



National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TĀEA

Exemplar for Internal Achievement Standard

Mathematics and Statistics Level 2

This exemplar supports assessment against:

Achievement Standard 91266

Evaluate a statistically based report

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade Boundary: Low Excellence
1.	<p>For Excellence, the student needs to evaluate a statistically based report, with statistical insight.</p> <p>This involves integrating statistical and contextual information to assess the quality of the report in terms of its purpose.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). This student has also commented on features of the survey: population measures and variables (2), sampling methods (3), survey methods (4), possible non-sampling errors (5), sample size (6) and the findings of the report (7).</p> <p>This student has integrated statistical and contextual information to assess the quality of the report in terms of its purpose, both by identifying the lack of information about the sampling method and timing of the calls (8), and in the commentary on the findings of the survey (9).</p> <p>For a more secure Excellence, the student could rectify the misunderstanding in the response about the possible questions in the report. The student claims that the question types in the report are 'agree/disagree and yes/no' (2). The results of the report are actually presented as agree/strongly agree and often/very often, but this does not mean that the survey questions were necessarily worded like this.</p>

Sourced from the Te Puni Kokiri Realising Maori Potential Website

The Na Waiaro atu ki te Reo Maori, attitudes towards the Maori language report is an informative report which provides insight on the attitudes of both Maori and non-Maori New Zealanders toward the Maori language. The report speaks of five goals set by the New Zealand government to help achieve more awareness of Maori language by 2028. Surveys conducted by the New Zealand government on the fifth goal 'developing the attitude towards Maori language' is the basis for the statistical evidence towards the Maori language of New Zealanders

The purpose of the attitudes towards Maori language report is to inform all New Zealanders especially Maori about the attitude toward Maori language and the goals set to improve it. Another group interested in the conclusions made in this report is the New Zealand government who provided specific funding policies and programmes in order to revitalise the Maori language by setting up the Maori language strategy. ①

For the surveys included in the report three surveys were conducted, one in 2000, one in 2003 and one in 2006. These samples aimed at getting sample data from the population of New Zealand. The surveys were conducted over the telephone. The investigative question of 'what is the knowledge, attitudes and general values of the Maori language amongst Maori and non-Maori'. This is an appropriate way to gather sample data as many people have telephones however it is not stated how people were selected to be surveyed for all the surveys and if this was done so that there was no bias. No time was stated for when the surveys were conducted so if it was during the middle of the day many people may not have been at home making people survey not representative of the population. ③

Each survey had a sample size of 1500 people however in 2006 only 24.3% of Maori and 22.5% of Non-Maori who were contacted agreed to take part in the survey. This means that in reality only a small number of people took part in the survey as more than 25% of people contacted did not participate. This means that the percentages given may not be very accurate for the whole of the country as New Zealand has a population of about four million yet only about 350 people make up the data given for the 2006 survey. The information about the response rate of the survey is given in a footnote so when reading this report many people will not see this information. No information on the 200 and 2003 response rate is given. ④ ⑧ ⑤ ⑥

The data gathered in the surveys is presented in tables showing data gathered over 2000, 2003 and 2006. There is one table section for Maori respondents, as having Maori respondents and Non-Maori respondents means there are two variables for the data. These tables suggest data gathered was categorical data as only agree/disagree and yes/no answers could be given towards each statement asked. Percentages are then given to represent the amount of people who agreed with each statement. These tables are presented clearly and accurately and are easy for readers to understand and refer back to. It is effective to have tables showing survey results from 2000, 2003 and 2006 as you can see the change in peoples opinions over time. ②

The conclusions made in the Maori language report seem mostly accurate although there are a few biased comments made. For example a comment made states 'positive attitudes towards Maori language steadily increased between 2000 and 2006 for Maori participants of the survey'. The word 'steadily' implies attitudes towards the Maori language kept increasing over the six year period. The attitudes mostly did increase in percentage between 2000 and

2003 however between 2003 and 2006 most attitudes decreased by small percentages. These small decreases seem somewhat ironic considering the Maori language strategy was introduced in 2003 and percentages would be expected to increase not decrease.

The comment made in the section 'Attitudes amongst Maori' about the 'lag' about positive attitudes of the language and participation in the language is very true. Many Maori supported government involvement in making Maori language stronger in society but there were only low percentages of Maori actually participating in Maori cultural activities. This shows us why the Maori language strategy needed to be introduced as people belonging to Maori ethnicity struggle to put their support of their language into actions.

