

CHAPTER 4

RESEARCH METHODOLOGY

In this chapter, the two main methodological stances in educational research are briefly canvassed. An explanation and justification is then provided on the researcher's preferred methodology and a report is given on the procedures adopted in order to collect data to address the research questions which were posed in the introductory chapter.

Research method is a term that refers to a proposed plan or procedure which is used in the collection and analysis of data, for example survey sampling and ethnography (Harman, 1994: 1). Methodology is a further term used by the same author, used to refer to the study of method. Leedy (1993: 139) and Shulman (1988) emphasise that the nature of the problem and the data itself should dictate which research method is used. Shulman (1988: 3) argues that regardless of the method selected, it should provide a **rigorous** and **systematic** approach to the inquiry.

Most research literature identifies two types of methodology. The term quantitative, as a research method, is generally associated with numerical data, while the term qualitative research is more usually associated with verbal data (Leedy, 1993: 139). Although research methods can be classified under one of these banners, they do not have to be mutually exclusive.

What then, are the major characteristics that differentiate these two broad groups of research methodology that have caused such division in the academic world? Leedy (1993: 144) summarises the major contrasting characteristics of these two methods as follows:

1. Outsider / insider perspective -- the quantitative researcher collects and interprets data from a detached, objective and external view, whereas a qualitative researcher tries to get inside and amongst the data.

2. Objective / subjective data -- objectivity is the key to all quantitative data collection methods and is factually and numerically based, while the qualitative researcher is sometimes happy for data collected to be subjective as it creates greater meaning and understanding from a personal point of view.

3. Controlled / naturalistic conditions -- conditions are controlled and standardised so that variables are controlled in quantitative research, whereas in qualitative research data is collected within the natural context of its occurrence and variables are not controlled in any way but understood.

4. Particularistic / holistic focus -- specific variables are isolated and examined in quantitative research, while in qualitative research the complete picture is studied and so a wide variety of tools are needed for data analysis.

5. Verification / discovery orientation -- procedures used in quantitative research are typically used to prove or disqualify certain hypotheses, whereas qualitative research seeks to discover the nature of certain phenomena (it is loose rather than controlled).

6. Reliable / valid results -- these are desired by both but there is a much greater emphasis on the replicability and generalisability of quantitative research.

Leedy (1993: 40-42) also suggests that the two most important factors in the design of questionnaires are:

- Reliability - the accuracy of a research study, that is, the consistency or repeatability of measurements of the same phenomenon,
- Validity - the soundness or effectiveness of the measuring instrument, that is, does it test what it is meant to test?

Obviously all research by definition aims to be valid, however, it is quantitative research, largely derived from the scientific paradigms that is dedicated to the idea of replicability and generalisability. It is considered important that other researchers can use the same methods elsewhere and attain the same results. Because qualitative research is concerned with meaning in a specific social context it is not concerned greatly with the notion of replicability and generalisability, but focuses on ensuring that the method leads to the validity of research findings.

McCarthy (1986: 6) suggested that “The use of multiple methods to investigate diverse problems holds promise for richer, deeper understanding.”

The use of triangulation, where both quantitative and qualitative methods are combined and integrated into a well-planned research design appears to be a most effective way to decrease the dichotomy of approaches and increase the usefulness of research in education (see for example Leedy, 1993; and Duffy, 1987). In fact, Leedy went on to say that survey sampling could be effectively combined with open-ended interviews in educational studies (see also Cohen, 1980: 19).

Abbott-Chapman (1993: 50-55) concurs with the view that it is not the actual research methodologies that are important but the research goals, objectives and contexts, and the relative fit of the chosen methodologies that is crucial. The same author implies that the complementary nature of the dichotomous approaches can in fact be used wisely to negate many of the opposing approaches’ primary weaknesses (namely generalisability and social meaning).

Surveys are the most commonly used data collection tools in educational research, and the data is assumed to be of a numerical nature and thus quantifiable (either in a pre-coded or post-coded form). Surveys (which include both questionnaires and interviews) are designed for two purposes: the obtaining of descriptive information and the examination of relationships between various factors, that is, explanatory data. Surveys

can fulfil both of these functions if they are carefully designed (see Burns, 1990; and Rosier, 1985).

Surveys have the purpose of collecting, measuring and describing specific characteristics of a large group of people, objects or institutions (Jaeger, 1988: 303).

Questionnaires are designed to collect large amounts of **standardised** information that is not of a highly sensitive or complicated nature from large groups of people for quantitative analysis. The main benefits of questionnaires over other survey methods is their low cost, their ease of reaching a geographically diverse population (in reality a sample), their ease of standardisation, respondents can complete them at convenient times allowing greater thought to the responses, larger samples can be used, well educated samples are suited to their use, and confidentiality is more easily assured (Burns, 1990: 300). Their major limitations are in sampling problems (for example, it may not be representative even if random), their often low response rates can indirectly lead to sampling bias, there is heavy reliance on the good design of the instrument, they are inflexible, supplementary data cannot be gained, ambiguous data cannot be clarified and questions are commonly misinterpreted (Burns, 1990: 301). Burns goes on to propose that adding a form of interview can enable the collection of richer data, although time and financial constraints become more significant.

Borg and Gall (1989: 423) recommend that the following steps be taken in the development of effective questionnaires and interviews:

1. Define the objectives of the study
2. Carefully select the required sample.
3. List the items requiring answers.
4. Construct the questionnaire with clarity and in a logical sequence.
5. Pretest for validity and to rectify any other problems that may arise (such as common answers specified as “other”).
6. Dispatch the questionnaire and follow up.

