

# ***TOHI TOKONI MA'A E FAIAKO: FOUNGA FEKUMI***

**Research Manual for Teachers**



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## Author's note

It should be noted here that the materials put together in this manual are not only from other sources (and they are referenced) but also from my own experience as a researcher and lecturer working in Tonga and in the Pacific. What is presented in this manual is by no means final, it is only a mat on which others more experienced and knowledgeable may build.

I wish to thank the TIOE lecturers for taking time to trial and provide feedback on the materials that are now presented in this manual. I also wish to thank Feleti Fonua, Lamoni Toafa, and Taufu Savelio for the translation work on the research ethics guideline.

## Research and the teacher

ICON KEY	
 Valuable information	The skills of research and reflective practice are central to the professional development of teachers.
 Test your knowledge	Research is a skill that is crucial to teaching. The nature of our job as teachers is changing. The social issues that our students are facing in our schools today are not the same as they were 10 or 15 years ago. Parents' expectations of teachers are also changing and they are looking to teachers to provide counseling, and other responsibilities that were not traditionally given to teachers. Currently, in Tonga the Ministry of Education, Women's Affairs, and Culture (MEWAC) is undertaking changes to the curriculum and consequently, this will require changes to the way we teach and how we assess learning. These challenges are shared by other Pacific teachers in various degrees and forms. How individual teachers respond to these issues hinges largely on themselves and their beliefs about the teaching profession. The changing tide of our time requires teachers to become more than just technical teachers – it requires teachers to become reflective practitioners.
 Key exercise	
 Workbook review	

### Reflection and reflective practice

The idea of reflection entails the process of re-looking at a situation from a different perspective. It involves re-questioning the familiar and moving to a place that is better than before. Reflective teaching then is about re-looking at the way we teach, the way we read the curriculum or the way we relate to our colleagues. Reflective teaching involves self-appraisal, flexibility, and creativity, social, cultural, and political awareness.

These are the skills and attitudes of the researcher in that it involves critical questioning and challenging the familiar so as to find better ways.

Through this research manual, I hope that we come to view teachers as reflective and adaptive practitioners who can through reflective practice better deal with the various challenges in our classrooms.

📁 Valuable information

**Basic Definitions: Research** – is essentially about finding answers to a problem. This is done through a systematic approach to clarifying the problem, defining the needed information, gathering that information, having the information analysed, and then suggesting a solution or gaining a better understanding of the studied problem.

**Fekumi:** Ko e lea `oku ngaue`aki ki he 'research' ko e 'fekumi'. `E malava pe ke ngaue`aki `a e lea ko e `fakatotolo` ka `oku vāofi ange `a e lea ko `eni pea mo e lea fakapalangi ko e `investigation` `a ia `oku fekainga`aki ia mo e ngaue fakatotolo `a e kau polisi.

**Fekumi** - `oku `uhinga ia ki ha kumi `o ha tali ki ha fehu`i, pe ko e kumi ha founa `ilo pe ngaue fo`ou ke veteki `aki ha tukia`anga pe ha`isia. Ko e fekumi `oku `i ai `a e founa ke muimui ki ai `o kau ki ai `a e ngaahi founa ni; fakamahino pe ko e ha `a e fehu`i pe tukia`anga; fakamahino pe ko e ha `a e `ilo `oku feima`u ke kumi mai; tanaki mai `a e `ilo ko `eni, veteveteki pea to e fakafehu`ia `a e `ilo kuo tanaki mai; pea fa`u mei he `ilo ko `eni ha tali pe ko ha founa ngaue fo`ou ke veteki`aki `a e tukia`anga.

**Kakala research framework**

To understand research in our Tongan context, we have used the *Kakala Research Framework*. The *Kakala Research Framework* was initially created as a teaching and learning framework by Professor Konai Helu Thaman. This teaching and learning framework had three tiers - *Toli*, *Tui* and *Luva*. Later, as the result of a search for a research framework to guide a study to be conducted in Tonga, additional tiers were added to the teaching and learning framework making it into what is now also a robust research framework. The *Kakala research framework* was put together by Konai H Thaman, `Ana Taufe`ulungaki and Seu`ula Johansson Fua in 2006 and includes the additional tiers of *Mālie* and *Māfana* from the seminal work of Linita Manu'atu. The *Kakala Research Framework* now consists of the following tiers: *Teu*, *Toli*, *Tui*, *Luva*, *Mālie*, and *Māfana*.

📁 Valuable information

**Basic Definition: Framework** – this refers to a guideline or a mind map that directs/shows the processes to follow. For example, the *Kakala Research Framework* outlines the research process; the steps to follow to achieve the task of research.

**Fokotu`utu`u fakakaukau:** `oku `uhinga `a e `framework` ki ha fokotu`utu`u pe ko ha founa ke fakahoko `aki ha ngaue. Hange ko e founa ne ngaue`aki `e Konai H Thaman ki he founa faiako pea mo e ako `o pehe ai, ko e ako `oku hange ia ha toli mai ha matala`i `akau. Pea `oku `omai ia `o veteveteki mo fakakaukau`i `i hano tui, pea hili ia `oku ngaue`aki `a e `ilo ko `eni `o luva ia ke `aonga ki ha taha.

**Kakala – Ko ha Founa Fekumi:**

`Oku pehe `e he kau mataotao he fekumi `i he Pasifiki pea pehe ki Tonga ni, koe fatongia `o e tokotaha fekumi `oku hange ha tui kakala.

**TEU**

Ki mu`a pea tui ha kakala, `oku `i ai ha teuteu `oku fakahoko, `o kau ai `a e vakai pe ko e ha `a e sipinga pe ko e kakala `e tui. Pea `oku fakakaukau`i foki pea mo e katoanga pe koe ouau `e ngaue`aki ai `a e kakala `oku teu ke tui. `Oku `i ai foki `i he teu ko `eni `a e vakai pe ko hai `e fakalangilangi`i`ake `a e kakala `oku teu ke tui.

`I he fatongia `o e fekumi, `oku `uluaki fakahoko ha teu, `o kau ai `a e vakai pe ko e ha e `uhinga `e fakahoko ai `a e fekumi ko `eni. `E kau ai `a hono vakai pe ko e ha e fatongia `e fakahoko `aki `a e `ilo ko `eni, pea `e fakahoko mo hono vakai pe kohai `a e kakai pe potungaue te nau ngaue`aki `a e `ilo `e tanaki.

**TOLI**

`I ha lava lelei `a e TEU, pea mahu`inga malie `a e taumu`a, `e fakahoko leva `a hono TOLI `o e ngaahi kakala, pea mo e tanaki `o ha ngaahi naunau ke tui `aki `a e kakala. `E TOLI fakapotopoto pea filifilil ke ma`u `a e ngaahi taumu`a moe sipinga`o e kakala.

`I he fatongia `o e fekumi, koe TOLI `a e tokotaha fekumi `oku ma`u ia mei he kakai pea moe `ataakai `o tanaki mei ai ha ngaahi `ilo fo`ou pea toe maama ange ai ha ngaahi fakakaukau ne `ikai ke fakapapau`i, ka ne fai pe ha fakafuofua pe fakamahamahalalo ki ai. Pea hange pe koe TOLI kakala, ko e fatongia `o e tokotaha fekumi `oku fakahoko `aki `a e faka`apa`apa, `a e lototo pea mo e `ofa fakapotopoto `o TOLI filifili `a e ngaahi `ilo `e `aonga pea mo`oni.

**TUI**

Ka hili `a e TOLI, `e fakahoko `a hono TUI `o e kakala `o ngaue`aki `a e ngaahi kakala kuo TOLI pea ke muimui ai pe ki he sipinga ne `osi TEU. `I he TUI `oku fakahoko ai `a hono toe filifili `o e kakala, pea fakahoko ai mo hono toe siofi `a e sipinga ke tui.

`I he founga tatau pe, `oku fakahoko `e he tokotaha fekumi ha TUI, `o filifili, to e `eke, pea to e sivi `a e `ilo kuo tanaki mai. Ko e `ilo kuo tanaki mai `oku tonu ke malava pe `o tala ai ha ngaahi sipinga mei ha ngaahi `ilo `o fai tatau, pea mo ha ngaahi `ilo kuo ha fo`ou. Hange pe ko e tui kakala, koe TUI `a e tokotaha fekumi kuo pau ai pe ke ngaue fakapotopoto`aki `a e `ilo kuo TOLI, pea ke muimui ai pe he taumu`a `o e ngaue ne `osi TEU.

**LUVA**

Ka hili `a hono tui `o e kakala, pea kuo maau `a e teu, `e LUVA leva `a e kakala ma`ae tokotaha faiva pe ko ia `oku `o`ona `a e langilangi `i he ouau ne fai ki ai `a e TEU.

`I he founga tatau, ko e fatongia `o e tokotaha fekumi `oku fakakakato ia hili `a hono LUVA `a e `ilo kuo ne tanaki. Pea ko e LUVA ko `eni `e fakahoko ia `o fakatatau ki he TEU ne fakahoko, `a ia `e foaki ki he kakai ne fakahoko mei ai `a e TOLI. Hange pe ko e `uhinga `o e LUVA `i he tui kakala, koe fatongia `o e tokotaha fekumi ke LUVA `a e ngaue kuo `osikiavelenga `a `ene ngaue ki ai – ko hono lelei taha ne fakahoko`aki `a e fatongia, pea ko e LUVA, ko e LUVA `o e `ilo ne tanaki.

**MĀLIE**

Ko e faka`amu `a ha taha `i ha foaki ha kakala ke `aonga `a e TEU moe tui kakala ne fakahoko. `I he fakahoko `o ha faiva, `oku tau fa`a lau `a e malie, ke fenapasi `a e ta`anga, teunga, faiva pea mo e katoanga.



*Ko e faka`amu `a e tokotaha fekumi ke `aonga `a `ene kakala, ke lava ai ke toe ma`u ha `ilo `oku maamaange, ke ma`u ha `ilo fo`ou pea ke toe lelei ange ai ha fakahoko `o ha fatongia.*

### **MĀFANA**

*Ka malie leva ha faiva, `oku tau fa`a mamata atu ki ha taha pe ko ha kakai kuo nau tu`u atu `o tulafale, `o fakapale pea `oku tau pehe kuo nau mafana. `I he tu`u atu `a e tokotaha ko `eni mei he `ene mamata faiva, ke kaunga kau `i he faiva, ko ha momeniti ia kuo ne tali ai pea mahu`inga malie ai `a e teu ki he faiva.*

*Ko e faka`amu faka`osi `a e tokotaha fekumi ke lava `a e KAKALA kuo ne TEU, TUI pea LUYA atu, ke hoko ko ha faingamalie ke tu`u atu ai ha taha ne mamata pe mei he tafa`aki, `o poupou, `o langa hake pea ke tokoni ki ha fatongia ko e `uhinga pe kuo mahu`ingamalieki ai `a e KAKALA kuo TEU pea LUYA.*

The *Kakala* Research Framework has been used to introduce research processes to novice researchers in Tonga and in the Pacific. It has proven to be robust and useful in making research relevant and meaningful for Tongans and Pacific people who share similar cultures. The *Kakala* Research Framework has also been used to guide several national studies in Tonga, including work for Tonga Police and MEWAC.

#### Workbook review

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Integral to changes that Tonga education is experiencing is the belief that teachers need to be more conscious of their practice – that is, they need to become reflective practitioners. To become reflective teachers, they need to learn the skills of research.

Research is basically about finding answers to problems. And there are different ways to find these answers. For Tonga, the *Kakala* Research Framework has been tested and found to be a useful way to guide the process of conducting research in Tonga.

### **Purpose of the manual**

This manual is intended for the following audiences:

- Lecturers at the Tonga Institute of Education (TIOE) who are keen to develop their research skills as part of their professional development; and who are interested in conducting evaluative research related to their educational field of interest.
- Teacher trainees at the TIOE who are involved in research projects as part of their course work; and to improve their research skills as future teachers.

This manual can be further adapted by classroom teachers to meet the particular needs of their students, depending on the teaching level and subject area.

#### Test your knowledge

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1. Why do teachers need to be reflective practitioners?
2. How can the skills of research help a teacher become a reflective practitioner?

3. What is research?
4. What is a framework?

 Key exercise

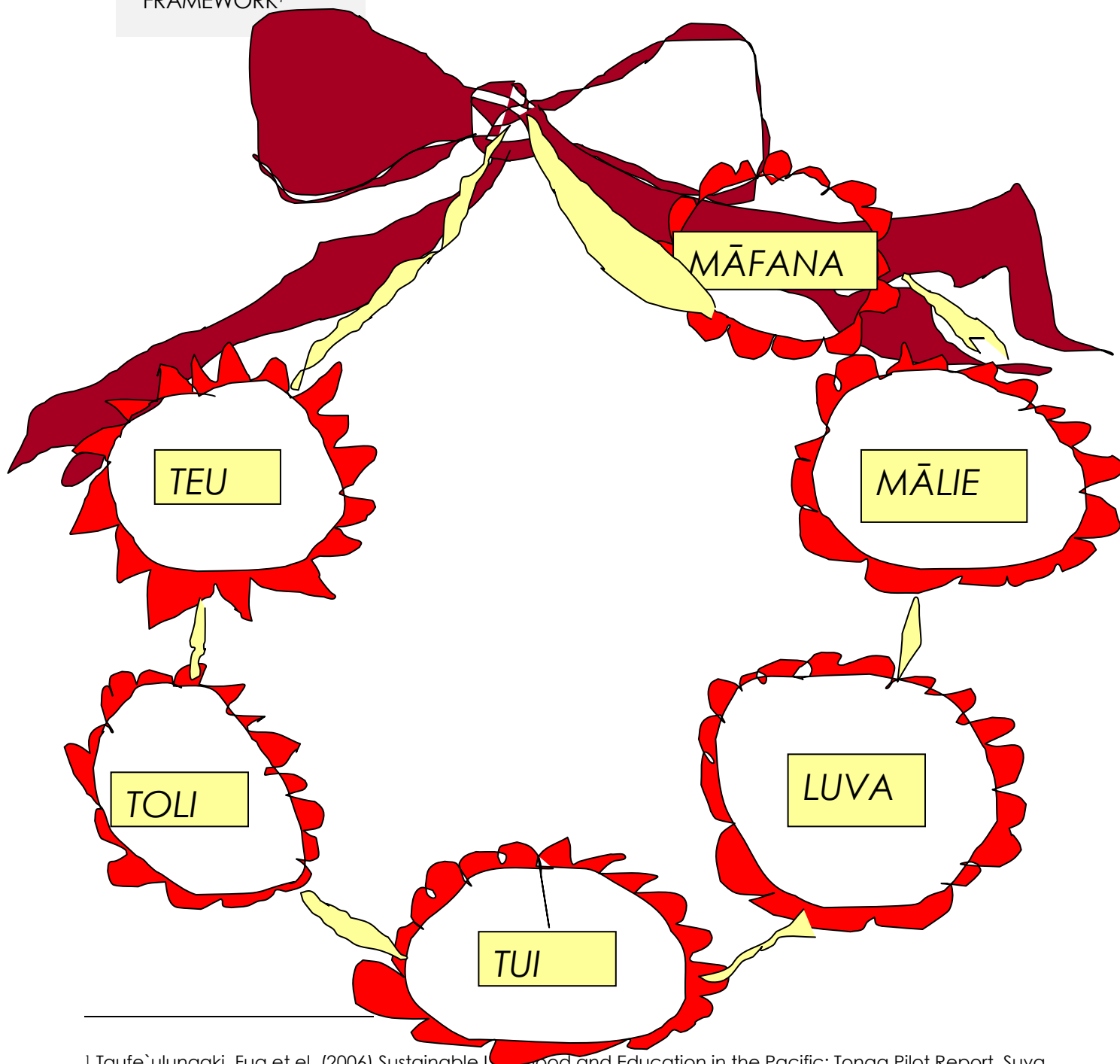
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There are many other definitions of 'Research' and 'Reflective Practice' – what is your definition and understanding of these two terms?

TIOE Teachers: Discuss with departmental colleagues your collective understanding of research and how can 'reflective practice' be built into your work during the year. The result of the discussion can be the basis for each department's work plan for the year.

TIOE Students: As an introduction to teaching research skills, ask your student teacher about their understanding of research and the processes that are involved. Students can formulate for themselves their own research framework – this can be a useful way to reflect and apply their understanding of research processes. Why do you think there are differences in definition and understanding of 'Research' and 'Reflective Practice'?

Figure 1: KAKALA RESEARCH FRAMEWORK<sup>1</sup>



<sup>1</sup> Taufe`ulungaki, Fua et al. (2006) Sustainable Livelihood and Education in the Pacific: Tonga Pilot Report, Suva, USP.

## Research approaches

The key to understanding research is to understand the theories that guide different research approaches.

Research is embedded in theory. In the first chapter we asked questions about people's different interpretations of "research", and provided an example of a Tongan interpretation of research - the *Kakala* Research Framework. For some people research is about interviewing participants, while for others it may mean scientific experiments in the laboratory. For some, the purpose of research may be to provide general information, for others, to provide numbers and percentages. The differences in interpretation can be due to experiences, prior learning, and beliefs about what is involved in research – all of which means that some form of theory guides the way we think about research.