The attitudes amongst non-Maori are positive but not to the 'extent' as the Maori, which is to be expected. The statement saying 'support for the Maori language being spoken in public rose from 40% to 80%' is an accurate statement which shows the impact of the Maori language scheme has had on the non-Maori. In general correct statements have been made in the "attitudes amongst non-Māori" section that there is not as much support in non-Maori as Maori however there has been a general increase in attitudes since the Maori language scheme was introduced. 7

Overall the attitudes towards the Maori language report seem to be an accurate report in terms of the conclusions made in the report. The surveys however are not an accurate representation of the population of New Zealand for various stated reasons. The report is fairly effective and contains some interesting and true information relevant to the attitudes held towards the Maori language. If the surveys had been conducted properly however, with a justified sampling technique used to gather more reliable data the conclusions would have more meaning as they would be representative of the population which would make the attitudes towards the Maori Language much more effective. 9

	Grade Boundary: High Merit
2.	<p>For Merit, the student needs to evaluate a statistically based report, with justification.</p> <p>This involves supporting the comments on the features and findings with reference to statistical evidence and the statistical processes used to carry out the survey.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). This student has also commented on features of the survey: population measures and variables (2), sampling methods (3), survey methods (4), possible non-sampling errors (5), sample size (6) and the findings of the report (7).</p> <p>The student has justified findings with reference to statistical evidence and the statistical processes used to carry out the survey (8).</p> <p>To reach Excellence, the student could integrate statistical and contextual information in the evaluation of the findings of the survey, and develop the discussion of the lack of information about the sampling method, for example the timing of the calls.</p>

Student 2: High Merit
NZQA Intended for teacher use only

This report was produced by Te Puni Kokiri in 2006. It is a statistically based report on the attitude Maoris and non-Maoris within New Zealand have towards the native New Zealand language, Maori. ①

They choose to survey 1500 people each year; 2000, 2003, 2006. Although 1500 New Zealanders were surveyed in 2006 only 24.3% of Māori people and 22.5% of non-Māori people responded. ⑥

The Government commission took these samples by phone surveys but it does not state what method was used to do this. ③

The data displayed is categorical and is in three different sections for both Māori and non-Māori; attitudinal statements about Māori language 2000 – 2006, attitudes towards Government involvement in Māori language 2000 – 2006, and participation in selected language and cultural related activities 2000 – 2006. Tables in section one and two state the percentage of Maoris and non-Maoris who agreed or strongly agreed in the three surveys but do not show the percentage who disagreed. Even though the first two tables show the surveys took place in 2000, 2003 and 2006 the last table only produces surveys for 2000 and 2006. ④ ②

No direct question is asked in the survey as a whole but the aim of the surveys is to see the attitude New Zealanders have towards the Māori language and if the influence of the language itself progresses between 2000 – 2006 within New Zealand. In saying that there are a number of questions within the survey to determine New Zealanders attitude towards the Māori language. In all three sections or tables (Māori: 1,2,3 and non-Māori 1,2,3) the questions or statements are slanted one way which is in the context of being favourable towards the language which makes it difficult for someone to disagree, therefore increasing their chance of getting a more positive overview of the whole survey. An example would be the statement/question in table one: well spoken Māori is a beautiful thing to listen to, which a high amount of people surveyed (who responded) agreed/strongly agreed although it did decrease in the period of 2000 – 2006 (2000 - 97%, 2003 - 96%, 2006 – 95%). ⑤ ⑧

In comparison to the rest of the statements/questions surveyed two or three times out of the 2000, 2003 and 2006 surveys increased in percentage (apart from one statement in table three, participation in selected language and culture related activities, 2000 – 2006; Go to a tangi or funeral on a Marae which remained constant (59% in both 2000 and 2006). Therefore proving Te Puni Kokiri's conclusion of ' The results of the three surveys of attitudes toward the Maori language indicate good progress is being made in achieving the goal of having the language valued by all New Zealanders correct according to the results collected. ⑦

By saying the conclusion in Te Puni Kokiri's statistically based report is correct for the data collected within the surveys, the conclusion in regard to the whole populations could be misleading or false. To get a better representation of the whole population of New Zealand more people need to be surveyed within New Zealand. Another aspect affecting the validation of the data would be the type of survey used; phone surveying. As stated in the report only 24.3% of the Maoris and 22.5% of the non-Maoris phoned for the survey responded in 2006. This shows people's unwillingness to take part in phone surveys, once again questioning the representation of the results compared to the data.