Burns (1990) and Borg and Gall (1989), suggest that the implementation of good questionnaire design principles should ensure that questions are non-ambiguous, non-leading, understandable, non-threatening wherever possible especially at the beginning, clear, short, without negatives, not be double questions within the one question, avoid the use of technical jargon, exhaust all possible options, and so on. However, Cohen and Manion (1989: 111) suggest that the length of the questionnaire is often not significant especially when the sample respondents are professionals and relatively homogeneous (this is certainly the case in this investigation).

Questions should be predominantly of the closed form (Cohen and Manion, 1989: 109). Borg and Gall (1989: 428) agree, suggesting that it allows for more efficient quantification and analysis of the results. Thus, questionnaires should generally contain multiple choice questions, questions that operate on an attitude scale [for example the Likert scale; (Borg and Gall, 1989: 432)], and have a small number of more open-ended questions where the responses can be coded for statistical analysis.

Aside from the actual questions the format of the questionnaire is also important. Borg and Gall (1989: 431) suggest that it is important for the questionnaire to be attractive, well laid out, not crammed into as few a number of pages as possible, contain clear and simple instructions, use examples where appropriate, have the name and address for return at the beginning and end of the questionnaire (even though a stamped, self-addressed envelope should always be provided with the questionnaire), be logical in its sequence, have simple questions at the start, complex and important questions in the middle and threatening questions at the end of the questionnaire.

Pre-testing the questionnaire is almost as important as the questionnaire itself. A sample as similar as possible to the target sample should do a trial run of the questionnaire to tighten up ambiguous or confusing questions, add in common responses to the answer code, and add in questions deemed necessary that were not previously thought of, chiefly to aid in the standardisation of meaning.

It is also important for follow up to occur so that a high response rate can be achieved, increasing the validity of the results by decreasing sampling bias and increasing sample size.

Interviews can be either qualitative or quantitative in their nature. The interview structure that is most commonly used in educational research and is generally analysed quantitatively is the semi-structured interview. This allows for an optimal combination

of objectivity and depth of data collection (Borg and Gall, 1989: 452). They share many characteristics in their design and development with questionnaires.

The key differences between interviews and questionnaires (Burns, 1990: 302) include the much higher cost of interviews, the depth of data that can be collected is greater and usually more complex in interviews, interviews are much more flexible, unclear responses can be clarified at the interview, supplementary data can be collected, the response rate is generally higher, although smaller samples are inevitable, interviewer bias can be significant, and data that is very open and complex may be hard to code effectively and analyse.

The questions asked in the semi-structured interview would be more open-ended than in the questionnaire allowing for a freer and more detailed response, but they should still be standardised and coded for responses. This will mean that extensive interviewer training and interview schedule pre-testing would be required, to enable all questions to be tightened up, asked in exactly the same manner, and have codes for all common responses, enabling more thorough and effective statistical analysis later.

The main data collection procedure that was eventually taken in this study was the development of a thorough questionnaire. This questionnaire was carefully designed and tailored specifically for schools. It was pre-tested and modified before being sent out. Thirty schools were randomly invited to participate in the research study, with twenty of these agreeing to do so. Twelve questionnaires were sent to each of the participating

schools. Nineteen schools eventually returned data, with fifteen of these returning at least 75% of the questionnaires. Categories relating to the key elements of the Learning Organisation were developed from the questionnaire, and these were then analysed and discussed in the context of the research questions that were posed in the introductory chapter.

DATA COLLECTION PROCEDURES

To answer the first research question, the researcher resorted to a selected review of literature. Because there is a distinct lack of detailed research material on schools as Learning Organisations, it was the business literature that provided the most in depth descriptions of the nature of Learning Organisations.

In an attempt to answer the second research question, namely “To what extent are Independent Schools Learning Organisations?,” the development of a questionnaire appeared to be the most suitable research tool. This enabled the collection of a large amount of standard material from a relatively large sample at a relatively low cost.

Secondly, questionnaires already existed for use in business as tools for the assessment of Learning Organisations. The model that Kline and Saunders (1993) developed provided useful guidance to the researcher and served as the starting point in the development of his own specifically- tailored questionnaire appropriate for educational organisations.

Time constraints made interviews less suitable. Similarly, the case study approach, which could have been very illuminating, was difficult to use because the concept of the Learning Organisation in an educational context was relatively new and not well understood or implemented in the school that the researcher is employed at (at least not at the stage of the research proposal design).

In any case, it appeared that as a pioneering piece of work, collection of a larger amount of standardised information was more desirable. This would then enable future case study approaches of schools implementing a Learning Organisation culture to be more effectively developed.

The questionnaire was also designed in such a way as to enable some understanding of the role that leadership plays in the development of a learning culture. Originally, semi-structured and open-ended interviews were going to be used to further develop and supplement the important leadership concepts gleaned from the questionnaire. The large amount of useful data eventually collected from the questionnaire, and time and personal constraints imposed on the researcher once the research study commenced, meant that the original intention had to be reassessed and the decision was made to use the questionnaire data only.

Considering the dearth of research on Learning Organisations in an educational context in Australia, the researcher's experience has perhaps been of considerable benefit in hindsight by enabling the development of a data base that can then be enriched with more descriptive data further down the track.

Effectively, a quantitative tool (the questionnaire) has been used in a more qualitative fashion in order to collect a relatively large amount of descriptive information of a fairly general and standardised nature. However, in an attempt to validate the data collected more effectively it was grouped into school type for the various Learning Organisation

categories (that is, boys', girls' and coeducational schools). Within the context of these school types the average values for the various Learning Organisation categories were then compared statistically using 't' tests.

