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Statistics 2 Coursework

Part 1 DESIGN:

I intend to conduct an investigation involving two sets of variables (x and y) in order to see how they relate to each other. I will choose a topic and then collect data from a secondary source attempting to analyse the variables such that a conclusion may be met, in terms of correlation and regression; according to the coursework criteria. A very important aspect to this investigation is that the two variables of data have the likelihood of affecting each other (or just x affecting y) whilst ensuring that any other factors remain either constant (and have little to no affect on these data sets), or ensuring that any other factors present can be taken account of (at least in the qualitative sense), so that the conclusion to these sets of data is both valid and meaningful. In everyday terms, the investigation I intend to conduct will follow a practical and significant path. Hopefully, the conclusion will shed some light on the set of quantitative data, producing an outcome of significance and, to some degree, provide useful information on the issue that was not already apparent.

'I propose to find out if there is a relationship between the amount of teenagers smoking cigarettes and the rising number of teenagers with mobile phones in the UK.'

At face value, these two variables only have one thing in common, the age of the population involved. It may seem a pointless task to collect these results and analyse them. It has been argued, however, that the massive rise in mobile phone sales (publicized often in the national media) and the apparent decrease in the amount of young people smoking cigarettes are connected quite closely. I intend to produce a coherent report, using data from independent sources; analysing the sets of data appropriately, using diagrams and tables. I will choose to look at the UK, as it provides a large enough population of teenagers to give a good spread of people with differing susceptibilities to peer pressure and other factors leading to the development of addiction to smoking from an early age and is a rich enough economy meaning that sales of mobiles have been enormous in the last five years, making the possible affect viable. I have not chosen a worldwide population because once a sample extends beyond political, social and economic boundaries the massive changes in lifestyle and quality of life etc gives rise to too many factors which could contribute towards introduction to the use of cigarettes to young people in the population. I will start from the middle of the year 1996, when mobiles were *relatively* abundant amongst the general public and show each set of data for the beginning of each month up until the end of 2001 (where it seems sources for this data cease to be recorded from after that date). If there is a strong connection between these sets of data and If I can argue that there are no other apparent factors influencing category y (amount of smokers between aged 13 and 19 years), I may be able to show that the mobile phones successfully compete with cigarettes to meet certain important needs of teenagers.

I have made the assumption that other factors that may lead to the decrease in the teenage smoking population have remained close to constant (compared with the staggering increase in ownership of mobiles). I will, however attempt to list any other factors (as I mentioned earlier) either quantitatively or qualitatively to account for any

changes once I come to a conclusion. I will list these possible factors in this conclusion. If I manage to go some way to proving that there is a connection between the two variables, taking into account the inflated sales in mobile phones in the UK these other factors should be considered insignificant in comparison.

I will only place a restriction on the UK population by age (between 13 and 19 years), gender, beackground, IQ, etc shall not be factors providing any restrictions as I want to look at the population of teenagers as a whole. It would also be too difficult to access the secondary sources needed and restricting the population due to these other factors may give an unbalanced spread making the task pointless.

After I make full analysis of the data I shall produce an appropriate hypothesis test in order to make a more accurate quantitative judgement on the issue.

I will try to explain any anomalous results by looking at when they occurred and any possible factors which may have resulted in their presence.

The following is a table of results showing the number of mobile phones owned by teenagers and the number of smokers of the same age group.

They are from secondary, independent sources and consist of a random sample of teenagers varying across the UK using quota sampling. The cross section of teenagers should therefore be representative of the teenage population in the UK. The sources are of a standard such that they are likely to be very accurate, unbiased and relaible.

[Sources: *The British Medical Journal*, *Office of Fair trading for TELecommunications (OFTEL)* statistics.]