Research is based on theory and there are fundamentally two theoretical approaches to research:

- Quantitative approach
- Qualitative approach

Although these two approaches are theoretically different, they can be used to complement each other through a mixed approach to research.

### Valuable information

**Basic Definition: Theory** – refers to a way of thinking which is based on beliefs, ideas, and values. Theories can change from time to time as well as from place to place, as well as theory changes due to differences or changes in what we know. For example, we use to think that the world was flat; now we know that it is round. Theory then is specific to given context.

**Ngaahi fakakaukau** - Ko e 'theory' `oku `uhinga ia ki ha fakakaukau, pe ko ha fa`ahinga fakakaukau. `Oku tau fa`a pehe, koe fakakaukau `a e Tonga `oku pehe, pea pehe. `A ia ko `etau fakalea ia `oku `i ai e 'theory' `a e Tonga. `Oku malava pe ke liliu `a e fakakaukau mei ha kuonga ki ha kuonga pea to e lava pe ke liliu `a e fakakaukau mei ha feitu`u ki he feitu`u. `Oku tau fa`a lea `aki `a e `fakakuongamu`a' `o fakatatau ia ki ha fa`ahinga fakakaukau na`e ngave`aki `i he kuo hili. `Oku to e `i ai pe foki mo `etau tui `oku kehe `a e fakakaukau `a e Tonga mei he fakakaukau `a e palangi pea mo e muli. `I hono fakalukufua, ko e `uhinga `eni, koe fakakaukau `oku kehekehe, pea `oku fekainga`aki `a e fakakaukau pea mo e feitu`u pea mo e taimi `oku fakahoko ai `a e fakakaukau.

## Theoretical perspectives

### Characteristics of quantitative research

- Positivistic or Scientific Paradigm
- The world is made up of observable, measurable facts
- Facts have an objective reality
- Variables can be identified and relationships measured (Glesne & Peshkin 1991)
- Measurement is "the assignment of numerals to objects or events according to rules" (Glesne & Peshkin, 1991).
- Concerned with the degree in which phenomena possess certain properties, states, and characters, and the similarities, differences, and causal relations that exist within and between these. The advantage of this approach is that it facilitates comparison and statistical aggregation of the data, therefore giving a broad and generalisable set of findings.

### Quantitative Research/ *Fekumi ngaue`aki mata`i fika*

- *Founga fekumi ko `eni `oku nofo ia `i he fakakaukau faka-saienisi. Ko e `uluaki founga fekumi `eni, ne ngaue`aki mai `e he kakai saienisi hange ko Galileo pea mo Newton.*
- *Ko e fakakaukau `oku ne tataki `a e founga ko `eni `oku tui ko e `ataakai ko `eni pea mo e koloa kotoa `oku `i ai, `oku malava ke tau vakai tonu, sio tonu ki ai, pea mo lau pau `a e ngaahi mo`oni`i me`a `i hotau `ataakai.*
- *Ko e fekumi `oku ne fakamamafa`i `a e mahu`inga fakamata`i fika `o hange koe tokolahi.*
- *`Oku lahi ngaue`aki e mata`i fika ke lau `a e ngaahi me`a `oku tau matatonu ai, `o hange koe tokolahi `o ha kakai `oku nau tui `oku totonu ke tapu `a e ifi tapaka `i ha `apiako. `Oku lahi ngaue`aki `a e peseti ke fua `aki `a e tokolahi ko `eni.*
- *Ko e fakakaukau ko `eni `oku pehe, ko e mo`ui `oku `i ai `a e ngaahi tefito`i tui pau, pea falala`anga `aupito `o `ikai ha taimi ia `e liliu ai.*
- *Ko e taha `a e lelei `a hono ngaue`aki `o e founga ko `eni, `e malava ai ke tau tala `a e tokolahi fakalukufua `o ha falukunga kakai. Hange ko `eni, `oku tau lava `o tala pe koe fanau ako kalasi 6 `e 500 ne nau lava he sivi, pea tau fakalea ko e peseti `eni `e 60% `o e kotoa `o e fanau ako kalasi 6 `i Tonga ni.*
- *Founga fekumi ko `eni `oku taha pe `a hono nautau fekumi `a ia ko e ngaue`aki `a e pepa tali fehu`i pea mo hono tali pe ko ee `oku tau fa`a ui ko e savea.*

### Characteristics of qualitative research

- Naturalistic, Interpretive, Contextual and Constructivist
- "Qualitative research is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, the phenomena in terms of the meanings people bring to them" (Denzin & Lincoln 1994: 2)
- Qualitative research "is an effort to understand situations in their uniqueness as part of a particular context and the interactions there. This understanding is an end in itself, so that it is not attempting to predict what may happen in the future necessarily, but to understand the nature of that setting – what it means for participants to be in that setting, what their lives are like, what's going on for them, what their meanings are, what the world looks like in that particular setting" (Patton 2001:1)

- Qualitative research is concerned with understanding the studied phenomenon from the participants' perspective- emic, insider's view rather than from the researcher's – that is etic, outsider's view.
- Unlike quantitative researchers who seek causal determination, prediction, and generalisation of findings, qualitative researchers seek instead illumination, understanding, and extrapolation to similar situations
- Quantitative research depends on instrument construction whereas in qualitative research, "the researcher is the instrument" ( Patton 2001:14)
- As the primary instrument of data collection, the researcher is more sensitive to the total setting, able to adapt techniques in the process, process a whole range of data immediately, and respond within context.

#### **Qualitative Research/ Fekumi ngaue`aki lea**

- Founa fekumi ko `eni na`e kamata mai `a hono ngaue`aki `i he 1970. Na`e ngaue`aki mai `eni `i ha fiema`u ke `i ai ha founa fekumi `e malava `o mahino ai pe ko e ha e `uhinga `oku hoko ai ha tukia`anga pe ha`isia.
- Founa fekumi ko `eni `oku tui ia `oku feima`u ke ma`u ha mahino `oku loloto pea mahu`inga malie `o `ikai ngata pe `i he `ilo`i pe oku toko fiha. Hange ko `eni, `e malava `e he founa fekumi fakafika ia `o talamai ko e fanau `e toko 67% ne lava `i he sivi. Ka `oku `ikai ke tau lava tautolu `o tala ai pe koe ha e `uhinga ne lava ai pe `a e toko 67%. `E malava lea `e he founa fekumi ngaue`aki `a e lea `o fekumi ke toe loloto ange ke `ilo`i pe koe ha e `uhinga ne lava ai pe `a e tokolahi ko `eni.
- Founa fekumi ko `eni `oku mahu`inga ai, ke `ilo`i pe koe ha e faka`uhinga pea mo e lau `a e tokotaha `oku faka`eke`eke pe fakahoko ki ai `a e fekumi. `I he founa ko `eni, `oku `ikai ke pehe`oku `i ai ha tali ia `e hala, ko e `ilo kotoa `oku tanaki mai `oku mahu`inga pea `oku fai `aki pe `a e fakakaukau `a e tokotaha `oku fakahoko ki ai `a e fekumi
- Founa fekumi ko `eni `oku lahi ange `a hono ngaahi naunau `e malava `o ngaue`aki ke fakahoko `a e fekumi `o kau ai `a e; Faka`eke`eke, Siofi pea mo e veteki `o ha kongatohi.

#### Workbook review

Research is based on theory. There are two theoretical approaches to research – quantitative and qualitative. Quantitative research was the first approach to research based on scientific measurements and experiments. Quantitative research is based on objectivity and believes in facts. Quantitative measurements are in numbers, statistics, and percentages. Quantitative research aims to find general results. It is useful for comparisons, and measuring differences and similarities. The Qualitative approach was later developed in the 1970s based on interpretations and making sense of specific contexts. Qualitative research is based on subjectivity and assumes that reality is constructed. The aim of qualitative research is to find specific results. It is useful for understanding problems in specific and detailed contexts, for example if we want to find out how Tongan students learn This is a topic that is specific to Tongan context and also we need to find out detail descriptions of how students learn. On the other hand, we want to find out how many students pass the Tonga School Certificate and have a particular learning style,

then it will be more appropriate to use a Quantitative approach to identify the numbers and gain a general understanding of the preferred learning styles by Tongan students.

Table 1: Comparison of Qualitative and Quantitative methods

	<b>Qualitative</b>	<b>Quantitative</b>
Assumptions	Reality socially constructed Variables complex and interwoven; difficult to measure Events viewed from informant's perspective Dynamic quality of life	Facts and data have an objective reality Variables can be measured and identified Events viewed from outsider's perspective Static reality to life
Purpose	Interpretation Contextualisation Understanding the perspectives of others	Prediction Generalisation Causal explanation
Method	Data collection using participant observation, unstructured interviews Concludes with hypothesis and grounded theory Emergence and portrayal Inductive and naturalistic	Testing and measuring Commences with hypothesis and theory Manipulation and control Deductive and experimental Statistical analysis
Data analysis	by themes from informants' descriptions Data reported in language of informant Descriptive write-up	Statistical reporting
Role of researcher	Researcher as instrument Personal involvement Empathic understanding	Researcher applies formal instruments Detachment Objective
Strengths	Close proximity to the field can reveal subtleties and complexities More accessible to practitioners In lieu of limited literature Offer viable alternative	Precision achieved through quantitative and reliable measurement Control achieved through sampling and design Experimentation leads to statements about causation Deductive approach & quantitative data permits statistical analysis



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Limitations	Scientific researchers criticise inadequate validity and reliability status Time consuming Promise of anonymity – problematic when presenting results Possible bias – researcher and participant	Denigrates human individuality and ability to think Assumption that facts are true for all in all situations
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Burns, R.B. 2000. Introduction to Research Methods, Sage Publication: London

## Different types of research

There are many forms of research to choose from. The choice will depend on both the preferences of the researchers and on the research project; different forms are appropriate and relevant to different contexts. Action and Evaluative research are particularly relevant for teachers wishing to develop their abilities as reflective practitioners and who are interested in developing their research skills and in using research to inform and develop their teaching pedagogy and program. Note: these forms of research may not be as useful or appropriate for student teachers and senior high school students.

### Valuable information

**Basic Definition: Action Research** – often regarded as most appropriate for teacher-researchers to adopt. It is a study that is conducted on a particular issue of current concern, and it is usually undertaken by those who are directly involved in it. The aim of action research is to implement change within the given situation.

**Basic Definition: Evaluation Research** – is the study of a particular program or events over a period of time in order to examine effectiveness and impact. It is usually examined against its set objectives and goals.

### **Fekumi ke fakalelei `e he tokotaha fekumi `a hono `atakai**

*Ko e founga fekumi ko `eni, `oku fa`a ngaue`aki ia `e he kau faiako `oku nau faka`amu ke fakalelei `a `enau founga ngaue, founga faiako pe ko e founga `oku fakalele `aki `a e `apiako. Ko e founga fekumi ko `eni `oku kau fakataha `a e tokotaha fekumi pea mo e kakai `oku fakahoko ki ai `a e fekumi, ko e `uhinga `oku nau faka`amu ke fakalelei ha tukia`anga pe ha`isia `oku nau kau ai. Hange ko `eni, ko ha faiako oku faka`amu ke vakai ha founga `e toe sai ange ai `a e sivi `a `ene fanauako. Pea ne fakahoko leva ha fekumi `o kau fakataha pe ai `a e faiako ko e tokotaha fekumi ia, pea kau atu ki ai mo `ene fanau ako, koe kakai ia `oku fakahoko ki ai `a e fekumi.*

### **Fekumi ke sivi`i**

*Ko e founga fekumi ko `eni `oku fakahoko ia `e ha taha `i ha fiema`u ke toe sivi`i pe toe vakai`i ha founga ngaue, founga faiako pe ko ha founga fakalele `o ha ngaue. Ko e sivi ko `eni `oku lava pe ia ke fakahoko `e ha taha mei tu`a mei he ngaue`anga, pe ko ha kakai pe `i loto `i he ngaue`anga ko `eni. Ko e taumu`a `o e founga fekumi ko `eni ke ma`u ha founga fo`ou ke fakalelei`ake e ngaue.*

## Action Research

The principal features of action research are change and collaboration between researcher and the researched. Action research is concerned with the improvement of a situation with active intervention and in collaboration with the parties involved. This means that action research differs from most research as it goes beyond adding findings to the existing body of knowledge.

Action research can use both quantitative and qualitative data.

The most salient underlying feature of action research is reflection. The idea of reflection and reflective practice are part and parcel of action research. Collaboration is also a significant feature of action research including collaboration between teachers within and outside of the school as well as between schools/organisations.

Action research was originally developed by Lewin (1946) and later developed by Schon (1983) amongst others. Action research is clearly cyclical – action and research followed by action.

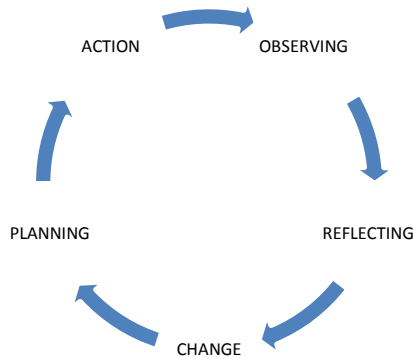


Figure 2: Action research cycle

The actual detail of each process varies depending on the topic and the context of the research. There are critics to this approach, including, those that question the objectivity of the researcher when she or he is involved in the research process of subjective/objective. Because it claims to be collaborative, supportive, democratic and critical, there are obviously issues surrounding this approach.

### **Evaluative Research**

Evaluation involves examining a set of practices with regard to their function, efficiency, and quality.

It implies a careful examination of a programme or events in order to make informed decisions and judgments about the situation. Evaluation can highlight good practice as well as weaknesses in a programme. The aim is to understand a process so as to improve it.

Evaluation is systematic

Evaluation is about both products and processes

Evaluation is concerned with policy and practice

Evaluation defines and explores effectiveness

Evaluation may be central to professional development

Evaluation is part of the quality assurance process.


Evaluation has played a major role in reviewing curriculum at school based level. Evaluation can be undertaken by an external evaluator, by school administrators, or by teachers.

As it is concerned with the issue of effectiveness and quality assurance, questions such as these are asked:

- Who is undertaking the evaluation?
- For what purpose?
- With what aim in view?

Evaluation should be seen as an important process in the effort to make schools more effective in providing quality education.

There are different types of evaluative research that include goal free evaluation, transaction models, connoisseurship studies, utilisation-focused evaluation, and many others. Refer to the list of references for further details on resources where you can find out more about these models.

 Test your knowledge

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1. Explain the phrase 'research is based on theory'?
2. What are the two types of approaches to research?
3. What are some of the key features of quantitative research?
4. What are some of the key features of qualitative research?

 Key exercise

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TIOE Teachers: In your department meetings, hold a discussion to clarify understanding of theories that guide quantitative and qualitative research. This understanding should guide any review necessary for the courses/subjects that you teach and the research assignments that you give to your students. Your courses/subjects will benefit from having a clear outline of the type of research assignments students are expected to take on. I have provided brief notes on Action and Evaluative research processes that teachers may use to begin thinking about if they are interested in reviewing their course – however, technical assistance may be needed from experts.

TIOE Students: In the introduction to research lesson/s, the teacher can provide students with some basic key features of the two types of research. Teachers can use their best judgment on what key features that they select. It is crucial that students understand the different purpose and the different methods that are used for each research approach.

## Research ethics

A key consideration when accessing information is the ethical conduct of the researcher and the ethical guidelines that direct the research study.

Research that is considered of quality is guided by ethical principles. We begin by asking what are “ethical principles” and what does that mean for me as a Tongan and as a researcher? Ethics in its broadest sense refers to the study of what is good and bad. It is generally accepted that being “ethical” means to be good. “Principle” is a set of values that make up an ideology, a belief, a philosophy, and a way of being. For example, as a Tongan, I strive to follow the principle of respect/ *faka`apa`apa*. The principle of *faka`apa`apa* is made up of the core values of *`ofa* (love), *feveitokai`aki* (reciprocity), *lototō* (humility), and *mamahi`i me`a* (commitment).

However, for a person from Mexico or Spain, the principle of respect may mean something different altogether. This also means that while we do share some common universal ethics, the values that we choose to build these principles upon are as varied as the cultures we come from. I believe that values are culturally based – it depends on people’s thinking, beliefs and how they relate to one another. As such then, ethics are also culturally and contextually based.

 Valuable information

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### **Basic Definition: Principle**

This refers to a collection or group of values that, when put together, make a principle. The word principle is at times used interchangeably with the words value and ethics.

### **Basic Definition: Ethics**

Ethics generally refers to a set of rules that is used to guide one’s behaviour in relating to others and to one. Ethical conduct is often used to describe a desirable behaviour – good and right behaviour that is sought after.

### **Basic Definition: Values**

Values are basic beliefs, ideas, and ways of being that a person believes to be important to their way of life. A collection of values are usually found together to make up a principle. For example, the values of love, fairness, and equity can make up the principle of care or justice.