SURVEY DESIGN AND PILOTING

Burns (1990) and Borg and Gall's (1989) recommendations as previously outlined were followed in the design of the questionnaire. A number of Learning Organisation assessments / questionnaires were consulted in the early stages, with Kline and Saunders (1993) model being the most closely examined.

The sample was carefully selected, pre testing was extensive, and eventually non-ambiguous, non-leading, clear, short, relevant, singular questions were developed. The questionnaire was attractively laid out and easy to fill in, providing conciseness without sacrificing the necessary depth.

In defining what the researcher saw as the key elements of the Learning Organisation a number of categories were developed. Questions were further refined on the basis of these categories and the number of questions was then reduced to a more manageable size. At this stage of the finalisation of the questionnaire, the researcher was on a Professional Development Committee at his school and a small sample of people with interest and research expertise were asked to pilot test the questionnaire. After noting their extensive feedback, the questionnaire was further modified and refined.

In an attempt to ensure the validity of the study, another small sample of suitable respondents (all different and in a variety of school positions, some totally ignorant of the concepts) was again asked to pre-test the questionnaire. On this occasion, there were

fewer queries, uncertainties and suggested alterations. Thus, the questionnaire was deemed to be ready for use with the selected sample.

Pilot testing indicated that due to the new or innovative nature of the study there was a risk of a lack of understanding of the concepts of the Learning Organisation in an educational context. For this reason, it was decided to include a cover page with each questionnaire giving a brief overview of the key concepts of the Learning Organisation.

Anonymity and confidentiality were explicitly guaranteed as an integral part of the research procedure. Each questionnaire was numbered before being sent out, and records of the numbering order were kept by the researcher. There was no other form of identification which could introduce researcher bias.

SAMPLE SELECTION

The Association of Heads of Independent Schools of Australia (AHISA) was used as the base population for the study. This approach enabled the schools to be readily identified as a definitive sample (ensuring no bias in the research procedures), and it gave some indication as to the size and nature of the school being suitable for involvement in the research study. All of the AHISA schools in the greater Sydney region were split into three groups: boys', girls' and coeducational schools. They were split into these groups in an attempt to ensure that there was no bias towards any possible or perceived leadership and school style within the Independent movement. From each of these groupings, ten schools were randomly selected (by drawing them out of a hat). This procedure could be loosely termed random stratified sampling (although strictly speaking the sample was not stratified because the same number of schools from each category were selected rather than an amount proportional to their total numbers).

SURVEY PROCEDURE

A standard letter was sent to the Principal of each of the schools that was randomly selected, inviting them to participate. An outline of the research study and the benefits of the concepts of Learning Organisations and the research procedures were provided, together with a sample questionnaire.

Many Heads responded by mail, facsimile and telephone quite quickly, both in the positive and negative. Follow up of the author's original letters by telephone and then fax occurred in an attempt to increase the response rate. The schools who agreed to participate in the study identified a contact person (for example, the Professional Development Coordinator, Director of Studies, Head or Head's secretary), and this person was sent a package of twelve numbered questionnaires and one large stamped return envelope. By providing one large envelope rather than twelve smaller ones, it was hoped that the relevant contact person would encourage a higher response rate from each school (as that person would know the individual respondents, while at the same time retaining anonymity and ensuring economic viability).

These contact people were explicitly asked to randomly select twelve secondary staff members across varying levels of seniority and in varying departments to respond to the questionnaire.

Of the 30 schools randomly invited to participate in the research study, 20 readily agreed to participate. This response rate was achieved through letter and telephone, and fax follow up within a three week period.

Of the 20 schools that agreed to participate in the study, only one failed to return any data. This school failed to respond to follow up reminders.

Interestingly, 70% of the coeducational schools, 70% of the girls' schools and 60% of the boys' schools asked, agreed to participate, leaving the sample well balanced (the school that failed to return the data was coeducational).

Of the 19 schools where some data was collected, 15 returned 75% or more of the surveys sent to them, and only two schools had a response rate of less than 50%. This was an extremely pleasing response rate that appeared to go against the trends described in the literature, and hopefully indicative of an interesting topic, well designed survey instrument and thorough research method procedures.

LIMITATIONS OF THE METHODOLOGY

The limitations of the methodology tie in closely with those of survey research that have already been identified. Exhaustive measures were taken to ensure that the survey was well designed. Introductory material was provided as part of the survey to outline the key concepts describing the nature of Learning Organisations. Little could be done about the inflexibility of surveys and the inability to develop ideas generated from them. Queries could not be clarified, and richer, more descriptive interview data not collected.

However, space was set aside at the end of the survey for comments to clarify any issues that arose. This occurred on only a very small number of occasions. In fact, as with the pilot testing, a number of positive comments were made regarding the relevance and suitability of the concepts involved in Learning Organisations in an educational context.

Despite measures taken to minimise them, there were certain limitations with regard to sampling procedures. Although the sample of school was fairly large, there was obviously no guarantee that it was a representative sample. For example, there was little control over the choice of individual participants within each school. Although a request was made to randomly select participants across different levels of seniority, experiences and teaching departments, there is no guarantee that this actually happened.

In summary, the following precautions were taken to enhance the reliability and validity of the study:

*The questionnaire was well designed,

- *The sample was randomly selected in an attempt to minimise bias and make it an accurate reflection of the population,
- *The survey was replicated both in terms of school numbers and individual respondents within each school in an attempt to achieve validity and reliability of the survey,
- *The data collected was analysed using a basic quantitative method, to validate more effectively the descriptive nature of the resulting discussion.