The conclusion and/or results could be biased as it is not stated what proportion of Maoris and what proportion of non-Maoris have been surveyed within 1500 New Zealanders overall. The report also does not state the proportion of Māori one has to be to qualify as Māori in the survey. This once again affects the conclusion by not clearly stating particular information revolving around the survey.

8

	Grade Boundary: Low Merit
3.	<p>For Merit, the student needs to evaluate a statistically based report, with justification.</p> <p>This involves supporting the comments on the features and findings with reference to statistical evidence and the statistical processes used to carry out the survey.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). This student has also commented on features of the survey: population measures and variables (2), possible sampling methods (3), survey methods (4), non-sampling errors (5), sample size (6) and the findings of the survey (7).</p> <p>The student has justified comments on the features and findings with reference to statistical evidence and the statistical processes used to carry out the survey (8).</p> <p>For a more secure Merit, the student could provide greater depth in the statistical evidence for the statements supporting the findings. For example, the student could have justified the results for the question relating to well-spoken Māori being a beautiful thing to listen to by comparing evidence from earlier surveys.</p>

The report “Attitudes Towards Maori Language” is written on the topic of whether Maori and non-Maori support the Maori language and how it can be emphasised and supported in the future. The report is sourced by the website www.tpk.govt.nz and includes surveys from the years 2000, 2003 and 2006. To have been a valid participant you must have been a NZ citizen who owned a telephone and generally the only people who would actually have participated must have had strong opinions on the matter at hand. The purpose of the report is to analyse the results of these surveys and to inform the general public (report can be viewed on the website) about the results and what they conclude. ①

1500 people (Maori and non-Maori) were offered participation in the telephone surveys. However not all of these people chose to participate in the surveys – for instance in 2006 the response rate was only 24.3% for Maori and 22.5% for non-Maori, leaving just under half the people non-responsive. It is not stated how many Maori and non-Maori were asked to participate. ⑥ ④

The report does not tell us how the people were chosen to be in the survey. ③

The report is interested in the response rates, given as percentages, to the questions for Maori and non-Maori in New Zealand.

The questions asked were put into three categories: “Attitudinal statements about Maori language”, “Attitudes towards government involvement in Maori language”, “Participation in selected language and culture activities’. The same sets of questions were asked of both Maori and non-Maori participants and with some exceptions, where questions are stated but there is no percentage result next to it in the table, eg in the 3rd category of Maori participant results table, there are no results whatsoever for year 2003. There is no indication as to what this means so we must assume that either the question category wasn’t asked or the participants did not answer (less likely). Because there are no results in 2003 the data conclusions about that category are less reliable. ② ⑤

The same questions being asked of both Maori and non-Maori was in my opinion appropriate because it was not biased towards just Maori or non-Maori views and the conclusions are backed more evidentially because they were asked of the two different ethnicities but gave the same general increases and decreases. The questions in the survey were worded the same throughout all categories – they were worded as statements. These statements were biased towards the positive opinions/answers and the participants needed only to state if they strongly agreed, agreed, or disagree (other). For example one question/statement was “well spoken Maori is a beautiful thing to listen to”. This example shows a positive statement to which participants could agree or disagree. ⑤

The report concludes from the survey that there are increasingly high levels of positive attitudes towards the Maori language of both Maori and non-Maori participants. This general conclusion is in my opinion accurate in reference to survey data provided. The data shows that in 2006 80% of non-Maori and 95% of Maori participants thought well spoken Maori was a beautiful thing to listen to. This is just one example that supports the conclusion stated above. However, when the report states this conclusion it does not say how or why they came to this conclusion. ⑦ ⑧

The report also concludes that both Maori and non-Maori continue to support government involvement in the revitalisation of the Maori language. After analysing the survey data I have come to support this conclusion as both the Maori and non-Maori survey showed that most of the questions in the category “attitudes towards Government involvement in the Maori language” were answered positively. 7

However alongside these accurate conclusions there are some statements which are incorrect to the information given. For instance the report concludes that only 49% (of Maori) had ever learnt the Maori language formally. This statement is not supported by any information whatsoever meaning it is inaccurate. This statement may also have been misunderstood because many Maori learn the language through family rather than formally. 8

Despite some of the errors in concluding statements this report provides generally accurate and appropriate information. The survey questions were appropriate to the topic and purpose of the report and gave valid information. The data was measured appropriately in percentages and the layout of the data (in separate tables for each ethnicity and sorted into three categories) was appropriate and easily read.