***Ngaahi fakalea ki he ngaahi tui***

**Principles – Ngaahi tui** `oku tau pehe `oku mahu`inga ke tataki `aki ha ngaue pe ko ha `ulungaanga.

**Ethics – ko e ngaahi lao pe tu`utu`u ni** `oku tau tui `oku lelei pe tonu ke tataki `aki ha founa ngaue pe ko ha `ulungaanga `o ha taha.

**Values – ko e tefito`i tui** `o hange ko e `ofa, pe ko e tauhi va. Ko e tefito`i tui `e malava pe ke tanaki kinautolu `o hoko ko e ngaahi tui kene tataki `aki ha `ulungaanga pe founa ngaue. Ko e tefito`i tui `oku fakaha sino ia `i he `ulungaanga `o ha taha.

**Research Ethics** – ngaahi tu`utu`uni `oku tonu pea lelei ke fakahoko `aki `a e fatongia `o e tokotaha fekumi pea mo e ngaue fekumi

**Research ethics – why?**

Based on the belief that ethics are culturally based, it is to the advantage of the researcher that the ethics that guide the research are based on the culture upon which we do research. We do this for several purposes:

- To access knowledge – in some contexts specific knowledge belongs to special groups who can be protective of this knowledge. For example, there may be a navigational knowledge that is shared only amongst a certain clan. I have found that by using the appropriate ethical approach, some of this often sacred knowledge is willingly shared.
- To build relationships between the researcher and the participants – the trust between the researcher and the participant is important in order for knowledge to be shared. If the participant is not willing to share knowledge it usually implies that the researcher not using the appropriate ethical conduct to approach this person.
- To ensure that the knowledge is authentic – as Tongans we are well aware of people who just like to tell fantastic stories but are not the truth. By taking our Tongan ethical approach to seeking knowledge, we can access knowledge that is reliable and trusted.
- To ensure that the knowledge accessed is understood within context, thereby ensuring justice is given to the giver of knowledge as well as for the “borrower” of knowledge.
- To ensure that the knowledge is used for the benefit of the giver of knowledge i.e. the participant.
- To ensure that the research process is constantly monitored according to the research ethics set out. This means that research ethics is not only confined to certain parts of the research process but the whole process is embedded in the ethical guidelines.
- To ensure that the research ethics is also set in place to guide how researchers relate to participants, but also how researchers relate to other researchers in the team.
- To ensure that the research ethics is displayed always – in behaviour, speech, dress code, body language.
- To ensure that the researcher is also held accountable to the people from whom he/she has collected the data - either through reporting back to the community or through other means of reciprocity.

**Ngaahi tui**

*`Oku mahu`inga `aupito ke tataki `aki `a e ngaue fekumi ha ngaahi tefito`i tui `oku fenapasi pea mo hotau anga fakafonua. Ko e mahu`inga `a hono ngaue`aki `a `etau ngaahi tefito`i tui, he `oku ma`u mai ai `a e falala `a e kakai `oku tau fekumi ki ai. Ko e `ulungaanga `o e tokotaha fekumi `oku fu`u matu`aki mahu`inga `aupito ia ke lava ai `a e tokotaha `oku fakahoko ki ai `a e fekumi `o falala mai pea tuku mai `a `ene `ilo. Koe fakatata mahino `eni, ka `alu atu ha taha fekumi `o fakahoko ha ngaue fekumi ki ha kolo, ka `oku `ikai lava `a e tokotaha fekumi `o lea faka-Tonga lelei, pea `ikai `ilo `e ia pe ko hai `a e tefito`i kakai `oku totonu ke `alu ki ai, pea `ikai tui ha teunga `oku faka`apa`apa. `Oku fakaha mai leva `e he tokotaha fekumi ia ko `eni `oku `ikai ke ne `ilo `e ia `a e kakai pea mo e kelekele `oku ne `alu atu ke fakahoko ai `a `ene fekumi. `I he sio mai `a e kainga `o e kolo, `oku `ikai ke `i ai ha falala mai ia ki he fakamatala atu `a e tokotaha ko `eni he `oku `ikai kene `ilo `a e kakai pea mo e anga `enau nofo. Ko ia, `oku fu`u mahu`inga `aupito `a e `ulungaanga `o e tokotaha fekumi ki hono tali ia `ehe kakai `oku fakahoko ki ai fekumi pea ma`u mei ai ha fakamatala `oku falala`anga pea mo`oni.*

**Tongan research ethics – key features**

The research ethics used for the Tongan context is based on our core values. 'Ana Taufe'ulungaki (2003) has listed some of these core values to include:

- *Fe'ofa'aki* (mutual love, caring, generosity)
- *Faka'apa'apa* (respect)
- *Feveitokai'aki* (reciprocity, cooperation, consensus, maintenance of good relationships)
- *Mamahi'i me'a* (loyalty, commitment)
- *Lototō* (humility, generosity)
- *Fetokoni'aki* (sharing, cooperation, fulfilment of mutual obligations), which are all aimed at maintaining and sustaining healthy relationships within those contexts.

As a researcher, I have taken key values from the list above and used them while conducting research in Tonga. These are my suggested principles to guide conducting research in Tonga:

- *Faka'apa'apa* (respect)
- *Lototō* (humility, generosity)
- *Feveitokai'aki* (reciprocity, cooperation, consensus, maintenance of good relationships)
- *Fe'ofa'aki* (mutual love, caring, generosity)

These core ethical guidelines are critical to ensuring that the findings of the research are valid and trustworthy. The ethical conduct of the researcher is the key to accessing authentic, useful, and worthwhile data.

Pacific research ethics have to be lived by the researcher – not just merely written on paper. The researcher's relationships with participants and with others in the field must be guided by the core ethical conducts of that context. In the case of Tonga, these core ethical conducts are vital in order to build and maintain relationships between researcher and the participants as well as the whole community. When these relationships are well built

and maintained then the task of gathering data is made much easier and authentic data is given.

### Using Tongan ethical guidelines in the research field

- **Fluency in language**

It is most beneficial for the researcher to be able to speak fluent Tongan and be competent to use appropriate and respectable language.

- **Dress code**

The researcher must dress appropriately. When field researchers are out in the field, they must appear respectable (wear *kiekie/ta`ovala* if necessary) and appropriate attire for the given place.

- **Cultural competency**

The researcher must also be culturally competent – must know how to behave in context. This means that the researcher must display the following behaviours:

*Faka`apa`apa* (respect)

*Lototó* (humility, generosity)

*Feveitokai`aki* (reciprocity, cooperation, consensus, maintenance of good relationships)

*Fe`ofa`aki* (mutual love, caring, generosity)

TIOE has outlined in the TIOE Research Guidelines how the address the following ethical considerations:

- **Self-determination:** This principle acknowledges the freedom of each person to make their own decision about participation in research .A potential participant must be assured that refusal to participate will be accepted without question and that they will be treated as if the matter had not arisen. The guiding principle here is *Faka`apa`apa*.

**Tau`atāina ke fili:** 'Oku 'i ai e totonu ke faka'apa'apa'i e tefito'i tui 'a e tokotaha kotoa pē ki he'ene tau'atāina ke fili pe te ne kau ki he fekumí pe 'ikai. Ko e tokotaha kotoa pē ke mahino ka fakafisi mei he fekumí kuo pau ke tali ta'etoe fehu'ia ia. Ko e tefito'i fakakaukaú ke tataki `ake `a e ngaue ko `eni, koe Faka`apa`apa.

- **Informed consent:** Consent is informed if the intended participant has been provided with a clear, easily understood explanation of the research, the activities, and the expected outcomes. Consent should be in writing, although at times oral consent may be appropriate, after the participant has had the opportunity to carefully consider the risks and benefits and to ask any pertinent questions. Informed consent should be seen as an ongoing process, not as a singular event or a mere formality. For research participants under the age of 18, consent is to be sought from their parents. The guiding principles here are *Faka`apa`apa* and *Fe`ofa`aki*.

**Femahino`aki:** Kuo pau ke fai e femahino'aki kimu'a pea mo kinautolu 'e kau ki he fekumi. `E fakahoko 'aki `eni ha ngaahi fakamatala mahino 'e 'oange fekau`aki pea mo e founga ngāue pea mo e ola 'o e ngaue 'e fakahoko. Kuo pau ke fakahoko 'a e femahino'aki ko 'eni 'i he tohi, pe ko ha fepotalanoa'aki 'i ha taimi faingamālie. Kuo pau



ke `oange ha taimi ke fakakaukau ai `a e tokotaha ko `eni ki ha kaungakovi pe lelei `o ka kau ki he fekumi ko `eni. Ko e ngaahi femahino'aki ko 'eni kuo pau ke hokohoko atu 'o 'ikai ke tu'o taha pē pea 'e 'i ha founa faingofua. Ko kinautolu 'e kau ki he kau fekumi 'oku nau ta'u si'i hifo he ta'u 18, kuo pau ke fai e femahino'aki pea mo 'enau ngaahi matu'a. Ko e ongo tefito'i fakakaukau ke fakahoko`aki `a e ngaue ko `eni koe Faka`apa`apa pea mo e Fe`ofa`aki.

- **Confidentiality:** Information should be handled in a way which protects the confidentiality of the subjects and ensures the safe custody of the data. Care must be taken to protect the legitimate privacy of institutions, communities, and ethnic groups. Individuals should decide what aspects of their personal lives, attitudes, habits, eccentricity, fears, and guilt are to be communicated to others. The guiding principles here are Faka`apa`apa and Fe`ofa`aki.

**Malu `o e ngaahi fakamatala:** Ko e malu 'o e ngaahi fakamatala ke tokanga'i ia 'i ha founa malu ai 'a kinautolu na'e fai ki ai 'e fekumi pea ke mahino 'e malu 'a e ngaahi fakamatala na'e tanaki (ke malu'i ai e totonu 'o e ngaahi fakatotalo pea mo fakamahino e malu mo e hao 'o e ngaahi fekumi). Kuo pau ke tokanga makehe ki he malu'i e ngaahi totonu mo e tau'ataina 'a e ngaahi ako'anga pe ngaue'anga pe feohi'anga, kakai pea mo e ngaahi ha'a pe matakali ('oku tau kau ki ai.) Ko e ongo tefito'i fakakaukau ke fakahoko `aki `eni ko e Faka`apa`apa mo e Fe`ofa`aki.

- **Anonymity:** The findings should be conveyed in such a way that the participants cannot be identified as individuals, unless agreement to the contrary has been obtained from the participants. The guiding principles here are Faka`apa`apa and Fe`ofa`aki.

**Malu`i tokotaha fakamatala:** Ko e ngaahi fekumi kuo pau ke fakaha ia 'i ha founa 'e malu ai e totonu fakafu'ituitui 'o kinautolu 'e kau mai. Ko e ongo tefito'i fakakaukau ke ngaue`ak ko e Faka`apa`apa pea mo e Fe`ofa`aki.

- **Beneficence:** In planning specific research procedures and conducting both pilot and mainstream research, the researcher must ensure that the risk of physical and psychological harm to participants is kept to an absolute minimum. Moreover, the research conducted should also clearly outline the beneficiaries of the research study. The research study should foremost be of benefit for the improvement of education in Tonga. The guiding principles here are Lototo, Fe`ofa`aki and Faka`apa`apa.

**Lelei fakalukufua:** Ko e fekumi kuo pau ke fika'uluaki e ola lelei fakalukufua pea ke 'i he si'isi'I taha ha faingamalie ke hoko ai ha fa'ahinga fakatamaki ki he sino pe fakaeongo kia kinautolu 'e fai ki ai 'a e fekumi pe ko kinautolu 'e ma'u mei ai 'a e ngaahi fakamatala. Kuo pau ke matu'aki mahino'a e ngaahi lelei 'e ala ma'u mei he fekumi pea mo kinautolu 'e kaungalelei ki ai 'a e fekumi. Ko e tefito'i mahu'inga 'o e fekumi ke fakalakalaka e akó 'i Tongá ni. (Kuo pau ke fakahoko `a e fekumi `o fakakau ai `a e founa `e lelei fakalukufua ki he kakai ne nau kau mai ki he fekumi pea pehe foki ki he tokotaha fekumi). Ko e ngaahi tefito'i fakakaukau ko e Lototo, Fe`ofa`aki pea mo e Faka`apa`apa.

- **Truthfulness and integrity:** As a general rule deception is not acceptable in doing research with humans. Participants must not be misled about your study. The researcher must be honest in all dealings including issues such as conflict of interest, bias, plagiarism, hidden-agendas, making and keeping commitments, and generally being completely scrupulous in all research activities. The guiding principles here are *Faka`apa`apa* and *Fe`ofa`aki*.

**Faitotonu pea fai mo`oni (anga `oku taau):** Ko kinautolu `oku kau mai `e `ikai ke takihala`i kinautolu `i he fekumi `oku fai. Ko ē tokotaha fekumí kuo pau ke faitotonu `i he`ene ngäue kotoa. Kuo pau pe ngaue `o `ikai kau ai ha ngaahi tui `oku fehanganhangai, pe `e filifilimanako, fakatāfataha, ngaahi kaveinga `oku `ikai ke fakahā pe fufuui`. Pe ko ha founga fakahoko ngaue `e faka`utumauku ki ha taha `oku kau he fekumi. Ko e ongo tefito`i fakakaukaú ke tataki `aki `eni ko e Faka`apa`apa mo e Fe`ofa`aki

- **Justice:** This refers to the ethical obligation to treat each person in accordance with what is morally right and proper and to give each person what is due to him or her. It also refers to the equitable distribution of both the burdens and the benefits of participation in the research. The guiding principle here is *Faka`apa`apa*.

**Fakamaau totonu:** `Oku `uhinga ki he ngaahi totonu `o e fatongia fekumi ke fakahoko `o tatau ki he tokotaha kotoa. `Oku toe `uhinga pē ki hono vahevahe tatau `o e fatongiá mo e ola lelei `e ma`u `e ha taha `oku kau ki he fekumí. Ko e tefito`i fakakaukaú heni ko e Faka`apa`apa.

- **Debriefing:** After the data are collected the investigator must provide the participant with a full clarification of the nature of the study and remove any misconceptions that may have arisen. The investigator acquires a special responsibility to assure that there are no damaging consequences for the participant. The guiding principles here are *Faka`apa`apa*, *Fe`ofa`aki* and *Feveitokai`aki*.

**Toe fakamahino:** `I he hili `a hono tatanaki `o e ngaahi fakamatala ko e tokotaha fekumí `oku mahu`inga ke ne `oange ki he kakai ne nau kau mai ki he fekumi ha fakamatala mahino fekau`aki pea mo e fekumi pea to`o ha ngaahi ma`uhala ne hoko. Ko e tokotaha fekumí kuo pau ke `i ai `a hono fatongia mavahe ke fakapapau`i `e `ikai ke `i ai ha ola `e `ikai ke fe`unga ke a`u ki ai e kau fanongo. Ko e ngaahi tefito`i fakakaukaú heni ko e Faka`apa`apa, Fe`ofa`aki, pea mo e Feveitokai`aki.

- **Addressing negative consequences:** Where procedures might result in undesirable consequences, the investigator has the responsibility to detect them and to have mechanisms available to remove or correct any consequences. The guiding principles here are *Faka`apa`apa*, *Fe`ofa`aki* and *Lototō*.

**Fakatokanga`i ha ola `oku `ikai mahino:** Kapau `e `i ai ha ngaahi founga ngaue te ne fakatupunga ha ngaahi ola `e (kuo ha mai ha ola `e `ikai) fakafiemālie, ko e fatongia leva ia `o e tokotaha fekumi ke ne fakatokanga`i pea fa`u ha founga ke veteki`aki `eni.

*Ko e ngaahi tefito'i fakakaukaú heni ko e Faka`apa`apa, Fe`ofa`aki pea mo e Lototó.*

- **Publication and reporting of findings:** Responsible researchers should announce their findings and implications with great qualification and caution. It is their opportunity to return the gift of knowledge to the very people that they collected the data from. This reinforces our principle of *Faka`apa`apa* and *Feveitokai`aki*.

## Gaining access to the field

 Valuable information

**Basic Definition: Research field** - The research field refers to the place where your participants are located. The research field could be a school, a village, an organisation – wherever you will find your participants.

**Gaining Access:** there are two levels of access – the first level of access is when your participant agrees to be part of your study and this is achieved when they have signed the letter of consent and have agreed to be interviewed or observed. The second level of access is when your participant willingly shares with you knowledge that you have asked for. Sometimes, they may agree to participate, but they do not answer the questions that you ask – this then means that the participant has not given you access to their knowledge.

Prior to entering the research field, there are several tasks that a researcher must do in order to gain access to the field.