Despite the challenges and limitations identified, the researcher collected a large amount of objective, reliable and valid data at a reasonable cost and time investment. Hopefully the findings can serve as benchmarks and encourage later qualitative studies to generate richer, more descriptive data on schools as Learning Organisations (using case study and interview techniques).

The Learning Organisation Survey that was designed for this study can be found in Appendix 1. There was an introductory page attached to each survey to ensure that respondents were clear of the major concepts of the Learning Organisation philosophy.

CHAPTER 5

PRESENTATION OF DATA

The data collected from the questionnaire was extensive. Although a quantitative tool was used to collect the data, it is still material that is somewhat qualitative in nature. Thus, there is only a limited scope for statistical analysis of the data. Discussion of the patterns that emerged from the study will be described under the respective categories that were devised earlier (including a discussion of associated questions). The research questions were devised to gain an understanding of the extent to which schools are Learning Organisations and in which areas they need to focus if they wish to become Learning Organisations. Clearly leadership plays a critical role in both of these issues. It was not the intention of the questionnaire or the study to rank and compare schools directly.

In terms of the data collation, each survey item response was given a numerical value of five for a “to a very large extent” answer through to one for a “not at all” answer. The spreadsheet program “Microsoft Excel” was used to collate and organise the data. For the purpose of analysis and valid discussion, the Independent Schools have been classified into school types on the basis of sex (that is boys’, girls’, and coeducational).

The very large amounts of data obviously do not need to be provided in raw form (see Appendix 2). For the purposes of analysis the summary data that is presented provides details of the following results:

- average value and standard deviation (sample) for each question for all schools in total, for individual schools and for school types
- average value and standard deviation for cumulative question totals for all schools, for individual schools and for school types
- average value and standard deviation for Learning Organisation categories for all schools, for individual schools, and for school types.

The Learning Organisation categories developed earlier were:

- Vision
- Positive Thinking
- Risk Taking / Openness to Change
- Communication
- Importance of People
- Resources
- Leadership
- Professional Development / Learning Power.

These categories were developed using the various Learning Organisation assessments for businesses that have been discussed earlier as a guide. They were tailored and modified by the researcher to more specifically suit educational organisations. They are categories designed to suit the working definition of a Learning Organisation proposed early in this thesis. The focus is clearly on people, vision, leadership and the seeking of

continuous improvement, as these are, in the researcher's opinion, the key features of Learning Organisations that are of crucial relevance to educational institutions.

The questions were allocated into the relevant categories in the following manner. There is a degree of overlap with some of the questions and categories. For example, a statement like "Mistakes are viewed as learning opportunities, which can lead to improvement" can be linked to both of the notions of positive thinking and risk-taking / change. The following table displays the categories, number of corresponding questions, and sample questions (key phrases).

Table 1

The Learning Organisation Survey: A Profile

CATEGORY	QUESTION NUMBERS	TOTAL MARKS POSSIBLE	KEY PHRASES
Vision	28, 36, 37, 38, 39, 51, 52	35	the future, values, shared, clear, regularly espoused
Positive Thinking	2, 3, 4, 6, 7, 8, 33	35	Mistakes learning opports., better ways encour., innovation, praise
Risk Taking / Openness to Change	2, 11, 17, 21, 30, 34, 35, 46, 52	45	Policies evaluated and modified, collaboration, learning from the unexpected, responsive mgement, autonomy, flexible & adaptable
Communication	1, 5, 9, 10, 26, 43	30	Open, clear, lively, shared learning, well informed
Importance of People	17, 22, 23, 27, 39, 47, 48	35	Empowerment, involvement, trust, support, consultation, induction
Resources	13, 14, 29, 31, 32, 42, 49, 50	40	Fin. & non-fin. rewards, training & devt, time, envt., in & out of school resources
Professional Development / Learning Power	5, 9, 10, 15, 16, 18, 24, 26, 29, 49, 50, 52	60	Shared learning, learning expected & promoted, training & devt program, continuous improvement
Leadership	7, 8, 12, 17, 19, 20, 25, 28, 33, 34, 38, 40, 41, 44, 45, 51	80	Collaboration, supportive, adaptable, people focus, learner, role model, visionary, respect, approachable, high standards, praise, up-to-date, consistent

This allocation of statements and categories does not necessarily mean that the categories are ranked in order of importance by their sub-totals. Obviously the quality of leadership and the focus on learning and professional development are integral components of any effective Learning Organisation, and thus extensive questioning in relation to these areas was necessary. Effective communication, though, is also central to any successful Learning Organisation. The categories are by no means exhaustive, but it is hoped that they are effective guides in determining the key areas or foci for improvement for the schools involved in the research study who wish to take on more of the characteristics of the Learning Organisation.

Various categories and questions have been graphed to more easily and clearly display the trends that are evident. These graphs are colour coded, with the green bar representing the total average for the respective question or category, the blue bars the individual boys' schools, the red bars the girls' schools, and the purple bars coeducational schools.

The categorised data was statistically analysed by performing 't' tests that assumed unequal variance (comparison of the means of two samples). 't' tests are an effective, relatively simple method of statistical analysis where the variance (or standard deviation) of the population is not known (see Naylor and Enticknap, 1981). It was assumed that the variance of the school types was not equal. The spreadsheet program "Microsoft Excel '97" was used to carry out these tests. Thus, for each Learning Organisation category three 't' tests were carried out (these can be found in the following chapters):

1. Boys' schools versus girls' schools
2. Boys' schools versus coeducational schools
3. Girls' schools versus coeducational schools.

The 't' distribution curve is bell-shaped like the normal curve, but more spread out depending on the sample size (this depends on the degrees of freedom). In this study the sample sizes are large (over 30), and therefore, the 't' distribution curve is almost identical to the normal distribution curve (Naylor and Enticknap, 1981).