	Grade Boundary: High Achieved
4.	<p>For Achieved, the student needs to evaluate a statistically based report.</p> <p>This involves identifying and commenting on features and findings of a survey relevant to the report's purpose.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). The student has also commented on features of the survey: population measures and variables (2), possible sampling methods (3), survey methods (4), possible non-sampling errors (5), sample size (6) and the findings of the survey (7).</p> <p>To reach Merit, the student could refer to the actual statistical evidence when discussing the report's findings. Comments about the findings should be more specific, using statistical evidence from the report to justify them.</p>

Attitudes towards the Maori Language

Source: Government www.tpk.govt.nz

Purpose: To assess non Maori and Maori attitudes towards the Maori language.

Summary: The report shows us the attitude towards the Maori language, by Maori and non-Maori over a six year period 2000 – 2006. The report also contains the revised Maori language strategy and Government action towards the goals set to achieve by 2028. The report also shows the attitudes of non- Maori and Maori towards Government action as well as Maori language. ①

Evaluation

The variables within the survey, non-Maori and Maori create an issue. It is not stated within the report what racial groups non-Maori covers. It is a very generalist term and could present possible errors of judgement as to the attitudes of non-Maori towards the Maori language. It needs to be specified what racial groups non-Maori includes for us to actually develop an understanding of non-Maori attitudes towards Maori language. We need to know who the non-Maori are before we can assess their attitudes. Another problem is within the non-Maori variable is if we think of NZ as bicultural there is a high possibility that the non-Maori sample was not representative proportion wise of the minority groups within the non-Maori groups as a whole. The measures are the percentages of replies to the questions. ②

Three surveys took place over a six year period. The survey method was to conduct 1500 telephone surveys (not specified what area these calls were made). However the response rate (percent of people who agree to take part) for the 2006 survey was 24.3% for Maori and 22.5% for non-Maori which means only 702 of the 1500 people have actually partaken in the 2006 survey. ④ ⑥

The report does not say how the 1500 people were selected or what area these calls were made to. The sampling method used to generate 1500 telephone to survey is not specified. It would have been a good idea for it to have been included in the report. That way we would have had a better understanding to whether or not the group of people sampled came from minorities or were evenly distributed throughout the country. The method chosen is also valuable information the report should have included to help us assess the possible bias within the statistics shown in the report. ③

Another important thing to note is that only two of the three surveys happened after the revised strategy was released. This could have contributed to the non-Maori respondents answer to the “well spoken Maori is a beautiful thing to listen to”, The percentage agreeing with this increased dramatically in 2006 – possibly because strategy combined with Government efforts made non-Maori more aware of the language. ⑤

The presentation of the data within the report is clear and easy to follow. However the actual data gathered is informative and difficult to draw conclusions from e.g. in the 2000 samples there is no data available for the Maori survey for three of the questions asked. It is the same in the non-Maori section. This shows us that these questions were not asked in 2003 and 2006, this is unfair because for us to draw valid conclusions we would expect the survey to be the same each of the three times it was undertaken. Even if the circumstances had changed (no Maori TV in 2000 therefore no Maori TV question in 2000). The questions should not have been varied.

The conclusion of the report is correct in indicating that there are increasingly high levels of positive attitudes towards the language amongst non-Maori for the data clearly indicates this. All statements within the conclusion are correct to the information within the report.

7

The results of the three surveys of attitudes towards the Maori language have gathered insufficient results to really get a valid conclusion on the attitudes towards the Maori language by all New Zealanders. However the report is well presented and the data gives a good general idea but is not sufficient information when it comes to gauging the attitudes of Maori and non-Maori towards the language and the Governments attempts to revitalise it. For us to gain a more accurate idea of the attitudes more surveys should have been conducted with 1500 respondents not 702

	Grade Boundary: Low Achieved
5.	<p>For Achieved, the student needs to evaluate a statistically based report.</p> <p>This involves identifying and commenting on features and findings of a survey relevant to the report's purpose.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). The student has also commented on features of the survey: possible sampling methods (2), survey methods (3), possible non-sampling errors (4), sample size (5), population measures and variables (6) and the findings of the report (7).</p> <p>For a more secure Achieved, the student could comment in greater depth on the findings of the survey with respect to its purpose.</p>

STATISTICAL EVALUATION

The report was commissioned by the Government to obtain the views of Maori and non-Maori New Zealanders on the attitudes towards the Maori language. Also the report was to find out the public's attitude towards the Government's involvement in encouraging the Maori language in New Zealand. The surveys are taken over three years 2000, 2003 and 2006 with each survey a sample of 1500 people was taken.