- Once, your proposal is approved by your lecturer/teacher, a **formal letter of approval** should be given by the school to support your study. This letter from your school, should amongst other information, outline what your study will involve and how the information will be used. This letter is to be included with your letter of invitation to your likely participants.
- **Letter of participation** is written by the researcher to the likely participant. This letter should inform the likely participant what the study involves, how long it will take for them to participate, how the findings will be used and address the ethical concerns associated with confidentiality, informed consent, right to withdraw, and other ethical considerations that may arise.
- **Consent form** should accompany the letter of participation and the letter of approval from your school. The invited participant should sign this letter and return it to the researcher.
- While these letters are necessary for documentation, we should also recognize that as Tongans, our signature to participate in a survey may not necessarily mean that we really want to participate. As such it is highly advisable, that the **researcher visits** and spends time to talk with the likely participant to make sure that the person is truly willing to participate in the study. In this conversation, the researcher should also gauge whether the person is willing to participate and agree on the date and time for the study to commence.

I have modified and included here a letter that I wrote to invite school principals to participate in one my studies. I also include in this example, a copy of the supplementary information that I

provided for principals to be informed about the study. Please read it carefully to see how I addressed some of the ethical considerations.

**EXAMPLE BOX**

**Letter of Consent**

(use your schools' letter head and address)

Dear Principal,

I am a student currently studying at the TIOE and working on ..... (name of programme). My research will be carried out under the supervision of ..... (Name of your lecturer). My project is entitled ..... (Name of your project). The purpose of the study is to ..... (The main purpose of your project).

This is a letter of invitation for school principals in Tonga (or titles of people whom you are inviting) to participate in this study. This study will include ..... (List of research tools proposed to use e.g. a semi-structured interview, a questionnaire) and these will be conducted during ..... (Name the months and dates). I understand that as principals and administrators, you have very busy schedules, and I will try my best to take up as little of your time as possible during this study.

For your information this letter is attached with a document outlining the general logistics of this study. Please feel free to contact my supervisor, (name of lecturer) or myself if you have any further questions about participation in the study.

Also attached with this letter is a consent form for you to indicate your willingness to participate in this study. Please sign and return the form at your earliest convenience. You can reply to this invitation to participate in the study by email or by telephone.

I hope that you will consider this study worthwhile for your participation.

Faka'apa'apa atu

.....

(your name and address)

(name and address of your lecturer)

**Supplementary Information**

**Title of Study:**

**Description of the Study:**

The purpose of this study is to ..... To do so, this study asks, (main research question)

**Procedure for Research:**

This study has been approved by TIOE. I have attached a copy of this letter. However, participation in this study is within your discretion. To gather the needed data, (list following research tools to be used) will be used for the study.

1. Questionnaire: This questionnaire will be delivered to participants as soon as all approvals are received. I plan to deliver the questionnaire by ..... (Date). This questionnaire can be completed in ..... minutes. Questionnaire will ask questions in relation to participants' ..... (General areas of questioning). I ask that participants bring the completed questionnaire .....(state how you will collect the completed questionnaire)

2. Interview: The interview will be carried out in ..... (Name place), unless otherwise requested by the participant. I would like to ask the permission of each participant to audiotape the interview. The interview is planned to take place on ..... (Identify time and date). A copy of the interview schedule will be forwarded to participants well before the interview takes place. It is planned that each interview will be about .... Hour/.... minutes. Each participant will be given a transcribed copy of the interview. Participants are free to make changes to the transcription before it is entered into the database for analysis.

Participants should be prepared to answer questions in relation to the various factors ..... (List areas for questioning). Other questions may also arise during the interview, but they will be in relation to the main questions outlined in the interview schedule attached.

The names of students, parents, and identifying details of context, will be changed during transcription. The same effort will be taken to protect students and parents' identity and maintain confidentiality.

**Confidentiality and Anonymity of Subjects**

Every effort will be taken to maintain confidentiality and to protect each participant's anonymity. Codes will be used to replace names, locations and other likely identifiable characteristics. These codes will be carefully chosen and will only be known to myself. The raw data will only be seen by my supervisor, and myself. .... (Name of lecturer) can be reached by phone at ..... or by email at..... During the study, a hard copy of the data will be locked in a cabinet and all information stored in the computer will be also be secured. All codes, questionnaires, interview tapes, transcriptions and any other form of raw data will be disposed of by me once my project has been accepted by TIOE. Due to the small number of participants, considerable effort will be made to ensure the confidentiality of participants and other individuals.

**Procedure for Participation and/or Withdrawal**

I have enclosed a consent form where participants are asked to indicate whether they wish to participate in the study or not. The consent form can be personally return or reply by telephone ..... Or by email ..... Please contact me as soon as possible regarding your decision to participate or withdraw.

There are also two other stages throughout the study where participants can choose to withdraw. Participants can withdraw from the study before the interview is scheduled and/or after reading the transcription of the interview. Participants can withdraw from the study simply by sending me a note via email or by phone. Following this, I will dispose of all data collected from this particular participant.

**Compensation**

The time and effort that each participant has placed into the study is much appreciated and of course could not be adequately compensated. A copy of the results of the study can be made available to a participant if requested. You can request a copy of the results by indicating on the consent form attached or simply by informing me at any time during the study.

For further questions please contact me.


Faka'apa'apa atu

(name and address)

 Workbook review


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Research should be guided by ethical conduct. When conducting research in a Tongan context, there are core values that can be used as ethical guidelines for the work of the researcher. Appropriate ethical conduct is essential for several reasons including: gaining access to specialist knowledge, ensuring that knowledge gained is authentic and reliable, and ensuring that the knowledge gained is understood within context. The guidelines for ethical research in Tonga are: *Faka`apa`apa*, *Feveitokai`aki*, *Lototō*, and *Fe`ofa`aki*. These ethical guidelines are demonstrated through the researcher's behaviour including language used, dress code, and the relationship between the researcher, the participant and the community. To gain access to the research field, there are procedures for the researcher to follow including; invitation of people to participate, providing enough information for the participant to be informed, and addressing key ethical considerations

 Test your knowledge

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1. What are principles and how are they connected to cultural contexts?
2. Why do we need ethical guidelines to conduct research?
3. What are some of the key features of Tongan research ethics?
4. How would you use *Faka`apa`apa* while you are doing research?
5. Describe the procedure you would use to gain access to the research field?

 Key exercise

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The ethical conduct of the researcher is critical to ensuring that findings of the research are trusted and reliable. As such, the researcher must be well versed in how to behave ethically while out in the research field.

TIOE Teachers: In your departmental meeting clarify the key Tongan principles that you will ensure that they are taught in your research lessons. Also outline in the course handout how these Tongan principles will be demonstrated in the research field. Teachers may find multiple interpretations for the key principles suggested in this chapter and this should be seen as a normal process for the teachers to go through to reach consensus agreement on the principles (and subsequent interpretations) to guide research processes.

TIOE Students: As part of the research lessons have the students prepare their letters of invitation, consent forms and the supplementary information that they will use to gain access to the field. These documents should clearly address key ethical considerations and what principles will be used to address these issues.

## Research topic

The right research topic is one that you are genuinely interested in and that you believe to be worthwhile studying.

Research topic should reflect you and your interest. Conducting research is a time-consuming and costly exercise. When choosing your research topic, you should be prepared to be thinking about this topic for quite some time. You should also be prepared to justify why you are interested in addressing this topic.

In the area of education there are many topics for teacher researchers to explore; this can range from teaching pedagogy, to curriculum, to assessment, to ethics of the teaching profession. The literature on Tongan education is quiet sufficient for novice researchers to look through when selecting a topic in this area. But, make sure that you choose a topic that you find interesting!

### Valuable information

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**Basic Definitions: Research Topic** – this is the general area in which you are interested in conducting your research. This is differentiated from a **research question**, which should come out of the research topic. The research question is a specific focus area within your research topic. For example, I am interested in the area of educational leadership and my research question under this area might be “What are school principals’ decision making processes”?

## Selecting a research topic

There are generally two ways that you use to select a research topic and these include:

- Experience – I am sure that as a practicing teacher you have come across challenges and problems in your career. Some of these challenges seem to be repeated year after year and you find this challenge can pose serious problems to your work and to your students learning. It is also possible that you know this problem quite well, and perhaps at times you have thought about how you can resolve this problem. It is also possible that this problem is one that continues to nag and persist in your thinking. For most of us, it will be our experiences that we draw from to select a research a topic. For our students this may not be the case, merely because they have not had the opportunity to gain experience. You can encourage your students to select topics that they find interesting and perhaps that they can personally relate to. This can include research conducted in their villages, or church groups, or peers.
- Theory – more experienced researchers, who are familiar with different theories, are able to examine particular theories and find a gap or think that further research can add

understanding to existing knowledge. As a practicing teacher, perhaps you have come across a study that was done on a given problem in a Tongan school and you think that the findings from the study are outdated or incorrect and need to be reviewed. In this case then, you can select a topic that has been studied before and you revisit the topic to see how much has changed.

**Kumi ha mala`e ke fakahoko ai `a ho`o fekumi**

Ko e fuofua fatongia ke fakahoko `i hono teu `a ho`o ngaue fekumi, ko hono kumi ha mala`e pe ko ha `ilo `oku ke faka`amu ke fakahoko ai `a ho`o fekumi. Koe konga `eni `o e fekumi na`e fai `a e lau ki ai `i he talanoa ki he TEU `i he founga fekumi `o e Kakala. `I he TEU, `oku tau `eke ai `a e ngaahi fehu`i, `o hange ko e mala`e `o e `ilo `oku tau fakakaukau ke fakahoko ai `a e fekumi. `Oku tau ngaue`aki `a `etau taukei ngaue fakafaiako, pea mo `e tau `ilo ki he mala`e `o e ako, ke kumi ai ha mala`e `ilo `oku tau tokanga mavahe ki ai. `Oku mahu`inga `aupito, ke kumi ha mala`e `ilo `oku ke manako, pea `oku ke tui `oku mahu`inga ke fakahoko ha fekumi ai, he `e `aonga ki ho`o ngaue fakafaiako. `I he mala`e `o e ako, `oku `i ai `a e ngaahi kongokonga lalahi `o kau ai `a e ngaahi mala`e `ilo ko `eni: founga faiako (teaching style); founga ako (learning style); silapa ako (curriculum); faisivi (assessment); founga taki mo fakalele `o e ako (educational leadership and administration). `Oku toki `i loto leva `i he ngaahi mala`e lalahi ko `eni, ha ngaahi `ilo pe mala`e iiki ange `o hange `i he mala`e `o e founga faiako (teaching style) `oku `i loto ai `a e founga faiako ngaue`aki `a e vahevahe fakakulupu (group work) pea mo e faiako ngaue`aki `a e fakatata (demonstration or practical). Ko e lahi ange `a ho`o lau `a e ngaahi tohi kuo fa`u mei ha ngaahi fekumi, ko e lahi ange ia ha`o `ilo ki he ngaahi mala`e kehekehe `o e ako, pea mo e ngaahi va`ava`a pea mo e fekaunga`aki `a e ngaahi mala`e ko `eni.

**Review the literature**

 Valuable information

**Basic Definitions: Review of the Literature** – this refers to studying research articles and reports relevant to your research topic. The ‘literature’ refers specifically to research articles, theses, and reports. In studying these documents, you are looking for frameworks, definitions, and methodologies that you can use in your study. These are the main functions of a literature review.

**Theoretical Framework:** a mind map, a conceptual framework, a basic process to guide how you will conduct your study and a way to understand how each part of your study is inter-related.

**Methodology:** this refers to the way - the process or approach - that you will use to gather the information needed to answer your research question. This is the key process in doing research.

**Why conduct a literature view?**

Once you have selected your research topic, you need to start reading the literature to help you understand the various areas around your topic. A literature search will help sharpen and focus your research topic. This is a necessary part of the research study.



Basically what you are doing is seeing what has been done and how your study would fit in. Your research question may change after a review of the literature. There are 3 key reasons for reviewing the literature:

1. Identify a theoretical framework: the purpose of a framework is to guide the process of your research study and to show how various parts of the research topic maybe related. In its most basic, it is a mind map to guide your research. By reading the literature you will be able to identify various theoretical frameworks that other researchers have used in studies similar to your topic. More experienced researchers are able to construct a theoretical framework for their studies. It may not be necessary for senior high school students to understand this part of the literature review. A commonly used framework for conducting research in Tonga is the Kakala Research Framework.
2. Identify operational definitions: the literature can provide you with various definitions of the key terms from your research topic. Key words from your research question should be clearly defined in you study. An operational definition means the definition that you have chosen to use in your study, having recognised that there maybe many other definitions of the same term.
3. Identify appropriate methodology: this is the most important part of the literature review – you must be able to identify what research tools would be most useful for your study. When reading the literature, look at how other researchers have used interview, questionnaire, observations, and other methods to gather information about their research topic. By reviewing the literature you should be able to select the best research tools for gathering the data for your research study.

### **Where do you begin searching for the literature?**

Libraries – keep in mind that you are looking for research articles, reports, and theses (that is, academic literature). Begin by checking your school library to see if these materials are available. Other libraries that will have research articles, reports, and theses include the TIOE Library and the USP Tonga Campus Library.

E-libraries – if your school has access to the internet, you can find electronic articles, reports, and theses from e-libraries. When using the internet, be careful to use trusted sites, such as university e-libraries. Materials often found on Google or other general and open search engines are not always accurate and can often be misleading. As researchers we use research findings published in research journals, reports, and theses because they have undergone an examination or review process to ensure that the information presented is accurate and reliable.

You can begin your search by accessing the following collection which can be found at:

[www.usp.ac.fj/library](http://www.usp.ac.fj/library)

Pacific Collection

Collection theses

Electronic journals

While searching the literature the following points are worth noting:

- Look for journals rather than books – journals tend to have more recent works.
- Review of the literature is not simply a selection of materials with short paraphrases of their contents. It should hold together and support a coherent argument for conducting the study in such a way that you are proposing it to be done.
- For a small school-based research, the review of the literature can be focused on about five pieces of key literature. Look for definitions, methods, and key issues.
- Literature search can be confined to the last five years because the most recent literature is usually regarded as the most relevant – unless there is lack of recent literature in that field. Also take note that the most recent literature reviews usually refer to previous significant literature, so it is always good idea to begin with the most recent works.

#### Key exercise

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TIOE Students: Group work on finding relevant literature on the www (internet)

TIOE Staff: Bassey's 1990 Framework may help when critiquing a research paper. However, you can also develop your own set of questions for critiquing a paper.

Framework for a critique of a research paper (Bassey, 1990)

1. What contribution to educational knowledge is claimed? What advancement to knowledge is the author claiming to have made?
2. What conceptual background does the author indicate was the starting point for this research? Was it theory-in-literature, or commonsense theory, or both?
3. What methodology underpinned the enquiry? Was it taken, or adapted from, a method recorded in the literature, or did the author develop it from commonsense theory?
4. Was the collection of data, as reported, appropriate, sufficient, and ethical?
5. Was the analysis and interpretation of data, as reported, appropriate, sufficient, and ethical?
6. Does the evidence of the paper, as examined in answer to questions (2) to (5), substantiate the claim to knowledge made in answer to (1)?
7. Is the presentation of the paper such as to enable the above questions to be answered?

#### **When do you know you have reviewed enough of the literature?**

The review of the literature is completed when you have achieved the following:

- Found operational definitions for key terms in your research topic
- Selected appropriate research methods for your research topic
- Have a clear idea of what studies have been conducted in your research topic and
- You know what can your study add to what is already known in your given research area

When you have reached this point you can then begin to formulate your research question.

**Vakai ki he ngaahi tohi fekumi**

‘Oku ‘i ai ‘a e ngaahi tefito‘i ‘uhinga lalahi ‘oku totonu ai keke ‘uluaki fakahoko ‘a e vakai ki he ngaahi tohi fekumi; ke lava ‘o ma‘u mai ha ngaahi fakamatala pe faka‘uhinga ki he tefito‘i lea ‘oku ke ngaue‘aki ‘i he mala‘e ‘ilo kuo ke fili ke fakahoko ai ‘a ho‘o fekumi; ke lava ‘o ma‘u mai ha ‘ilo ‘o fekau‘aki pea mo e ngaahi founa fekumi (‘o hange koe Founa Fekumi Kakala) kuo ngaue‘aki ke fakahoko ha fekumi ‘i he mala‘e ‘ilo ‘oku ke teu fakahoko ai ‘a ho‘o fekumi; ke malava ‘o ma‘u mai ha ngaahi fakakaukau fekau‘aki mo ha founa pe me‘a ngaue (research method) ne fakahoko ‘aki ‘i ha ngaahi fekumi ‘oku meimei tatau mo ho‘o fekumi. Ko e taumu‘a ‘e taha ‘a hono fakahoko ‘o e vakai ko ‘eni, ke ke ‘ilo pau, pe ko e ha fua ‘a e ngaahi fekumi kuo fakahoko ‘i he mala‘e ‘ilo ‘oku ke fakakaukau ke fakahoko ai ‘a ho‘o fekumi. Ko ho‘o fekumi ‘oku totonu ke tanaki atu ha ‘ilo fo‘ou ki he ngaahi ‘ilo kuo ‘osi ma‘u ‘i he mala‘e ‘ilo ko ia kuo ke fili.