The Null Hypothesis for all of the 't' tests carried out was:

“There is no difference between the means of the populations tested”.

The Alternative Hypothesis for the tests was:

“The means of the populations tested are not equal”.

This is where the concept of one-tailed testing versus two-tailed testing becomes relevant.

Two-tailed testing is used where one wants to test if the mean of one population is significantly greater than or less than the mean of the other group (that is, both ends of the spectrum). One-tailed testing is used where one wants to test if the mean of one group is greater than or less than the mean of the other group (that is, one or the other) (see Mendenhall and Sincich, 1992). As the above Alternative Hypothesis suggests, it has not been pre-determined that one school type should have a higher or lower mean than another, and so two-tailed testing is more appropriate. This will be referred to in the following chapters. Where the Null Hypothesis is rejected, a statement of statistical

difference will be made without further reference to the Null Hypothesis (the same is true for the Alternative Hypotheses).

For the purposes of this study, where trends only are being identified, a 95% level of confidence has been used for all tests. This slightly increases the likelihood of a Type I error, but decreases the likelihood of a Type II error. A Type I error occurs when the Null Hypothesis is rejected when in fact it is true, whereas a Type II error occurs when the Null Hypothesis is incorrectly accepted when it is untrue (Kennedy, 1983). It is worth noting that no amount of tests can prove any hypothesis to be true (Kennedy, 1983: 167).

These statistical tests were carried out to validate the general trends evident in the nature of the data collected. This was considered necessary to discuss the findings with greater confidence.

On the following pages, the summary data that has been focused on for analysis and discussion in the next two chapters is presented.

Table 2

Summary Data

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
QUESTIONS:		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Average for question:		3.52	3.33	3.27	2.97	3.26	2.73	2.58	3.78	3.54	3.01	3.38	4.25	1.86	2.82
Std dev:		0.91	0.89	0.99	0.98	1.03	0.87	1.10	0.98	0.92	1.00	1.02	0.96	1.09	1.04
Boys' schools															
Average		3.16	3.00	3.32	2.55	3.19	2.47	2.56	3.11	3.27	2.67	2.81	3.73	2.03	2.42
Std Dev.		0.89	0.85	0.97	0.81	0.97	0.68	0.92	0.99	0.83	0.97	0.75	1.18	1.07	1.04
Girls' schools															
Average		3.90	3.58	3.07	3.05	3.26	3.01	3.25	4.13	3.67	3.16	3.70	4.57	1.70	3.10
Std Dev.		0.82	0.95	0.97	1.00	1.11	1.03	1.17	0.80	1.00	0.97	1.02	0.61	0.98	1.05
Coed. Schools															
Average		3.52	3.45	3.43	3.38	3.36	2.94	3.22	4.11	3.74	3.25	3.70	4.49	2.17	2.98
Std Dev.		0.85	0.74	0.98	0.96	0.99	0.74	1.05	0.72	0.85	0.97	1.02	0.72	1.16	0.88
School Number															
1	Question Av.	3.33	3.33	3.25	2.92	3.42	2.17	2.25	3.33	3.50	2.83	2.33	3.83	2.50	2.67
2	Question Av.	3.00	2.80	3.75	2.65	3.20	2.60	2.40	2.50	2.80	2.50	2.70	3.10	2.80	1.80
3	Question Av.	2.67	2.33	3.58	2.33	3.00	2.42	2.25	2.67	3.08	2.42	2.58	3.42	1.50	1.75
4	Question Av.	3.33	3.11	2.89	2.44	2.67	2.44	2.44	3.00	3.33	2.22	2.78	4.11	1.89	2.67
5	Question Av.	3.80	3.50	2.80	3.10	2.70	2.60	2.80	4.00	3.20	2.80	3.40	4.10	1.85	2.70
6	Question Av.	2.78	3.22	3.22	2.11	3.11	2.78	2.78	2.78	3.22	2.67	3.22	3.22	1.89	2.67
7	Question Av.	3.38	3.25	3.50	2.63	4.00	2.63	2.25	3.25	3.63	2.50	2.88	4.38	1.63	2.88
8	Question Av.	4.18	3.68	3.09	2.91	3.73	3.50	3.36	4.27	3.73	3.32	3.55	4.73	1.91	2.73
9	Question Av.	3.40	3.40	3.20	2.50	2.30	2.20	4.00	4.30	3.20	3.00	3.60	4.60	1.30	3.10
10	Question Av.	4.22	4.00	2.78	3.56	3.89	3.67	3.67	4.44	4.33	3.89	4.33	4.78	1.89	3.67
11	Question Av.	4.30	3.70	3.10	3.50	3.30	3.20	3.30	4.20	4.00	3.40	4.40	4.70	1.70	3.30
12	Question Av.	3.44	3.11	3.22	3.44	2.94	2.78	3.39	4.11	2.78	2.78	3.33	4.33	2.33	3.44
13	Question Av.	3.38	3.42	3.83	3.17	3.38	2.83	3.00	3.58	3.58	3.42	3.58	4.17	2.25	2.75
14	Question Av.	4.09	3.64	3.27	3.36	3.27	3.09	3.36	4.55	4.18	3.45	4.36	4.73	3.36	3.18
15	Question Av.	3.75	3.25	3.17	2.75	3.58	2.50	3.25	4.17	3.58	3.25	3.33	4.58	1.67	3.00
16	Question Av.	3.09	3.64	3.64	3.45	3.36	3.09	3.64	4.45	4.00	3.27	3.82	4.64	1.55	2.73
17	Question Av.	3.83	2.83	3.33	3.33	3.67	2.83	2.67	3.67	4.17	3.17	2.83	4.67	1.33	3.33
18	Question Av.	4.00	3.33	3.00	3.33	2.67	3.67	3.00	4.67	3.67	3.00	3.67	5.00	1.33	4.00
19	Question Av.	3.25	4.25	2.75	3.75	4.00	3.00	2.75	4.25	3.75	3.25	4.00	4.50	1.25	2.25

