Statistics - p-values versus critical values

Running head: P-VALUES VS. CRITICAL VALUES Statistics: P Values vs. Critical Values First Middle initial and of University Course Name April 30, 2011 The critical value method sets a finite value corresponding to a given significance level. This value determines the limits to determine whether or not to reject the null hypothesis. If the calculated value from the statistical test is greater than or equal to the critical value, then the null hypothesis is rejected and the alternative hypothesis is accepted. However, if the calculated value is less than the critical value, the null hypothesis is accepted and the alternative hypothesis is rejected. The advantage of this method is that it helps define the rejection region in terms of the sample mean and therefore if the same experiment is repeated many times in the field, one can draw the conclusion of the hypothesis test right then without having to make any other calculations (Statistics Glossary, para 22). The disadvantage of this method is that one is stuck with a fixed level for the test. The probability value or p-value method is a measure of how likely the sample results are, assuming the null hypothesis is true. Small p-values suggest that the null hypothesis is unlikely to be true. The smaller the p-value, the more convincing is the rejection of the null hypothesis. The advantage of this method is that, by reporting the p-value one allows the reader to decide if the result is significant or not (Statistics Glossary, para 26). For e. g., one might think that the 5% level of significance is good while the reader may prefer 2% level of significance. Therefore, the p-value allows the reader to draw their own conclusions. The disadvantage of this method is that one can't make quick conclusions based on just the sample values as can be done in the critical value method. The critical value method and the p-value method are related to each other, in that the conclusion at the same level for

both these methods will be the same. Therefore, if the test is conducted at 5% level of significance, one can draw the same conclusion from both these methods. Reference Statistics Glossary. Hypothesis testing. Retrieved from http://vital-statistics2. blogspot. com/2010/ 04/statistics-critical-value-method-and-p. html