Ko ho‘o vakai ki he ngaahi tohi fekumi ‘oku kamata pe ia mei he laipeli pea mo e ngaahi laipeli ‘oku ma‘u mei he initaneti (internet). ‘Oku mahu‘inga ke ke ngaue ‘aki ‘a e ngaahi tohi pe ko ee ‘oku nau fakamatala mai ‘a e ‘ilo ne ma‘u mei ha fekumi ‘o kau ki ai, ‘a e ngaahi tohi ni: lipooti fekau‘aki mo he fekumi, konga tohi ma‘u mai mei ha makasini (journal) fekau‘aki pe mo e fekumi; pe ko ha tohi fekumi ne fa‘u lolotonga ha ako mata‘itohi ma‘olunga ‘a ha taha.

Ko hono faka‘ilonga kuo lava ‘a ho‘o fekumi ki he ngaahi tohi fekumi ‘i ha‘o malava ‘o tali ‘a e ngaahi fehu‘i mahu‘inga ko ‘eni; kuo ma‘u ha mahino fe‘unga fekau‘aki mo e ngaahi tefito‘i lea ‘i he mala‘e ‘ilo ‘oku ‘amanaki ke fakahoko ai ‘a ho‘o fekumi?; kuo ke ma‘u ha ngaahi founa fekumi (research framework) ‘e malava keke ngaue‘aki ke tataki ‘a ho‘o fekumi?; kuo ke ma‘u ha ngaahi tefito‘i naunau fekumi (research tool) ‘e malava keke ngaue‘aki ke fakahoko‘aki ‘a ho‘o fekumi? kuo ke ma‘u ha ‘ilo fe‘unga pe ko ha ‘ilo fo‘ou ‘e lava ‘a ho‘o fekumi ‘o tanaki atu ki he mala‘e ‘ilo kuo ke fili ke fakahoko ai ‘a ho‘o fekumi?

**How do you formulate a research question?**

Basically your research question should ask what you want to find out in your chosen area of interest. A research question should be simple, clear, and focused on a specific problem.

**EXAMPLE BOX**

For example, one my areas of interest is teaching pedagogy, or teaching styles. I have read the literature and there few Linita Manu‘atu’s doctoral thesis is one research work in this area. The literature has shown that we have yet to identify what is or are the most appropriate teaching style for our Tongan students. From my teaching experience, I have learnt that our students enjoy group work and being involved in practical activities. However, I have yet to clearly define how group work and practical work can specifically help improve my students’ learning. This is my problem – finding the most appropriate teaching style for my Tongan students.

My research question then would look like this:

What is/are the most effective teaching style for Tongan students?

A good research question uses one of the following as guides: WHAT, WHEN, WHY and HOW. For novice researchers and to keep research topics simple, clear and focused, I generally advise using WHAT as the key guide when formulating the main research question.

**Ko hono fa`u `a e tefito`i fehu`i ki ho`o fekumi**

*Ka lava leva `a ho`o lau pea mo hono vakai `a e ngaahi fekumi kuo `ilo `i he mala`e `ilo kuo ke faka`amu ke fakahoko ai `a ho`o fekumi, `oku totonu leva ke fakaafi atu `a ho`o ngaue ke lava `o fa`u `a e tefito`i fehu`i ki ho`o fekumi. Ko e tefito`i fehu`i (research question) ko e konga `ilo ia kuo ke fili ke fakahoko ai `a ho`o fekumi. Ko ho`o tefito`i fehu`i kuo pau ke fa`u ia ke mahino pea ke nofo tonu ki he tefito`i fakakaukau `oku ke faka`amu ke fakahoko ki ai `a ho`o fekumi. `Oku totonu ke fa`u `a ho`o tefito`i fehu`i `aki `a e ngaahi lea fakafehu`i anga maheni pe ko `eni; Ko e ha? Ko e fakahoko fakaku? Ko e ha e `uhinga? pea mo e Ko e ha e founga? `Oku ou fa`a fale`i ke kamata ngaue`aki `a e `Ko e ha`? `i ha fa`u ha tefito`i fehu`i ki ha fekumi. `Oku fu`u fiema`u ke mahino ngofua pea `ikai toe veiveiua ha faka`uhinga kehe `o e tefito`i fehu`i ki he fekumi.*

Once you have formulated your key research question, you will need to begin working on selecting the most appropriate research approach to use in your study.

From your literature review, you would have already identified other similar studies and the research approach that they had used. The question to consider is “What is the research approach that you think will gather the most accurate information that to answer the research question?”


I would advise that you re-read the section on theoretical approaches to research and familiarise yourself with the basic ideas that guide qualitative and quantitative research. Which approach do you think reflects the way you “see the world”? Which approach do you think will be easier for you to use? I have found that teachers from the Science and Mathematics disciplines have a tendency to use the quantitative approach while teachers from the Social Sciences and Arts discipline tend to choose qualitative approaches. You can also use both approaches, a mixed approach, and we will discuss this further in later chapters.

I have provided in the following example box an outline that you can use for writing out a research proposal. You will note from the example that there are terms that we have yet to discuss here, such as Hypothesis etc – these are referred to in the following chapters that discuss in more detail Qualitative and Quantitative. I would suggest that you use the research proposal as a guide only as you go through the next two chapters on research methodology. The concepts discussed in the proposal template will become clearer as you go through the rest of the manual.

 Workbook review

Selecting your research topic can be based on your teaching experience or from your reading of research work. Once you have selected a topic, you should begin reading research articles, reports, and theses about your research area. By reading the literature,

you are reviewing the literature to identify three key aspects: operational definitions in your topic, appropriate research methods used, and appropriate theoretical framework. The literature review should also inform you on what research studies have been conducted in your topic area. Once, you have answered these questions you can move on to formulate your research question. Your research question should be simple, clear, and focused. Learn to use WHAT, WHEN, WHY and HOW as guides for developing your research question.

 Key exercise

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By the time you complete this chapter you should be able to write the first 3 parts of the research proposal: the rationale, the research question/s, and the literature review. Follow the guide for the research proposal outlined below. Teachers, please adapt the guide in accordance with the capability of your students.

**EXAMPLE BOX**

RESEARCH PROPOSAL

*A Guideline*

While research proposals may differ depending on the field of inquiry as well as the method of inquiry adopted, nevertheless, there are general areas of research that need to be addressed in all research proposals. You may choose to leave out certain sections and if you are unsure please ask one of the resource people.

**1. Rationale**

This section should place the **research problem within context**. How did your thought process arrive at this research problem? Where does your research problem fit into the overall picture of education in your chosen context? What is the **significance of this research problem?** Why should it be resolved now?

**2. Defining the Research Problem**

Your research problem should be worded as a **research question** if you will be using a qualitative approach or as a **hypothesis** (we will refer to this in the following chapters) if it is from a quantitative approach. If you are using both approaches, think of the primary goal of your research and your own theoretical perspective. This should clarify whether the research is primarily from a qualitative perspective while using quantitative methodology as a secondary research tool or the other way around.

It is helpful to have a key research question followed by **sub-research questions** that further clarify the key areas to be explored in your research. Consider the sub-research questions as a break down of your key research question. The sub-research questions, if defined clearly, should help you construct questions to be used in the interview schedule as well as in the survey questionnaire and guide other research tools.

By defining your research problem, you should also set **delimitations** on your area of research. This is like a theoretical fence that you build around your area of research. A list of delimitations should outline variables and concepts that will NOT be included in the study.

A list of **assumptions** can also be included in this section. In a way this is you declaring your biases. What do you assume is and should be in place while conducting your research? What documents and sources of information do you assume to be in place?

**3. Review of the Literature**

A thorough review of the relevant literature should be conducted. It is strongly advisable that you review some of the recent literature on your chosen field. There should be three primary goals for reviewing the literature; one, to identify an **operational definition** for your key concepts, two, to identify **research methods** that have been used to study similar phenomena, and three, to identify recent **research development** in your chosen field of inquiry. Informed research is based on a thorough review of the literature.

**4. Methodology**

From a review of the literature, you can identify a **theoretical framework** that can guide your research. Your theoretical framework could be a model you constructed or a theoretical approach adopted to study a similar phenomenon. An example we have used is the Kakala Framework

In the methodology section you should also define, describe, and justify your chosen **method of inquiry** – qualitative, quantitative or multi- disciplinary.

Added to this, you should also describe how you selected your site of study as well as your participants - that is, your **sampling procedure** is explained and justified.

Data collection should describe the **criteria for the admissibility of the data** and what type of data is collected to answer each of your sub-research questions.

Your methodology section should also clearly explain **procedures for collecting data**. Will you collect data from survey, interview, observation, or document analysis? You must not leave your reader with any doubt as to how you collected your data.

**Treatment of the data** should explain how you intend to analyse your data. Your theoretical framework as well as your chosen method of inquiry will determine this. Generally, qualitative data is analysed by coding for common themes and emerging patterns, while quantitative data is often numerically coded and statistically analysed.

**Procedures for conducting the study**, should describe how you intend to conduct the study. What is the time frame involved? How will you approach your participants? Are there organisations to approach for permission to conduct your research? When do you intend to complete the field work? Are all necessary actions undertaken to ensure that an ethical study will be conducted?

**Limitations** address issues such as generalisability, validity, reliability, and how you have made attempts to address these issues.

## Research Approach - Qualitative

Qualitative research approach is based on research questions that seek to understand, explain, and reveal people's realities and meanings.

Research using the qualitative approach is interested in identifying specific knowledge from the participants' viewpoint. Qualitative methods attempt to capture and understand individual definitions, descriptions, and meanings of events. In chapter 2, I explain the theories and basic ideas that guide the qualitative research approach – please re-read this chapter, particularly pages 9 and 10.

### Test your knowledge

1. What is qualitative research?
2. What are the basic assumptions about qualitative research?
3. What are the main purposes of qualitative research?
4. What are the roles of the researcher?
5. What are the strengths and limitations of qualitative research?

In this chapter, you will learn the basic methods used to conduct a study using the qualitative approach.

### Sub-research questions

In conducting qualitative research, we use research questions and sub-research to guide our study. We do not use a hypothesis to guide a qualitative research study. In the previous chapter, we learnt to formulate a research. We will use this research question as an example throughout this chapter.

#### EXAMPLE BOX

The research question stated:

What is the most effective teaching style for Tongan students?

From the main research question, I need to pose sub-research questions that will specify each key part of the main research question. When all the sub-research questions are answered, the main research question is also answered.

There are two key ideas – often referred to as variables – in this particular research question:

1. Teaching style – for this one variable we think of two further variables that include teachers and various styles of teaching. From experience, I have seen different types of teaching styles used by various teachers in different school settings. I also know from



experience that teachers at Tonga High School can perhaps take a different approach to teaching teachers at Queen Salote College. From reading the literature, I have gathered that the qualification, experience, and type of school can influence a teacher's approach to teaching. Therefore, to pose questions that may reveal greater understanding of "teaching style" I can use the following sub-research questions:

What are the various types of teaching styles being used in schools?  
What are the factors that influence the teaching style of a teacher?

2. Tongan students – from this variable we think of learning and in particular Tongan students learning. As teachers, we know that our teaching is effective when our students have learnt from the lesson presented. But, I also know from experience, that not all of my students learn from my lesson; sometimes, they learn from their peers and at times, they fail to understand the lesson despite all efforts. This suggests that there are different ways that students learn. Based on research I have read, Tongan students learn best by observation and using practical activities. Therefore, to pose questions that may reveal better understanding of Tongan students' learning style, I can use the following sub-research questions:

What are the various ways Tongan students learn?  
What learning styles are particular to Tongan students?

Finally then, I have developed the following research and sub-research questions:

Research Question:

What is the most effective teaching style for Tongan students?

To answer this question, I will ask the following sub-research questions:

1. What are the various types of teaching styles being used in schools?
2. What are the factors that influence the teaching style of a teacher?
3. What are the various ways Tongan students learn?
4. What learning styles are particular to Tongan students?

Your sub-research questions can now guide the next stage of your study, which includes choosing the people to participate in the study and the research tools to be used.

***Ngaahi fehu'i tokoni***

*`I he konga tohi hono 4 na`a tau lau ai ki hono fa`u `o e fehu`i fekumi. `I he konga tohi ko `eni te tau ngaue ai ki hono fa`u ha ngaahi fehu`i te nau lava o tatanaki mai ha ngaahi fakakaukau `o lava ai ke tali `a e fehu`i fekumi. `Oku ou fokotu`u atu ke ngaue`aki ha ngaahi lea mahino pea nounou pe ke lava `o `eke `a e ngaahi fe`uhi tokoni. Ngaue`aki `a e ngaahi lea anga maheni ki he fa`u fehu`i hange koe: Ko e ha? (WHAT); Ko fe? (WHERE), Ko fe taimi? (WHEN), pea mo e Ko e ha e founga? (HOW). `Oku fu`u fiema`u ke mahino `a e ngaahi fehu`i tokoni `o ngaue`aki `a e fakakaukau fehu`i `e taha ki he fehu`i tokoni `e taha. Ka fakakau leva ha fehu`i ia `e ua `i ha fehu`i tokoni `e taha pe `e malava ai ke*

ta`emahino `a e fehu`i pea to e `ikai mahino ha founa pau ke tanaki mai ai `a e fakamatala `oku feima`u. `Oku ou fokotu`u atu heni, ke kamata `a ho`o ngaahi fehu`i tokoni mei he ngaahi fehu`i faingofua pea mo katama`aki `a e fehu`i `oku `eke `o ngaue`aki `a e 'KO E HA? Pea toki fakahokohoko atu mei ai `a e ngaahi fehu`i tokoni ki he ngaahi fehu`i mamafa ange ke faka`osi `aki `a e fehu`i fekau`aki mo e KO E HA E FOUNGA? Oku to e mahu`inga foki ke lava ha taha `o lau `a e ngaahi fehu`i tokoni pea mahino `a e hokohoko `a e fakakaukau `e taha mei he fehu`i ki he fehu`i. Pea malava foki `o mahino mai `a e fekainga`aki `a e ngaahi fehu`i tokoni ki he fehu`i fekumi. `Oku totonu ke lava e fehu`i tokoni `o tanaki mai ngaahi tali `o lava ai ke tali `a e tefito`i fehu`i fekumi.

#### Key exercise

Draft your sub-research questions and have them reviewed by another colleague or your lecturer. Follow the questions that I have suggested above in the example box.

#### Sampling

The second step in designing your research study is to select the number of people to participate in your study. This process of selection is referred to as the sampling procedure. To do this, you must first define the population, which refers to the total number of people you want the study to focus on. From the defined population we then select a small number of people to be the sample for the study.

In qualitative research there are a few rules to guide the sample selection.

- **Non-probability sampling:** or purposeful sampling is used in qualitative research. The purposeful sampling can be done by snowball sampling and theoretical sampling.
- **Snowball sampling:** a person who is identified as a valid member of a defined group to be studied is asked to provide names of others who fit the requirement.
- **Theoretical sampling:** data collection is controlled by the developing theory. As information is gathered from the first few cases the underlying theory becomes extended and modified and therefore informs the investigator as to which groups are relevant to interview.

#### Valuable information

The key word here is being "purposeful" in your selection of likely participants. This means that people who are invited to be participants are the most knowledgeable people to answer your research question.

#### EXAMPLE BOX

We take each of the sub-research questions:

1. What are the various types of teaching styles being used in schools?

To answer this research question, we need to sample different teachers from various schools. So, our populations here are teachers and schools in Tonga. But, as we want to be purposeful, we select teachers who demonstrate different types of teaching styles and we select from various schools. As a secondary school teacher, I am only interested in secondary schools; therefore, I can limit my sample to secondary schools on Tongatapu.

Additionally, I think that schools under the same educational authority can have similar approaches to teaching, so based on this assumption I will select schools from each of the educational authorities. This means, that I will select the following schools as my sample:

1. Free Wesleyan Church – Tupou College
2. Free Church of Tonga – Tailulu College
3. Tokaikolo – Lavengamalie
4. Seventh Day Adventist Church – Beulah College
5. Church of the Latter Day Saints – Liahona High School
6. Catholic Church – Takuilau College
7. Ministry of Education – Tonga College

I now have a sample of 7 schools taken from a total of 12 secondary schools on Tongatapu.

From the 7 schools, I will select teachers who demonstrate different types of teaching styles. For a novice researcher, I would recommend keeping the sample size to a minimum so that the study is manageable. In this case, I would recommend a sample of 7 teachers to represent each educational authority and school as already selected above. In qualitative research, the number of participants is not as important as ensuring that the participants are the most knowledgeable to answer the research questions.

So, now I have the 7 schools; my next step would be to select the 7 teachers.

2. What are the factors that influence the teaching style of a teacher?

To answer this sub-research question, my sample of 7 teachers needs to be selected based on the various factors that I suspect may influence their teaching style. From the literature review, I have noted that the following can influence how a teacher teaches: qualifications, teaching experience, and culture of the school. I will then select teachers to reflect different range of qualifications and teaching experiences from each of the sample schools.

3. What are the various ways Tongan students learn?

To answer this sub-research question, I need to not only ask the 7 teachers, but also ask students about their learning. As I have already identified the schools to participate, I will select the students from the list of school sample. From the literature, I know that students learn differently; some learn better from peers while others like to learn on their own. To choose my student sample, I will select both single students and groups of students to reflect individual learning and peer group learning. I will choose 4 single students from 4 schools and groups of students from 3 schools. The students and the groups of students can be selected from the participating teachers' classes.