Table 2

Summary Data

		15	16	17	18	19	20	21	22	23	24	25	26	27	28
QUESTIONS:		15	16	17	18	19	20	21	22	23	24	25	26	27	28
Average for question:		3.79	2.22	3.62	3.42	4.20	4.02	3.06	3.96	3.23	3.28	4.07	3.50	2.68	3.63
Std dev:		1.04	1.19	1.06	1.06	0.85	0.84	0.88	0.98	0.98	0.98	0.95	1.07	1.04	1.07
Boys' schools															
Average		3.10	1.78	3.09	2.77	3.92	3.64	2.61	3.61	2.85	3.06	3.67	3.22	2.14	3.39
Std Dev.		1.01	0.94	1.01	0.98	0.92	0.89	0.76	0.99	0.94	1.03	1.09	1.05	0.85	1.08
Girls' schools															
Average		4.26	2.76	4.13	3.98	4.43	4.28	3.49	4.39	3.61	3.53	4.48	3.61	3.10	3.62
Std Dev.		0.83	1.39	0.97	0.90	0.76	0.75	0.82	0.85	1.04	0.95	0.67	1.09	1.04	1.06
Coed. Schools															
Average		4.09	2.11	3.66	3.57	4.27	4.17	3.11	3.87	3.25	3.24	4.09	3.72	2.85	3.92
Std Dev.		0.83	0.92	0.91	0.82	0.76	0.69	0.79	0.91	0.75	0.88	0.83	0.98	0.98	0.92
School Number															
1	Question Av.	2.75	1.58	2.58	2.42	4.08	3.83	2.50	4.25	3.08	2.92	4.42	3.50	1.92	4.08
2	Question Av.	2.80	1.30	3.10	2.60	3.70	3.50	2.30	3.40	2.35	3.40	3.20	2.70	1.90	3.10
3	Question Av.	2.83	1.50	2.17	2.33	3.58	3.17	2.67	2.42	2.25	2.50	3.00	2.42	2.08	3.08
4	Question Av.	2.94	1.56	4.00	2.33	4.44	4.11	2.78	4.11	3.56	2.78	3.44	3.78	2.56	2.78
5	Question Av.	4.20	2.50	3.60	3.90	4.60	4.30	3.20	3.30	2.70	2.75	4.10	3.00	2.70	2.70
6	Question Av.	3.67	2.44	2.89	3.22	3.78	3.67	2.78	3.67	2.67	3.11	3.44	3.22	1.89	3.22
7	Question Av.	3.75	2.25	3.13	3.75	4.25	4.25	3.13	4.13	3.50	3.25	4.13	3.00	2.88	3.00
8	Question Av.	4.00	1.86	4.36	3.73	4.82	4.73	3.64	4.45	3.45	3.09	4.64	4.18	3.27	3.64
9	Question Av.	4.70	4.60	4.40	4.50	3.90	3.90	3.20	4.80	3.50	3.80	4.40	3.10	2.90	3.80
10	Question Av.	4.67	3.33	4.33	3.78	4.22	4.22	3.89	4.78	4.11	4.22	4.56	4.00	3.56	4.22
11	Question Av.	4.20	2.50	4.50	4.20	4.50	4.20	3.60	4.80	4.20	4.00	4.80	3.90	3.10	4.00
12	Question Av.	4.00	2.44	3.78	3.33	4.11	4.33	2.78	4.33	3.56	2.78	4.00	3.22	2.89	3.50
13	Question Av.	4.08	2.25	3.33	3.67	3.88	4.08	3.08	3.75	3.33	3.38	3.75	3.50	2.83	4.33
14	Question Av.	3.91	1.73	3.91	3.82	4.36	4.27	3.45	4.09	3.18	3.73	4.64	4.27	2.64	3.73
15	Question Av.	3.67	2.33	4.00	3.67	4.00	3.67	2.67	3.92	3.25	3.67	4.33	3.75	2.50	3.83
16	Question Av.	4.09	2.55	3.73	3.00	4.55	4.18	3.45	3.09	2.91	2.55	4.27	3.73	2.91	4.09
17	Question Av.	4.17	1.83	3.50	3.83	4.33	4.17	2.67	4.00	3.17	4.00	3.67	4.00	3.00	3.33
18	Question Av.	4.33	1.33	5.00	4.00	5.00	4.33	4.33	4.67	4.33	4.00	5.00	4.67	3.67	4.67
19	Question Av.	4.75	1.25	3.75	4.25	4.75	3.75	2.75	4.50	3.50	3.25	4.00	3.50	3.00	4.50

