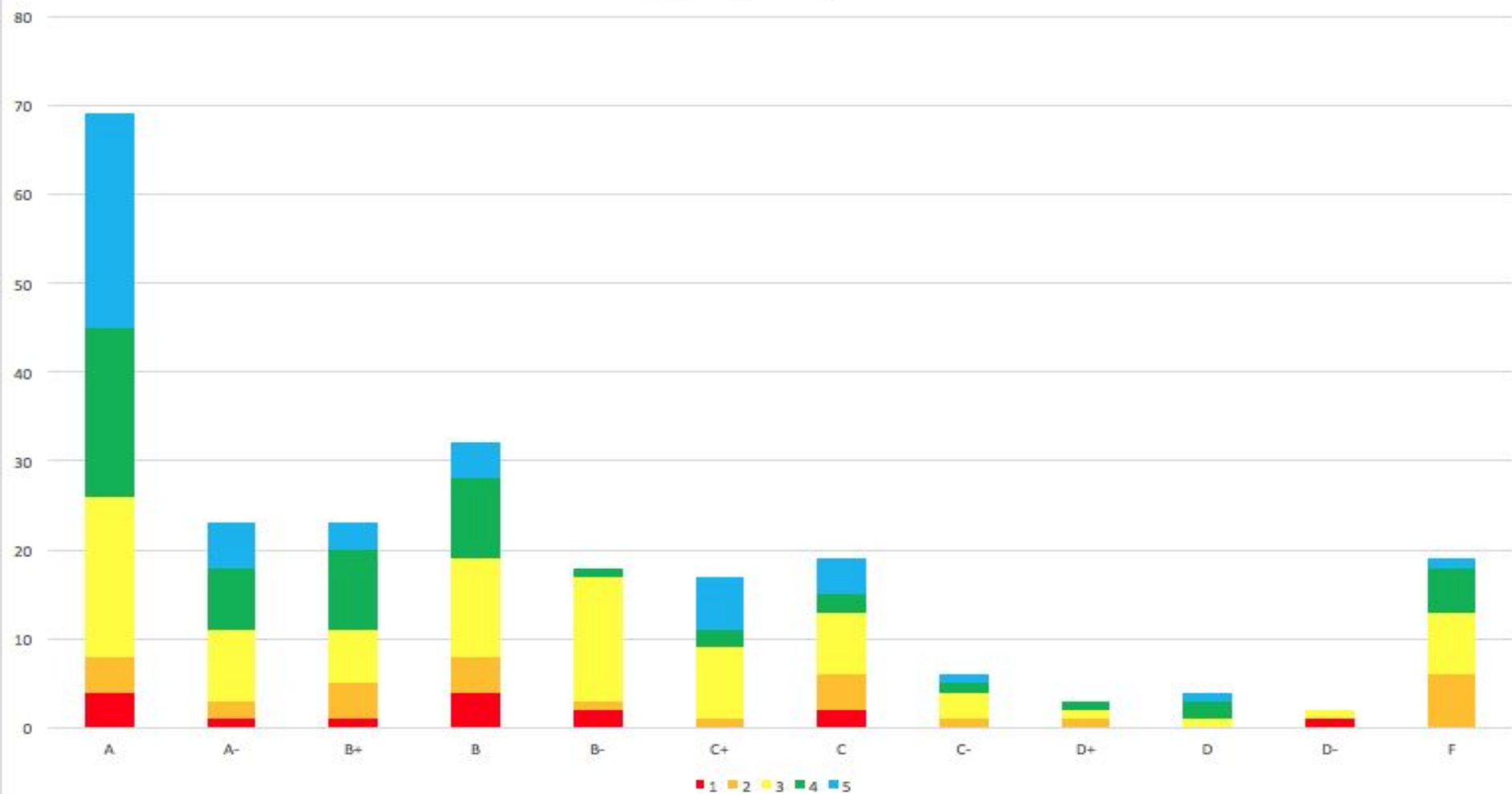
To collect my data, I visited classrooms to survey students. I assigned a number to all core and world language classes, and used a random integer function on a calculator to select 10 of them. I then went to the classrooms I selected and gave each student a short survey on paper.

What is your current letter grade in this class? _____

On a scale from 1-5, with 1 being not at all and 5 being completely, how much do you enjoy this class? _____

	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F	Total
1	4	1	1	4	2	0	2	0	0	0	1	0	15
2	4	2	4	4	1	1	4	1	1	0	0	6	28
3	18	8	6	11	14	8	7	3	1	1	1	7	85
4	19	7	9	9	1	2	2	1	1	2	0	5	58
5	24	5	3	4	0	6	4	1	0	1	0	1	49
Total	69	23	23	32	18	17	19	6	3	4	2	19	235

Frequency of Responses



Chi-Square Test for Association

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We are interested in whether there is an association between the grade a student receives in a class and how much they enjoy that class.

H_0 : There is no association between a student's grade and how much they enjoy that class.

H_a : There is an association between a student's grade and how much they enjoy that class.

Conditions

- **Random:** I randomly selected these classrooms.
- **Independent:** $n \leq 0.1N \rightarrow 10n \leq N$
 - $235 * 10 = 2,350$. Over 2,350 grades in core classes are assigned in Washburn.
- **Large Counts:** This condition was not met.

Test Statistic and P-Value

$$\chi^2 = 65.14$$

$$df = 44$$

$$P = 0.021$$

Conclusion

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Because the P-value is significant at the $\alpha=0.05$ level, we reject the null hypothesis. There is strong evidence that there is an association between a student's grade in a given class and how much they enjoy that class.

What could have changed?

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The survey results ultimately told me that there is an association between a student's enjoyment of a class and their grade. However, what I was unable to determine is whether enjoyment causes the grade or vice versa. In a similar future study, I would like to conclude the test by conducting an experiment to see which is the case. In addition, I would have liked to get a larger amount of data in order to avoid the Large Counts Condition being unfulfilled, and to have surveyed multiple high schools to see if this was the case for all high schools.