Now, my sample has 7 schools, 7 teachers (based on qualifications, years of experience and school), 4 students and 3 groups of students (range from 2 – 5 students per group). My next step would be to select the students.

4. What learning styles are particular to Tongan students?

To answer this sub-research question, I have to select the students and the student groups based on different learning styles that I suspect are present in Tongan classrooms. Students can be selected on their preferred learning styles.

In summary, my sample includes the following:

Seven secondary schools (from Tongatapu, representing different educational authorities)


Seven teachers (based on qualifications, years of experience, and school)

Four students (from 4 sample schools, based on preferred learning styles)


Three groups students (from 3 sample schools, based on preferred learning styles)

**Filifili 'o ha kakai ke nau kau mai ki he fekumi**

*`I he founa fekumi ngaue`aki `a e lea (qualitative) ko e fakakaukau mahu`inga heni ko hono filifili `o ha kakai te nau malava `o tali `a e ngaahi fehu`i. `I hono filifili ha kakai ke nau kau mai ki he fekumi, `oku tau filifili `o fakatatau ki he fehu`i `oku teu. Hange ko `eni, `okapau `oku tau fie`ilo ki he founa faiako fe`unga mo e fanau ako Tonga, ko e kakai te tau o `o `eke fehu`i ki ai, ko e kau Faiako `oku nau lolotonga faiako pe na`a nau faiako ta`u lahi ma`ae fanau ako Tonga. Ko hono hoko leva `o e falukunga kakai ke nau kau mai ki he fekumi ko `eni, koe fanau ako Tonga. `A ia ko hono fili ha kakai ke kau mai ki ho`o fekumi ngaue`aki `a e lea `oku filifili pea fakahoko `o tatau ki he ngaahi fehu`i tokoni kuo ke `osi teuteu. `Oku mahu`inga `i he filifili ko `eni `o ha kakai ke kau mai ki he fekumi ko e tokolahi. `Oku `ikai fiema`u ia ke tokolahi `a e kakai ke nau kau mai ki he fekumi ngaue`aki `a e lea. `Oku fiema`u pe kakai te nau lava `o tali lelei taha `a e ngaahi fehu`i.*

 Test your knowledge

1. What is the difference between the terms "sample" and "population"?
2. What are the key ideas when conducting a sample procedure under a qualitative study?

 Key exercise

TIOE Staff: Go through each sub-research question and define the appropriate population and the needed sample.

TIOE Students: Staffs need to assist students clarify their sub-research questions and allocate the appropriate sample size. Need to ensure that the sample selected not only meets the criteria but that the sample size is manageable for the students.

 Workbook review

The sub-research questions can be seen as the minor questions we ask in order to answer the main research questions. It is advisable to use words, such as WHAT, WHERE, WHEN, and HOW. Keep your sub-research questions in a logical order, beginning with easier description questions (using WHAT) and progress from there to more deep thinking questions/ analytical questions (using WHEN and HOW). It is important to keep sub-research questions simple and with one question idea per sub-research question.

The key to sampling in a qualitative study is being purposeful. You must select only the people who are the most qualified to answer your research question. With sampling under qualitative, the concern is with specific information and not necessarily about representation. Keep sample group to a minimum and manageable number. With a small project can range from 1 person to 10 people depending on the research question and the capability of the researcher/s.

## Tools of qualitative research

When conducting qualitative research there are 3 research tools used to collect information: interview, observation, and document analysis.

### Interview

This is the major tool of qualitative research. The advantage of interviews is that the informants' perspectives are provided using language natural to them. This limits the effect of the researcher's preconceptions and biases and beliefs in directing the line of interviewing. The interviewer requires listening skills and non-directive questioning techniques. These are the main types of interview technique:

- **Unstructured interview:** when conducting this kind of interview, there is generally just one key question to ask and that will lead the interview. This also means that there are many other questions that will arise as the interview takes place. This is the most open form of interview in which the participant is given a lot of room to describe their perspective on the given topic.
- **Semi-structured interviewing:** the researcher prepares some general interview questions that will guide the interview. However, it is not necessary that the interview follows through all the questions in that particular order. It is also possible with semi-structured interviews that other questions that may arise during the interview.
- **Structured interviews:** this is the most closed form of interview and is often used in surveys and opinion polls with consequent quantitative analysis. Questions are asked and then answers are provided for the participant to choose from. There is no room here for the participant to describe their interpretations or to provide other information that what is asked of them.

**Recording:** audiotape is best. Make sure the machine and microphone work well before recording begins. It is all right to stop the interview at the beginning to check if your tape is recording. You are required to ask participants for permission to be tape-recorded. Participants have right to refuse audio recording of the interview. In such cases, the researcher must hand-record the interview.

### What questions to ask in the interview?

The questions you will ask in the interview will be guided by your sub-research questions. You will need to go through all of your sub-research questions to decide whether using an interview will be the best way to gather the needed information.

**EXAMPLE BOX**

I will use the second sub-research question from our example:

What are the factors that influence the teaching style of a teacher?

My sample has stated that I will invite 7 teachers from 7 different schools. From the literature review, I have identified that several factors are likely to influence teaching style and this include, the teachers' qualifications, teaching experience, and the culture of the school. Personally, I also think that there may be other factors that influence a teachers' teaching style; I believe that a semi-structured interview technique may be the best tool to use to answer this particular research question. Therefore, my semi-structured interview questions will look like this:

1. Can you please share with me your training and your formal preparations to become a teacher? What qualifications do you hold and where did you receive them from?
2. Can you describe your teaching experience? What do you think are events or people who have influenced your teaching style?
3. Can you describe the teaching style that is most common in your school and what do you think about this teaching style?
4. What do you believe to be some of the key factors that have influenced the way you approach teaching?

It is also likely that there may be other questions that will arise during the interview. With these questions, I believe that answers (responses) gathered from the 7 participants will answer the second sub-research question.

***Ngaue`aki`o e Faka`eke`eke***

*Ko e lea `oku ou ngaue`aki ki he Interview ko e FAKA`EKE`EKE. `Oku lahi `a hono ngaue`aki `a e founa faka`eke`eke ki he ngaahi fekumi lalahi. Ko e faka`eke`eke, `oku `i ai ha founa lalahi `e 3 `oku lava ke ngaue`aki:*

- 1. Faka`eke`eke mo ha fehu`i pe `e taha pe ua – pea tuku atu leva ki he tokotaha `oku ke fakafehu`i ke tali mai pea toki tanaki atu ai pe ha ngaahi fehu`i he lolotonga `a hono faka`eke`eke `o e tokotaha ko `eni. Ko e ngaahi fehu`i `e toki tanaki atu `e ma`u pe ia mei he natula `o e faka`eke`eke.*
- 2. Faka`eke`eke `o ngaue`aki ha ngaahi fehu`i kuo `osi fa`u - `oku ke lava atu ki he fakafehu`i mo ha ngaahi fehu`i kuo ke `osi teuteu `o malava pe ke kau atu ki ai ha fehu`i `e 1 `o a`u ki ha fehu`i `e 20. Pea `i he lolotonga `a e faka`eke`eke `e malava pe ke `eke `a e ngaahi fehu`i ko `eni `i he fakahokohoko na`ake palani ki ai, pe ko hono `eke pe ha ngaahi fehu`i pea tuku ha ngaahi fehu`i. Pea `e toe malava pe ke toki tanaki atu ha ngaahi fehu`i lolotonga `a e faka`eke`eke.*
- 3. Faka`eke`eke `o ngaue`aki ha ngaahi fehu`i kuo teuteu fakataha pea mo ha ngaahi tali ke fili mei ai `a e tokotaha `oku kau mai ki he faka`eke`eke. Ko e founa ko `eni `oku na vaofi `aupito mo e founa fakahoko ha savea `o ngaue`aki ha pepa fehu`i kuo `osi maau ai ha ngaahi fehu`i pea mo ha ngaahi tali. Ko hono fai kehekehe, he `oku fakahoko `e he tokotaha faka`eke`eke `a e fehu`i `i ha`ane lau atu `a e fehu`i, pea toe lau atu mo e tali, pea ko e ngaue leva `a e tokotaha `oku faka`eke`eke kene fili mai pe*

*ʻa ʻene tali mei he ngaahi tali kuo lau atu ʻe he tokotaha fekumi.  
Ko hono hiki ʻo ha fakaʻekeʻeke ʻoku faʻa lava pe ke hiki pepa pe mo e peni pe ko hono  
ngaueʻaki ʻo ha meʻa hiki lea (voice recorder). Ko e meʻa mahuʻinga taha, ka ʻoku ke  
ngaueʻaki ha tepi ke hiki ai ʻa e fakaʻekeʻeke, fakapapauʻi ʻoku ngaue ʻa e misini pea mo  
e maika ke ha mahino mai ʻa e leʻo ʻo e tokotaha ʻoku fakaʻekeʻeke.*

### Observation

The kinds of data researchers gather during an observation will depend in part on how they participate in the setting. Observation is commonly used in the school context to study children. There are four possible research stances for the participant observer:

- **The complete participant** operates under conditions of secret observation and full participation.
- **The complete observer** is entirely removed from the interaction with those under observation; for example, using a two-way mirror to observe children at play.
- **The observer-as-participant** is a role intermediate between the first two, where the hosts know the researcher's identity, but the he or she remains a relative "stranger" as in interviewing.
- **The participant-as-observer** is a similar role, but characterises situations in which the fieldworker becomes more closely involved and identified with the actors.

**Recording:** the researcher can write/draw records of events as they unfold. You can use audio/visual recording, but consider ethical issues as well as possible effects on participants being observed.

#### What to study in an observation session?

As with the interview, we refer to our sub-research questions to check which question can be best answered using this observation.

### EXAMPLE BOX

I will use the sub-research question:

*What learning styles are particular to Tongan students?*

From my sample, I have identified 4 students from 4 schools and 3 groups of students from 3 schools. I will set up several observation sessions during class time. The number of observation sessions will likely be at least 3 times, so that I can see how students react to different teaching methods. My observation will be completed once I have identified the preferred learning style for each group and students.

### ***Ngaueʻaki ʻo e Vakai pe ko e Siofi***

*Ko e founga fekumi ko ʻeni ʻoku ngaueʻaki ʻa e vakai pe ko hono siofi ha meʻa ʻoku hoko.  
ʻOku lahi ʻa hono faʻa ngaueʻaki founga ko ʻeni ʻokapau ʻoku fai hano siofi ʻo ha fanau  
ako. ʻOku ʻi ai ʻa e founga siofi pe vakai kehekehe ʻe 4, pea ʻoku fakatatau pe ia ki he  
tuʻunga ʻoku tuʻu mei ai ʻa e tokotaha fekumi ʻi he ʻene fekumi. Ko hono kalakalasi ʻo e  
ngaahi founga ni, ʻoku kau ai ʻa e kau atu ʻa e tokotaha fekumi ki he ngaue ʻoku hoko,*

kae `ikai `ilo ki ai `a e kakai `oku fai ki ai `a e fekumi. Pea `oku toe malava pe foki ke fakahoko `a e fekumi siofi, `o `ilo pe ki ai `a e kakai ia ko `eni, ka `oku nau fakangalingali pe `oku `ikai te nau `ilo `oku fai `a hono siofi ki nautolu. Ko e me`a mahu`inga pe heni, ke kei pukepuke pe `e he tokotaha fekumi `a e ngaahi `ulungaanga faka`apa`apa pea ke fai totonu `a e ngaue `o siofi pe `a e me`a `oku totonu ke fakahoko ki ai `a e ngaue. Ko hono fakahoko `o e ngaue ko `eni `oku fa`a ngaue`aki pe hono tohi nima pe `a e ngaahi ouau `oku hoko pea mo e ngaahi ngaue `oku fakahoko `ehe kakai `oku siofi.

### Document analysis

This involves review, critique, and questioning of documents that can provide answers to your research question. This document analysis is to be differentiated from the literature review as we discussed earlier. The purpose of a document analysis is to find answers to your research question. The document analysis involves such documents as strategic plans, curriculum framework, syllabus, lesson plans, class register, students' work books, assessment records, and reports amongst other possible sources of information. Documents can also include recorded oral history. Documents for our purpose can come from within the school, within the ministry, or from outside (community, government, and regional). As such we have to put documents in their intended context first.

The advantage of gathering data from documents is that the relevant documents can be collected while the researcher is in the field and the analysis can occur at another time more convenient to the researcher. The researcher's time is not as restricted to the availability of the document as most can be copied and taken away.

**Authenticity of Written Sources:** need to recognise that all documents are inevitably bound to be partial. All documents whether they are lesson plans, strategic plans, or Acts of Government are based on underlining philosophy and values. As such, they contain assumptions and beliefs about events and people in the world. For this reason it is also important that the researcher does not only read the literal meaning of the text but also employs an interpretative understanding. It is important to authenticate the source of documents as a way to confirm evidence gathered from other sources – interview and observation.

Primary data is defined as documents and records that came into being during the actual period of event.

*Secondary data* however, is the interpretation of the primary data, which usually comes at later date.

Problems of access, availability, and scope of materials needed are often key challenges that researchers face when using this type of research tool. Sometimes, participants may mention a particular policy but one could not locate it. Documents are sometimes destroyed – intentionally and unintentionally – through various means e.g. cyclone and fire.

It is important to check the document against other sources to validate its authenticity. Sometimes this is possible and sometimes not. It is also important that as a researcher you are not relying on just one document.



**Authenticity:**

1. Does the document make sense or does it contain glaring errors?
2. Are there different versions of the original document?
3. Is there consistency of literary style, handwriting, or typeface?
4. Has the document been transcribed by many copyists?
5. Has the document been circulated via someone with an interest in altering the text in any way?
6. Does the document derive from a reliable source?  
(from Hitchcock & Hughes 1995:224)

**Credibility:**

1. How much time has elapsed between the event being described and the written text being produced?
2. Is the account a first hand one, i.e. by someone who was actually there or is it second or third hand?
3. What interest had the observer-author in the events described in the document?  
(from Hitchcock & Hughes 1995: 224)

**Representativeness**

Balance the document with views of people who could help authenticate the document. If this is not possible, could other data prove that this document is representative of the time?

What to gather when conducting document analysis?

When you have identified and gone through the authentication process for your document, you then read through the document using questions from your sub-research questions. You need to interact with the document, as if you are posing a series of interview questions on the document. The answers from your questioning of the document become your data and are often recorded manually. You can also later transcribe your notes into electronic copy to have the data analysed just like the data you have received from the interview and observation sessions.

**EXAMPLE BOX**

Using one of our sub-research as example:

What are the various types of teaching styles being used in schools?

To help answer this sub-research question, I can conduct a document analysis to gather necessary data. The documents that may be useful for answering this question include; lesson plans from teachers – where I will look specifically at any repeated preference to teaching style; curriculum documents – where I will look at some of the suggested teaching approaches it gives; and also at any school policy that maybe found – where I will look for any specific directions on forms of instructions/teaching style. The document analysis will be completed once; I am able to identify answers to the specific areas I have identified here.

**Ngauē`aki`o ha ngaahi Tohi**

Ko e founga fekumi faka`osi`eni`o e fekumi mei he ngaahi naunau`oku lava ke ngaue`aki mei he founga fekumi ngaue`aki`a e lea (Qualitative Research). Ko e founga`eni`oku fa`a ma`u hala ia pea mo e ngaue`aki`a hono toe vakai`o e ngaahi tohi fekumi (literature review). Hange pe na`a tau lau ki ai he ngaahi konga tohi ki mu`a, koe vakai ki he ngaahi tohi fekumi`oku`i ai pe`a hono tu`utu`uni pau ia`o`ona, pea`oku fakamamafa`i ai koe pepa`oku fai ki ai`a e vakai, koe ngaahi pepa`oku fakaha ai ha fekumi ne fakahoko (research papers). Ko e founga ia ko`eni ki hono ngaue`aki`a e tohi, pe ko hono veteki/analaiso ha tohi (document analysis)`oku ngaue`aki ia ha ngaahi pepa ngaue. `I he mala`e`o e ako, ko e ngaahi pepa ngaue te tau lava`o ngaue`aki ki he fekumi`e kau ki ai`a e ngaahi tohi ni: palani lesoni`a e faiako, silapa ako, tu`utu`uni`a e ako, tu`utu`uni pea mo e palani ngaue`a e potungauē ako, lipooti fakata`u`a e potungauē, pea mo e ngaahi pepa ngaue kehekehe pe.

`Oku fu`u mahu`inga`aupito ke`uluaki fakahoko`a hono toe sivi`i`a e pepa ngaue`oku`amanaki keke ngaue`aki, ke vakai pe`oku kakato, mo`oni`a e fakamatala pea koe fakamatala ke fai ha falala pau ki ai. Ngaue`aki`a e ngaahi fehu`i kuo ou fakaha atu`i`olunga ke tokoni ki hono fakapapau`i`oku falala`anga`a e ngaahi pepa ngaue teke ngaue`aki.