1

5

The data was taken by telephone surveys with New Zealand people being asked statements and whether they agreed or disagreed with them. The data is shown on tables in percentages of how many people agreed with the statement.

3

The accuracy of the data compared with New Zealand's population's opinion may be incorrect as only 24.3% of Maori and 22.5% of non-Maori responded to the 2006 survey.

6

This could infer that the survey only got the opinions of people interested in the subject being surveyed and misses a large portion of the population. This concludes that the 2006 survey cannot represent the New Zealand population. The sample size is good with 1500 people being surveyed. But we only know how many people did not respond to the 2006 survey so the validity of the 2000 and 2003 surveys may also be questionable.

4

There is no mention of how the people were selected for the surveys and if in fact it was a random survey. More information is needed to know how reliable the survey data is.

The summary from the data from table one of Maori respondents states there is a steady increase between the 2000 and 2006 surveys. This statement is very generalised as with one of the questions "well-spoken Maori is a beautiful thing to listen to" there was in fact a decrease from 97 to 95. That happened between the 2003 and 2006 surveys with "Maori should be a compulsory school subject for Maori children" there was a decrease from 66 to 61 this could suggest a start of a trend in the percent of Maoris who agree with the statement. In the conclusion of the report it states they are making good progress in having the Maori language valued by all New Zealanders. This statement is very questionable as these surveys do not represent the population of New Zealand as it has flaws on size of survey with only small amounts of response rate and the validity of how random the survey was.

2

7

In conclusion this report seems very generalised with some comments not taking into account all of the parts of the data. The report would not be very helpful to the Government as it does not represent New Zealand's population. But from the surveys there has been a large increase from 2000 and 2006 surveys on most things. So this information could be useful to the Government.

	Grade Boundary: High Not Achieved
6.	<p>For Achieved, the student needs to evaluate a statistically based report.</p> <p>This involves identifying and commenting on features and findings of the survey relevant to the report's purpose.</p> <p>This student's evidence is a response to the TKI assessment resource 'Attitudes Toward the Māori Language'.</p> <p>The student has identified the purpose of the report (1). The student has also commented on features of the survey: population measures and variables (2), survey methods (3) and sample size (4).</p> <p>To reach Achieved, the student needs to identify and comment on the findings of the survey with respect to its purpose. Statements in the final paragraph should discuss the findings of the survey with respect to its purpose.</p>

Analysis of “Attitudes towards Maori Language “ report

The report “Attitudes towards the Maori Language” gives information about how supportive Maoris and non-Maoris are towards the Maori language. The report is aimed at the government, Maoris, educators, policy makers, community leaders and the general public. The purpose of the report “Attitudes towards Māori language’ is to show how support for Maori language has increased between 2000 and 2006, to have New Zealanders value Maori language and to have a common awareness of the need to protect the language. ①

The survey data is measured as percentages of those who answered but this does not tell us how many people, Maori and non-Maori agreed or disagreed. The variables are the three category questions (attitudinal statements about Maori language, Attitudes towards Government involvement in the Maori language and culture related activities), cultural (Maori and non-Maori) as well as the years (2000, 2003 and 2006). ②

The survey method was a Government commissioned telephone survey in 2000, 2003 and 2006. Each of these years 1500 people were asked the questions in the survey but it is not stated how many answered in 2000 or 2003. In 2006 only 702 people answered, only 24.3% Maori and 22.5% non-Maori from the original 1500. ③
④

The report has many errors. Most of these errors are from statements which are not backed up by the survey, ie the statement “only 49% had ever learnt the language formally” on the survey had no evidence as that question was not asked. In the third section “participation in selected language and culture related activities” there are no 2003 results for either Maori or non-Maori. This section also doesn’t state whether this participation is regular or not. The report shows the percentage of people who agree with statements, it showed no other opinions (ie disagree, having no opinion). The rates of response are low in comparison to most telephone surveys and the data is not representative of the whole population. Data is not correctly copied from the table to the report eg in the report it states “95% of Māori respondents in the 2006 survey had a lot of respect for people who can speak Māori fluently” when it states in the report that there was only 93% of Maoris. There are some questions in the report which have no results and other results have been exaggerated in the report.

The report is not valid as the results of the survey are not recent and the people who answered the questions are probably the people who had an interest in the subject. It is also unclear where the report originally came from, but Te Puni Kokiri are using the information at www.tpk.govt.nz. And they have disclaimed any liability for the report.

Overall the main points made in the report are supported by invalid survey results. Also much of the report has not been backed up with evidence from the survey, making the report ineffective.