Table 2

Summary Data

		29	30	31	32	33	34	35	36	37	38	39	40	41	42
QUESTIONS:															
Average for questions		2.14	3.15	1.87	3.05	3.86	3.17	3.73	4.03	3.26	3.58	3.51	3.78	3.92	3.53
Std dev.		1.12	0.88	0.89	1.11	1.04	0.88	0.89	1.05	1.00	1.15	1.25	0.93	0.89	1.10
Boys' schools															
Average		1.73	2.78	1.58	2.94	3.44	2.83	3.67	3.75	3.17	3.53	3.33	3.31	3.53	3.16
Std Dev.		1.00	0.82	0.90	1.16	1.20	0.78	0.88	1.12	1.08	1.26	1.34	1.06	0.97	1.13
Girls' schools															
Average		2.50	3.48	1.69	4.02	4.07	3.58	4.02	4.15	3.53	3.87	3.72	4.15	4.25	3.98
Std Dev.		1.15	0.95	0.84	0.86	0.92	0.94	0.88	1.08	0.96	1.18	1.20	0.74	0.67	0.95
Coed. Schools															
Average		2.23	3.33	1.77	3.08	4.13	3.10	3.68	4.24	3.53	4.04	3.50	3.92	4.00	3.46
Std Dev.		1.06	0.68	0.92	0.95	0.78	0.72	0.84	0.85	0.88	0.87	1.16	0.70	0.61	1.04
School Number															
1	Question Av.	1.25	2.42	1.17	2.83	3.33	2.67	4.00	4.58	3.42	4.17	3.83	3.17	4.17	3.75
2	Question Av.	1.60	2.40	1.80	2.50	2.70	2.50	4.00	2.70	2.40	2.60	2.60	2.80	2.80	1.90
3	Question Av.	1.42	2.67	1.50	2.83	2.67	2.42	3.33	2.58	2.67	2.75	2.00	3.00	3.08	3.67
4	Question Av.	1.72	2.56	1.89	2.33	3.67	2.78	4.00	4.11	4.00	4.11	3.11	3.33	3.44	3.56
5	Question Av.	2.30	3.20	1.40	4.20	3.00	3.20	4.00	3.40	2.85	3.30	2.80	4.20	4.10	4.00
6	Question Av.	1.89	3.11	1.33	3.44	3.33	2.89	2.89	4.33	3.56	3.00	4.33	3.22	3.33	2.56
7	Question Av.	1.75	2.88	1.50	3.50	3.56	3.25	3.38	3.25	3.13	3.13	2.88	3.75	4.19	4.25
8	Question Av.	1.95	3.09	2.00	3.64	4.45	3.36	4.09	4.18	3.55	3.45	3.64	4.00	4.18	3.27
9	Question Av.	3.30	3.70	1.20	4.50	4.30	3.35	4.05	4.30	3.40	4.20	4.00	4.20	4.50	4.40
10	Question Av.	3.22	3.67	2.00	4.22	4.33	3.89	4.11	4.78	4.22	4.78	4.89	4.22	4.11	4.22
11	Question Av.	2.80	4.00	2.00	4.20	4.50	4.30	4.50	4.60	3.90	4.20	3.70	4.50	4.50	4.30
12	Question Av.	2.11	3.17	1.44	2.67	3.78	2.83	3.67	4.39	3.78	4.11	3.22	4.00	4.00	3.94
13	Question Av.	2.42	3.33	1.75	3.29	4.25	3.25	3.42	4.00	3.17	4.00	3.29	4.08	4.00	3.21
14	Question Av.	1.73	3.36	2.00	3.36	3.91	3.09	4.18	4.73	4.00	4.55	3.45	3.91	4.18	4.27
15	Question Av.	2.50	3.50	1.83	3.58	4.83	3.67	3.75	4.25	3.17	4.42	4.17	4.25	4.17	3.25
16	Question Av.	2.45	3.27	2.45	2.73	4.18	3.18	3.55	4.18	3.45	4.18	3.91	3.73	3.82	2.50
17	Question Av.	2.17	3.67	1.17	3.50	4.67	3.17	3.50	3.33	3.00	3.17	2.83	3.67	4.00	3.83
18	Question Av.	1.33	4.33	1.67	3.33	4.67	4.00	3.67	5.00	4.00	4.33	5.00	4.00	4.00	2.67
19	Question Av.	2.75	3.25	1.00	3.00	4.25	3.00	3.75	4.75	3.75	3.50	4.75	4.25	4.00	3.00