**Tongan research tools**

Under the qualitative research approach, the Institute of Education at the University of the South Pacific has developed and tested two Tongan research tools – *Talanoa* and *Nofo*. They are described here for researchers who may be interested in using the tools. The *Kakala* Research Framework, *Talanoa* and *Nofo* mark paradigm shift from conventional methods for research. These ‘new’ ways of doing research are not simply a ‘replacement’ or ‘modification’ of traditional western methods but an extension to the traditional western approach to research.

**Talanoa**

*Talanoa* is increasingly being used to conduct research. When using *Talanoa* in research several features are made explicit.

- *Talanoa* is primarily used here for the purpose of data collection and data analysis. As such, the *Talanoa* process involves the researcher and participant (at data collection stage) and it also involves *Talanoa* processes amongst the researchers (data analysis).
- *Talanoa* is a research **tool** – not a research framework, or research approach.
- *Talanoa* is not Interview. *Talanoa* is a shift in thinking from semi-structured interview – which has been the most open type of conventional data-gathering tool. Interviews are approached with questions; the researcher asks certain questions and the participant responds directly (or sometimes not) to the questions asked. Through interview there is some level of guidance and control over the topic to be discussed. *Talanoa* on the other hand is not approached with questions. *Talanoa* is based on an idea – the researcher takes the idea to the participant/s and then they dialogue about the idea.
- *Talanoa* is also about *Fanongo* – deep listening AND feeling/sensing. In research, the participant/s *Talanoa* while the researcher’s role is to *Fanongo*. The most basic translation of *Fanongo* is listening – however, just as *Talanoa* is more than interview,

*Fanongo* is more than listening. To listen is to hear the literal meaning of the words. To *Fanongo* is to listen to the literal meaning of the words, but also to listen to the motives and the underlying meaning of the *Talanoa*. *Fanongo* is, most importantly, about listening to the silences. *Fanongo* enables the researcher to understand the silences, the implied meanings, what is not being said, and the shared understandings. *Fanongo* is vital to continuing the *Talanoa*. Through careful *Fanongo*, the researcher will be able to generate, encourage, and contribute to the *Talanoa* in such a way that allows the participant to clarify their conceptualisations. When a researcher fails to *Fanongo*, he/she will fail to *Talanoa* in such a way that will enable the participant to conceptualise for him/herself.

- *Talanoa* is naturalistic in nature – that is, to engage in *Talanoa* one should be in the context and be part of the setting. From a naturalistic perspective, the researcher should try as much as possible to reduce his/her impact on the natural context of the participant. The researcher must work in such a way as to maintain the natural harmony, energy, and spirit of the context. The participant must not be made to feel that they are out of their natural context. In practice, this means that if the researcher is studying a fisherman, the *Talanoa* with the fisherman will be most productive when the fisherman is at work, eating, or resting within his natural setting – be it at home, by the sea, or amongst family and friends.
- *Talanoa* uses the researcher as the tool – in trying to maintain the naturalistic nature of *Talanoa*, visual- and audio-recording instruments such as VDO and tape-recorders are not used in the field. At most, the researcher may use a small notebook and pen to occasionally jot down key points. In *Talanoa*, the researcher is the research tool – which is all the more reason why the researcher needs to *Fanongo* and *Fanongo* intently. At the end of the *Talanoa* session the researcher must then quickly, “download” his/her mind by immediately writing down or audio-recording what had been said during the *Talanoa* session. How does the researcher ensure that he/she has recorded the correct data? The skill of *Fanongo* is vital to ensuring that all information is gathered correctly. As *Talanoa* is about dialogue on ideas, what the researcher should *Fanongo* for are key ideas, strategies, solutions, and possibilities.
- *Talanoa* is guided by key principles – in the case of Tonga, *faka'apa'apa* (respect), *loto fakatōkilalo* (humility), *fe'ofa'aki* (love, compassion), *feveitokai'aki* (caring, generosity). Without these ethical guidelines to guide the behaviour, the language, and the approach of the researcher, the *Talanoa* will not be able to gain data that is rich, authentic, and ground-breaking. Because each culture determines the appropriate behaviour for each *Talanoa*, the key principles that guide *Talanoa* are different for each context. In Tonga, where *Talanoa* has already been applied, these key principles were absolutely vital in ensuring not only that the *Talanoa* could take place, but also that authentic data was gathered. The key principles must not be merely written in a researcher's proposal; they must be lived by the researcher throughout the entire process including his/her language, clothes, and body language.
- *Talanoa* is most productive when using the first language of the research context. In keeping with the naturalistic feature of *Talanoa*, rich, authentic, and dynamic data will be gathered when the researcher is using the first language of the participants.
- *Talanoa* is limited neither by time nor space – that is, *Talanoa* is not defined by time; but rather the *Talanoa* process defines time. The *Talanoa* session ends when the participant

decides that it has ended for that time. However, *Talanoa* can continue again in another time and in another place. Further to this, *Talanoa* is not confined to a particular space or place. *Talanoa* can occur at home, in the village field, by the beach, or wherever the participant takes the researcher. One *Talanoa* session can take place in several locations depending on the nature of the *Talanoa*. However, we should be reminded that we are talking here about *Talanoa* as a research tool – when *Talanoa* is used for rituals and ceremonies, *Talanoa* is often confined to a space of ceremonial importance and meaning.

### **Nofo**

*Nofo* methodology here refers to the researcher going to live in the field with the participants. In this methodology, the researcher adopts a more social-anthropological stance, where he/she comes to live and experience the lived lives of the participants. This research tool promotes the opportunity for local researchers to take an emic perspective within their own cultural and social setting. This methodology is in line with the auto-ethnographic tradition of inquiry.

When *Nofo* is used a research tool, several key features are made explicit:

- *Nofo* is a combination of *Talanoa*, observation, and participant observation, yet more than participant observation. To *Nofo*, one becomes part of the setting – the researcher must be immersed in the context to the point that they have minimal impact on the natural setting.
- *Nofo* is heavily influenced by the ethical conduct demanded of the place. The researcher must be able to read the terrain and behave appropriately. In the Tongan context, if the researcher sees the participant sweeping or building a fire, the researcher must be right there helping and working alongside. It is in this process of working together that they (the researcher) show humility and willingness to learn.
- *Nofo* has taken place in village contexts (Tonga, Nauru, Republic of the Marshall Islands) and in school contexts (Samoa and Fiji). It is a tool that can and has been adapted to suit the purpose of the research.
- *Nofo*, although traditionally taken to mean living or at least spending a few days in a place, can and has been adjusted to suit several purposes. In Tonga, field researchers spent time in the field from seven in the morning until four in the evening for at least two days. In Nauru, the *Nofo* was reduced to one day and for 5 hours during one day of field work. Reading the terrain is vital to knowing how long a *Nofo* should take place.
- *Nofo* can take place continuously within one setting or with several breaks in between field sites. In the case of Tonga, field researchers spent two continuous days in one setting before moving to the next. In the case of Nauru and Marshall Islands, one field day per week was allocated for each setting.
- *Nofo* when used with *Talanoa* has been proven to accelerate data saturation within that particular field site. In Tonga, it was initially planned that field researchers would spend three days per village site, but after two days of field work, the data that was being gathered had already shown to be repetitive; that is, it had reached saturation point.

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- *Nofo* when used with *Talanoa* has also been shown to be effective in a vast array of Pacific knowledge systems (KS), able to collect specific details regarding each system of knowledge.
- *Nofo* was developed to complement *Talanoa* in recognising that in Pacific culture, while strongly oral in tradition, it is also in our silences and in our behaviours that we “speak” and relate to others. This is not always captured through simply through *Talanoa* – but with the addition of *Nofo* a field researcher is better able to “read” the silences, the innuendo, the implied meanings, and the hidden language of Pacific people.
- *Nofo* was also developed to allow the researcher to fully understand the context in totality. That is, the participant is understood within his/her context taking into view his/her beliefs, relationships, circumstances, economics, politics, and all aspects that make up this person's way of being. This means that the data collected is context specific and it is understood within this particular context.
- *Nofo* when used in combination with *Talanoa* is a physically and mentally demanding form of research.

Put simply, the *Talanoa* and the *Nofo* are audio and visual tools and when a researcher engages in *Talanoa* and *Nofo* he/she becomes the research tool. It is through his/her eyes that she/he records the sights of the context while his/her ears record the audio sounds of the setting. Through *Talanoa* and *Nofo* the researcher is the research tool, hence the need for the research to adhere to the ethical guidelines of the given context. While in traditional Western approaches to research, the research tool/instrument is tested for ethical integrity and whether it will do harm to the participant, in the Pacific approach to research the ethical integrity of the study is upon the researcher as he/she is the research tool.

### EXAMPLE BOX

As an example, I can use the *Talanoa* and the *Nofo* to answer this sub-research question:

What learning styles are particular to Tongan students?

As students are not always comfortable talking to adults – particularly in a school setting, I will try to find more informal setting where I can *Talanoa* and *Nofo* to spend time with students. This requires, perhaps spending time with them while they are practicing for school sports, or working out in the garden, or even their homes or church groupings. What I will be interested in looking at while at the *Talanoa* and *Nofo* is the students' ideas, beliefs and practices of learning from other peers, from teachers and from other elders in the community.

### **Founga fekumi `a e Tonga – Talanoa pea moe Nofo**

‘I he 2006, na`e ma`u ai ha faingamalie `a e USP ke fakahoko ha ngaue fekumi pea mo e Potungae Ako, ke kumi ha `ilo fo`ou ke tokoni ki hono fakalelei `o e silapa ako. `Oku lolotonga faka`osi foki `a e ngaue ko `eni `i he va`a Silapa `a e Potungae Ako. `I he fekumi ko `eni, na`a mau (Konai Helu Thaman, `Ana Taufe`ulungaki, Seu`ula Johansson Fua) feinga ke ma`u ha founga fekumi `e malava ai ke ma`u mai he ngaahi fakamatala `e ofi taha ki he mo`oni, pea ke `omai kakato ha fakamatala `e falala`anga. Ko e fekumi ko

`eni, na`e tataki ia `e he fakakaukau, ke kumi ha `ilo fakatonga `e malava ai ke lava `e he ako `o tokoni`i ke fakasi`isi`i `a e masiva pea mo e tuku hausia `i Tonga ni. Ko e tupu mei he pelepelengesi `a e fekumi ko `eni, pea mo hotau ngaahi `ulunganganga fakatonga, ne mau feinga ai ke kumi ha founa fekumi `e fenapasi pea moe tui `a tava ko e Tonga. Na`a mau fakalahi ai `a e Kakala Framework `o hoko ko e Kakala Research Framework, pea mau fakalahi pea mo e Talanoa ke hoko koe founa fekumi. Pea koe tanaki fo`ou atu ki ai, ko e Nofo. Na`e fokotu`u atu `a e Nofo, `i he`emau `ilo `oku fiema`u ha founa fo`ou `e taha, ke toe fakapapau`i `aki `a e Talanoa. Na`e malava lelei `a hono `ahi`ahi `a e founa ko `eni `i Tonga ni, pea lava lelei mo hono tanaki mai ha `ilo ke tokoni ki he ngaue `a e va`a Silapa.


Hili ko `eni `a hono ngaue`aki `o e Talanoa pea mo Nofo, kuo lahi mo e ngaahi faingamalie, ke mau toe ngaue`i ai `a e ongo founa ni `i he ngaahi fonua kehe pe he Pasifiki. Ko e founa ko `eni Talanoa pea mo e Nofo, kuo ngaue`i `eni `i Ha`amoa, Fisi, Nauru, Marshall Islands pea kuo toutou ngaue`aki mai `eni `i Tonga ni. Ko e founa ko `eni `oku kei toe lahi pe `a e ngaahi fakalelei ia ke tanaki atu ki ai, pea `oku ou tui ko e lahi ange `a hono ngaue`aki, ko e lahi ange ia `a `etau `ilo ki he founa ko `eni pea lava ai ke toe fakalelei`i.

#### Workbook review

Qualitative research approach has three main research tools; interview, document analysis and observation. Within interview and observation, there is various degree of involvement for the researcher and it is important that the researcher is clear on what stance that they take when conducting the research. For example, are they using a semi-structured interview or closed interview? Similarly, it is important to clarify whether they are participant observers or another form of observation. Document analysis is a useful tool to use to triangulate the other two research tools. However, it is important to authenticate the documents before they are used. It is also important to ensure that each tool you choose serves a specific purpose – that is, which research tool will gather the needed answer to which sub-research question. All the tools must match up to a research question.

Sampling under a qualitative research approach is based on being purposeful and seeks to identify the people who are most knowledgeable about the question. Keep the sample to a manageable size – I suggest between 5 – 10 participants. What is more important is that the novice researcher learns the technical skill properly rather than trying to do gather large data.

There are two research tools offered from a Tongan perspective on research. The *Talanoa* and the *Nofo* have been trialed and tested in Tonga and countries around the region and they have been found to be sufficient and robust for this context.

 Test your knowledge

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1. What is the main criterion for sampling under a qualitative research approach?
2. What are the three tools of research under a qualitative research approach?
3. What are the two research tools offered from a Tongan perspective on research?

 Key exercise

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TIOE Staff: Following your sub-research questions and identified sample, conduct several Talanoa and Nofo sessions and compare this with using Interview and Observation sessions.

TIOE Students: Following your sub-research questions and sample conduct a Talanoa session and have this transcribed.

### Testing consistency & trustworthiness

A crucially important aspect of research is ensuring that our findings are trustworthy and reliable; that the data collected is accurate. Sometimes, we hear the words validity and reliability being asked about in relation to findings from a study. In conducting qualitative research, the terms to use are consistency and trustworthiness of the findings.

The methodology part of your proposal should include a section describing how you will ensure consistency and trustworthiness of the data collection.

#### Consistency (Reliability)

Lincoln & Guba (1985) suggest thinking about “dependability” or “consistency” – this means that if the study is repeated again by another person, this researcher will find the results consistent with the findings from your study. The findings from a similar study should not exactly replicate the findings from our study, but the findings should make sense in the given context. This adds to the dependability of the method used. To ensure dependability & consistency:

- Identify researcher' assumptions & biases: these should be declared in your proposal under a list of Assumptions.
- Strengthen triangulation: Use multiple methods of data collection. These can include interview, observation, and document analysis, or any combination of these methods plus a questionnaire. To ensure triangulation is effective, use at least three methods to gather data.
- Audit trail: keep a record of all the research processes, so that anyone who wishes to know how you have done the research is able to follow the paper trail.

#### Trustworthiness (Validity)

Many researchers have developed their own concepts of validity and have often generated or adopted what they consider to be more appropriate terms: quality, rigor and trustworthiness (Lincoln & Guba, 1985; Seale, 1999). Merriam (1998) suggests 6 basic strategies to enhance internal validity (trustworthiness) of a study. These strategies include:

- Triangulation is typically a strategy for improving the validity and reliability of research. “Triangulation strengthens a study by combining methods...several kinds of methods or data, including using both quantitative & qualitative” (Patton 2001:247). Triangulation can include multiple methods of data collection and analysis, but does not suggest a

fixed method for all research projects. Triangulation methods chosen to ensure validity and reliability of a study depend on the criteria of the study.

- Member checks: after transcribing interviews, give participants the opportunity to view their comments. Also give them the opportunity to make changes as well as the right to withdraw if they so wish.
- Long-term Observation: this is a particularly useful technique for the researcher to recognise subtleties, hidden agendas, and overt behavior. For us, it can reconfirm our assumptions and for foreigners, it will deepen their understanding of the context and the activities of the phenomenon being studied.
- Peer examination: allowing other research colleagues working in a similar disciplinary field to comment on your research development, particularly when exploring relatively undefined variables. It is also an added opportunity for the researcher to “talk out loud” about his/her developing theories.
- Participatory or collaborative modes of research: action research has been shown to be effective in terms of changing cultures in organisation, professional development, and other issues deemed in need of reassessment by members of an organisation.
- Researcher's biases: recognising one's biases helps to clarify theoretical perspective as well as defining emerging theories. It helps explain why you see the data the way you do.