Table 2

Summary Data

		43	44	45	46	47	48	49	50	51	52
QUESTIONS:		43	44	45	46	47	48	49	50	51	52
Average for question:		3.72	4.19	3.24	3.13	3.82	3.82	3.26	3.35	4.17	3.98
Std dev:		0.96	0.87	0.96	0.93	1.05	0.88	0.89	0.87	0.90	0.92
Boys' schools											
Average		3.45	3.91	2.96	2.77	3.24	3.73	2.88	2.95	3.89	3.36
Std Dev.		0.92	0.95	0.96	0.82	1.05	0.83	0.83	0.84	1.05	0.94
Girls' schools											
Average		4.18	4.55	3.39	3.48	4.22	3.75	3.50	3.70	4.48	4.28
Std Dev.		0.84	0.64	0.99	0.93	0.87	0.88	0.83	0.88	0.67	0.73
Coed. Schools											
Average		3.52	4.11	3.42	3.18	4.07	4.01	3.43	3.44	4.17	4.23
Std Dev.		0.94	0.86	0.92	0.89	0.93	0.91	0.86	0.68	0.82	0.74
School Number											
1	Question Av.	3.83	4.08	3.17	2.92	3.00	3.33	2.83	2.67	4.17	3.42
2	Question Av.	2.90	3.00	2.50	2.40	2.45	3.50	2.55	2.50	3.20	3.00
3	Question Av.	3.58	4.00	2.25	2.17	3.33	3.83	2.58	2.58	4.08	3.08
4	Question Av.	3.22	3.44	2.94	2.89	3.56	3.78	2.89	3.33	3.56	3.11
5	Question Av.	4.30	4.10	3.20	3.20	3.75	3.60	3.25	3.45	3.90	4.40
6	Question Av.	3.33	4.22	3.78	2.78	3.44	3.89	3.22	3.11	3.22	3.56
7	Question Av.	3.88	4.63	3.63	3.38	4.25	4.00	3.00	3.63	4.63	3.88
8	Question Av.	4.36	4.91	3.77	3.36	4.09	4.09	3.36	3.45	4.45	4.18
9	Question Av.	3.70	4.35	2.80	3.70	4.10	2.90	3.60	4.10	4.40	4.60
10	Question Av.	4.00	4.56	3.67	3.33	4.56	3.89	3.89	3.89	4.78	4.33
11	Question Av.	4.80	4.70	3.40	3.90	4.70	4.00	3.90	3.90	4.80	4.40
12	Question Av.	3.44	4.33	3.56	2.72	3.89	4.00	3.44	3.50	4.28	4.33
13	Question Av.	3.25	3.33	3.00	3.17	4.21	3.71	3.42	3.58	3.71	3.92
14	Question Av.	4.23	4.82	3.64	3.18	4.36	4.18	3.91	3.55	4.64	4.27
15	Question Av.	3.67	4.50	3.25	3.42	3.67	4.08	3.25	3.58	4.75	3.92
16	Question Av.	3.18	4.36	3.55	3.55	4.27	4.18	3.27	3.00	4.09	4.45
17	Question Av.	3.33	3.33	3.83	3.00	4.00	3.83	3.50	3.83	4.33	4.00
18	Question Av.	4.00	4.67	3.00	3.33	4.00	4.00	3.33	3.00	4.33	3.67
19	Question Av.	3.75	4.50	2.75	3.50	2.75	4.25	2.50	3.25	4.00	4.50

Table 2

Summary Data

		TOTALS:	VISION	POSITIVE THINKING	RISKS/CHANGE	COMM	IMP of PEOPLE
QUESTIONS:							
Average for question:			26.45	22.97	30.54	20.62	24.62
Std dev:			5.29	4.17	5.99	4.13	4.94
Boys' schools							
Average			24.42	20.45	26.91	18.97	22.00
Std Dev.			5.52	3.41	4.94	3.62	4.23
Girls' schools							
Average			27.57	24.12	33.58	21.70	26.86
Std Dev.			5.22	4.34	5.87	4.13	4.79
Coed. Schools							
Average			27.61	24.67	31.44	21.36	25.20
Std Dev.			4.27	3.23	4.89	4.07	4.40
School Number							
1	Question Av.		27.67	20.58	26.17	20.42	22.00
2	Question Av.		19.60	19.40	25.20	17.10	19.30
3	Question Av.		20.25	18.25	23.33	17.25	18.08
4	Question Av.		24.78	20.00	28.00	18.56	24.67
5	Question Av.		23.35	21.80	31.70	19.80	22.45
6	Question Av.		25.22	20.22	27.33	18.33	22.78
7	Question Av.		23.88	21.06	29.13	20.38	24.75
8	Question Av.		27.09	25.27	33.32	23.50	27.36
9	Question Av.		28.70	23.90	34.00	18.70	26.60
10	Question Av.		32.00	26.44	35.89	24.33	30.11
11	Question Av.		29.10	25.30	36.30	23.20	28.60
12	Question Av.		27.61	23.83	29.72	18.61	25.67
13	Question Av.		26.42	24.08	30.50	21.67	24.46
14	Question Av.		29.36	25.18	33.45	23.50	25.82
15	Question Av.		28.50	23.92	31.50	21.58	25.58
16	Question Av.		28.36	26.09	32.64	20.64	25.00
17	Question Av.		24.00	23.33	29.17	22.17	24.33
18	Question Av.		31.00	25.67	35.33	22.00	30.67
19	Question Av.		29.75	25.00	32.75	21.50	26.50

Table 2

Summary Data

		RESOURCES	L'SHIP	PD/LRNG	TOTAL ALL Qs
QUESTIONS:					
Average for question:		22.01	55.55	38.60	177.32
Std dev:		4.42	10.11	7.62	28.88
Boys' schools					
Average		19.69	54.52	33.98	159.05
Std Dev.		3.91	10.14	6.95	24.79
Girls' schools					
Average		23.97	65.04	41.90	191.35
Std Dev.		4.36	8.82	7.31	27.99
Coed. Schools					
Average		22.58	62.83	40.40	183.25
Std Dev.		3.77	7.60	5.78	22.17
School Number					
1	Question Av.	19.67	57.33	33.08	163.75
2	Question Av.	17.45	46.70	30.95	141.25
3	Question Av.	17.83	47.58	29.75	140.08
4	Question Av.	20.28	55.61	32.67	161.83
5	Question Av.	23.15	59.20	38.45	174.00
6	Question Av.	20.11	52.78	36.44	161.11
7	Question Av.	22.13	59.38	38.38	174.38
8	Question Av.	22.32	67.14	40.59	191.45
9	Question Av.	25.50	65.40	44.80	191.25
10	Question Av.	27.00	68.78	47.44	208.56
11	Question Av.	24.80	68.00	42.60	205.10
12	Question Av.	22.89	62.44	37.67	179.11
13	Question Av.	22.67	59.75	40.58	178.33
14	Question Av.	25.36	66.27	41.82	195.14
15	Question Av.	22.67	65.67	40.75	184.50
16	Question Av.	20.68	64.64	39.73	182.95
17	Question Av.	22.67	60.17	42.33	178.00
18	Question Av.	20.67	69.67	39.00	197.00
19	Question Av.	19.00	62.50	41.00	183.25