**Falala`anga mo e Faitatau `a e Fakamatala `oku ma`u**

*`Oku fiema`u ke falala mai ha kakai ki he fekumi `oku tau fakahoko. Pea `oku `i ai ha founa lalahi `e ua, ke malava ai ke fakapapau`i `oku falala`anga `a e `ilo `oku tanaki mai.*

*Falala`anga - `e lava ke ma`u `eni `i he founa `e tolu:*

1. *Fakamatala `a ho`o ngaahi tui `oku ke pehe oku fekainga`aki pea mo e fekumi `oku fakahoko. Ko e tokotaha kotoa pe `oku `i ai `a `ene ngaahi tui, pea `oku fiema`u ke mahino ia pea fakaha mai ki mu`a. Hange ko `eni, `oku `i ai pe `a e tui ia ha faiako, `oku totonu pe ke kei fakahoko `a e tautea ta `o ha leka, neongo `oku `ikai tali ia he `api ako. Pea `oku fakaha `eni ia, `okapau `oku `i ai ha`ane fekainga`ai pea mo e fekumi `oku teu ke fakahoko.*
2. *Ngaue`aki ha ngaahi founa fekumi `oku a`u `o tolu – hange koe ngaue`aki `a e Talanoa pea mo Nofo pea mo e analaiso ha ngaahi pepa ngaue. Ko e lolahi mai `a hono ngaue`aki ha ngaahi founa fekumi `e tokoni ia ki he toe mahino ange `a e palopalema `oku fai ki ai `a e fekumi*
3. *Hili `a ho`o tanaki mai `a e ngaahi fakamatala, `e tokoni lahi ka toe fakafoki `a e pepa tali ki he tokotaha na`ane fakafehu`i pea na`ake Talanoa mo Nofo mo ia. Ko e founa ko `eni `e tokoni ia ke fakapapau`i mai `ehe tokotaha na`e fakahoko ki ai e fekumi koe mo`oni kotoa `a me`a ne mo Talanoa ki ai.*

*Faitatau `a e fakamatala – e lava ia he ngaahi founa `e 6 ko `eni:*

1. *Ngaue`aki ha ngaahi founa fekumi `oku lolahi ke a`u pe `o tolu `a e founa fekumi*
2. *Toe fakafoki `a e pepa tali ki he kakai na`ake fakahoko ki ai fekumi, ke `i ai ha faingamalie ke to e fakatonutonu pea fakapapau`i `a e ngaahi me`a ne fakahoko ki ai Talanoa.*
3. *`Oku tokoni pea mo ho`o taukei `a koe ki hono `ilo pea mo hono fakapapau`i koe `ilo kuo tanaki mai `oku falala`anga. Pea ko e konga `eni `e lahi ange ai pe `ilo `a taua ko*



e faiako Tonga ki he `api ako Tonga `i ha taha mei tu'a.

4. `Oange ha faingamalie ki ha kakai kehe ke nau lau pea `omai ha`anau tokoni fakakaukau ki he pepa fekumi kuo ke fa`u.
  5. `E tokoni ma`u pe ka kau mai `a e kakai `oku ke fekumi ki ai, ki he ngaue`i `o e fekumi.
  6. `Oku feima`u ke fakaha ha ngaahi tui pea mo ha ngaahi fakakaukau `oku ke ma`u fekau`aki pea mo ho mala`e fekumi ke mahino ki ha kakai `oku nau lau `a ho`o pepa fekumi `a e fa`ahinga tu`unga fakakaukau `oku ke fou mei ai.
- `Oku mahu`inga ke fakaha `a ho`o ngaahi tali pe ngaue kuo ke fakahoko ke malava ai ke fai ha falala atu ki he `ilo kuo ke tanaki.

## Analysis

Analysis is a process where the data is organised, coded, and rearranged to identify common patterns, themes, and possible variance in the data.

Once you have completed the data collection, the next step is to analyse the raw data that has been collected to identify the answers to the research questions. Analysis can begin during field work using field notes and post field notes to assist in organising and preparing the data for coding

Data analysis requires the researcher spending time to concentrate on reading the data so as to identify, patterns, themes, and variance in the data.

Analysis can be done using assistance from basic computer software (Excel and Word) to higher level analysis (SPSS, ATLAS T I, N Vivo etc). The sample size of the study as well as the depth of the data collected usually determines the most appropriate analysis software programme to be used. Computer software data analysis programmes are only used to assist in organising and coding the data; the actual analysis, engagement, assigning codes, and rearrangement of ideas still heavily depends on the researcher's ability and data analysis skills.

Data analysis can also be carried out manually without assistance of computer software programmes.

## Basic processes of analysis

### Data Preparation

- Raw data collected from interviews and *Talanoa* is transcribed. Transcriptions are exactly what was recorded (minor 'umms' and repetition of words can be deleted). Transcript should be dated. Record where the *Talanoa*/interview took place.
- The transcript should be given to your participant/s to read through to check if all that was said has been recorded accurately. It is also at this stage that your participant can withdraw from the study if they no longer wish to be part of the study. This is in keeping with your ethical considerations (such as *faka`apa`apa*). Once, your participants have checked their transcriptions, you can begin analysing the data. This process (participant checking) is also to ensure trustworthiness in your study.

Data coding

- Qualitative coding – there are several ways you can do this. One way of doing this is by using the main variables from the sub-research questions, read through the transcription and marks out chunks of data and labels them using the relevant variable selected from the sub-research question. Another way to do this is to read through the transcription, and identify common ideas that emerge out of the data. Using those ideas, formulate codes (use words) that best reflect the chunk of data. If you had followed the research process well, it should all come together well – this means that the codes you have marked out all come together to answer the research questions. This means that you have collected the relevant data to answer the research questions. This process can take hours depending on the amount of data. Use words from the data to code. The primary codes or Nodes later become the key findings/results.

Data analysis

- Qualitative analysis – pull similar coded chunks of data together to identify common themes, and also to reveal divergence in the coded data. A rich data can reveal to about 3 levels of coding whereas basic data can reveal 1 level of coding. At the completion of the analysis process key themes and patterns should already be clearly identified.

**Veteki/Analaiso `o e `ilo kuo tanaki**

Ko e konga mahu`inga taha `eni `i he ngaue `a e tokotaha fekumi. `I he taimi lahi `oku `ikai fakahoko lelei `a e konga ko `eni `o tupu ai ha fehalaaki `a e `ilo kuo tanaki mai, `ikai lava `o tali `a e fehu`i fekumi, pe ko hono faka`uhinga hala`i `o e `ilo kuo tanaki mai. `Oku malava pe ke ngaue`aki ha polokalama komipiuta ke tokoni atu ki hono veteki `o e `ilo kuo tanaki mai. Pea `oku to e lava pe ke ngaue`aki `a e pepa pea mo e peni ke fakahoko `a e ngaue ko `eni. `Oku `i ai ha kongokonga lalahi `e tolu ke fai ki ai ha muimui:

Teuteu`i `o e `ilo kuo tanaki

Hili pe `a hono fakahoko `a e fakafehu`i pea mo e Talanoa, pe ko e ha pe founa ne ngaue`aki ke tanaki mai ai `a e `ilo, `oku fiema`u ke hiki `a e ngaahi `ilo ko `eni ki ha polokalama komipiuta. Ko hono taipe `o e ngaahi lea `oku fiema`u ke fai ha muimui ofi ki he ngaahi Talanoa pea mo e ngaahi me`a ne hoko lolotonga ko ia `a e fekumi. Fiema`u ke hiki `a e lea pea mo e ouau tonu ne hoko, `o `ikai kau ai `a ho`o fakakaukau ia `a koe.

Hili pe `a hono hiki maau ki ha pepa, pea `oku `ave leva ia ki he kakai na`ake Talanoa pea mo faka`eke`eke. Ko e taimi `eni `e malava pe ai ke fakafisi `a e tokotaha na`e kau mai ki he fekumi. Ka `oku mahu`inga ke lava `a e tokotaha ko `eni `o tokoni atu kia koe, ke fakapapau`i ko e lea kotoa kuo hiki, ko `ene lea ia `a `ana. `Oku tokoni lahi `a e ki`i ngaue ko `eni ki hono fakapapau`l koe `ilo kuo tanaki mai `oku falala`anga. Pea kapau leva `e pehe `e he tokotaha ia ko ia, `e fakafisi ia mei he fekumi ko `eni, pea kuo pau leva keke faka`apa`apa`i `a `ene fili, pea `oku fakata`e`aonga`i leva `a e ngaahi `ilo ia ne tanaki mai mei he tokotaha ko `eni.

Faka`iloanga`i `o e `ilo kuo tanaki

Ke tokoni atu ki hono faka`ilonga`i `o e `ilo kuo tanaki, toe lau `a ho`o ngaahi fehu`i tokoni, ke ma`u mei ai `a e ngaahi tefito`i fakakaukau. Pea ke lau leva `a ho`o ngaahi `ilo kuo tanaki pea taipe`i `o kumi ai `a e ngaahi fakakaukau `oku nau tali `a e ngaahi tefito`i fakakaukau mei he

fehu`i ne tataki `aki fekumi. Ngaue`aki ha ngaahi lea kuo ha mai mei he ngaahi Talanoa kuo tanaki, ke faka`ilonga`aki `a e ngaahi konga Talanoa. `Oku totonu pe ka hili ange `a hono fakama`opo`opo `o e ngaahi faka`ilonga lea (code) kuo nau lava kotoa `o tali `a e fehu`i fekumi.

#### Tanaki ngaahi faka`ilonga lea

Hili `a hono faka`ilonga kotoa `a e ngaahi konga `ilo, tanaki mai lea `a e ngaahi kongokonga kuo faka`ilonga. Ko hono tatanaki mai `a e ngaahi konga kuo faka`ilonga, `e fokotu`utu`u lea kinautolu `o fakatatau ki he ngaahi konga tohi `oku tui tatau pea moe ngaahi konga `oku tui kehekehe. `O hange ko `eni, ko e kotoa ngaahi Talanoa `oku ha ai, `a e founa faiako `o ngaue`aki `a e saati pea mo e ta fakatata `o fakataha ia ki he feitu`u pe `e taha. Pea ko e maau pe `a ho`o ngaahi fakakalasi ko `eni, kuo `osi tonu lea ke ha mai ngaahi imisi pe kupesi `o e ngaahi Talanoa. `Oku ou ngaue`aki e lea ko e kupesi ke fakatonga `aki `a e `patterns`. `A ia hili `a hono fakamahino `o e ngaahi Talanoa `oku fai tatau (themes), pea `e mahino mai lea `a e ngaahi me`a `oku to kehekehe ai `a e ngaahi Talanoa pe koe ha e fanga ki`i fai kehekehe `i loto `i he ngaahi Talanoa lalahi `oku fai tatau. Ko e fanga ki`i faikehekehe ko `eni `oku fa`a ui ia ko e kupesi `o e ngaahi `ilo (patterns in the data). `I hono fakakatoa, `oku totonu ke lava `a hono veteki ko `eni `o e ngaahi Talanoa, teke lava `o fokotu`utu`u `a e ngaahi Talanoa fai tatau pea mo mahino mai ngaahi kupesi. Ko e ngaahi Talanoa fai tatau pea mo e kupesi `oku totonu ke lava ia `o tali `a ho`o ngaahi fehu`i fekumi hono kotoa.

`Oku malava pe ke tokoni atu ha taha `oku toe taukei ange `i he founa fekumi, ki hono veteki `a e ngaahi `ilo kuo ke tanaki mai.

### **Writing report for a qualitative study**

There are several ways that you can present the findings from your study, however, for novice researchers it is best to keep the report format simple and clear.

You have already prepared the first section of your research report through your research proposal. The research proposal has presented the rationale, research question, literature review, and the methodology section. You will need to go through the proposal and change syntax to reflect that the work has been completed (change from 'will' to 'was' etc). You also need to do other editing to account for changes, such as adjusting the number of participants who were involved in the study; for example, you may have stated in the proposal you would invite seven participants, but during the data collection, only five people joined your study.

Once, you have completed this editing work to the proposal, this piece of writing then become your first three sections of your report. Your first three sections should comprise

1. Introduction – to include the rationale, research problem, research question, and sub-research questions.
2. Literature Review – describes previous research relevant to your topic that you have studied to identify the operational definitions, suggested methodology, and suggested framework.

3. Methodology – describes the sections that you have prepared from the methodology section of your proposal. Add how you have ensured Trustworthiness and Consistency in the data, ethical considerations taken; and include all documents that were used as appendices (this includes letter of consent, copy of interview questions, documents etc).

The next sections of the report involve writing the findings from the data analysis that you have completed. These are the Results and Discussion sections of your report.

4. Results - The results section should display what the participants stated – without any interpretations from the researcher. What are displayed in the results section are the common stories, variations in the stories, and other stories that were raised by the participants. It should be made clear here that the results section is only that – the results of the participants' answers to the questions that were asked of them.

At the completion of data analysis, the key themes and patterns should become obvious out of the coding systems. For qualitative data, the main codes or “parent codes” should be the key themes, while the “child codes” are variations or branches of the theme. The child codes further describe, explain, and provide detail about various interpretations of the main theme/s.

Generally, the first set of results to be displayed in the qualitative and the quantitative data are a description of the sample, or the people who had participated in the study. This includes such information as the age, gender, and the location of the sample studied.

The subsequent sections of the results section should display the findings from the study – beginning with the most common theme and ending with the least talked about subject or the variation in the data.

A simple way to approach the results section is to provide the participants' answers in accordance with the sub-research questions, presented in this order.

Again, it must be kept in the mind that the Results section should only display the key findings from what participants had stated. This is organised in the most sensible and easy to read manner.

#### **EXAMPLE BOX**

For example:  
The research question asked .....(sub-research question one)  
In response to this question 5 out of 10 participants agreed that .....(state common findings)  
This was in contrast to 3 other participants who said that.....(state the variations in the findings)  
The remaining 2 participants took a neutral stance .....

Overall, the majority of the participants believed that in response to research question (...) this was the case.....

5. Discussion - The discussion section should have your interpretation of the findings presented in the Results section. To assist in your discussion of the findings, you can draw from the literature that is available and what the literature says about your topic. In cases where there is no literature available, you can also use your own experiences (as practitioners) to make sense and meaning of the results. It is also here in the discussion section that you can pose questions about your data, and suggest possible meanings.

At the end of the discussion, the reader should be able to read the main research question and find the answers clearly in this section. At the conclusion of the discussion, you should be able to answer your research question and sub-research questions.

6. Conclusion - This section should be brief and clearly answer all the sub-research questions and the overall research question. This section can also point out areas that need further research as a result of your study. We have seen the use of "Recommendations" sections in most reports, however, for research studies it is not so much about recommendations, but to identify areas for further research.

Once you have written up your report, it is advisable to have someone else review the paper before it is submitted.

Fa`u Pepa Fekumi

Ko e konga faka`osi `eni `o e fekumi, ko hono fa`u ha pepa ke fakaha ai `a e ngaahi `ilo kuo ke tanaki mai. Ko e kau taukei ange ki he fekumi `oku nau malava `o fa`u `a e pepa `o fakafe`unga ki he kakai te nau lau `a e pepa pe ko e potungaue `oku te u ken au ngaue`aki `a e fekumi. Ka ki he tokotaha `oku kei ako ke poto he fekumi `oku ou fale`i atu ke ngaue`aki pe `a e fakahinohino `oku ou `oatu `i `olunga `o muimui ki ai. `Oku mahu`inga ke mahino ngofua `a ho`o pepa fekumi.

Talateu – ko e konga ko `eni `oku tonu ke ha atu ai `a e konga na`ake teuteu `i he kamata `a ho`o fekumi (proposal). `E ha atu heni `a e `uhinga na`ake fakahoko ai `a e fekumi, tefito`i fehu`i fekumi, ngaahi fehu`i fekumi tokoni pea mo e ngaahi fakangatangata `a ho`o fekumi.

Toe vakai `o e ngaahi fekumi – na`ake `osi fakakakato `e ko e `a konga ko `eni `i he taimi na`ake fa`u ai `a e palani ki ho`o fekumi. Ka `i ai ha tanaki atu ki ai, ko e tanaki atu pe ha ngaahi pepa fekumi na`ake toe ma`u mai.

Founga fekumi – hange pe ko e ongo konga `i `olunga `oku `omai `a ho`o konga tohi ko `eni mei he palani ngaue (proposal) `o fakalelei. Ko hono fakalelei ko `eni `oku ke liliu ai `a e fakalea mei he taimi kaha`u ki he taimi kuo `osi. Pea ke fakatonutonu pe na`e kau ai pe `a e kakai na`ake fili, pea mo e ngaahi fakatonutonu ki he ngaahi ngaue ne palani kae `ikai fakakakato (ngaahi to nounou).

Fakaha `ilo kuo tanaki – ko e konga lahi pe `eni `e fa`u hili `a hono tanaki mai `a e `ilo. Ko e konga tohi ko `eni `oku totonu keke fakaha pe `a e ngaahi kupesi pea mo e Talanoa fai tatau kuo ke `osi veteki. `Oku fu`u mahu`inga `aupito keke fakaha mai pe `a e `ilo ne tanaki `o `ikai fakaha mai ai `a ho`o fakakaukau `a koe.

Talanga`i `o e `ilo ne tanaki – ko e konga ko `eni `oku ke fakaha ai `a ho`o fakakaukau ki he ngaahi `ilo kuo tanaki mai. Pea `e lava pe keke ngaue`aki ha ngaahi fakakaukau mei he ngaahi pepa fekumi na`ake sio ki ai he konga ua (literature review) `o e pepa. Ka `oku mahu`inga ke nofo pe `a ho`o fakakaukau ki he `ilo na`e tanaki mai `o `ikai toe talanga`i ha me`a ia na`e `ikai fai ha sio ia ki ai he fekumi. `I he faka`osinga `o e konga ko `eni `oku `osi totonu ke lava `o mahino mai `a e tali ki he fehu`i tokoni takitaha, pea mo e tali fakalukufua ki he tefito`i fehu`i fekumi.

Fakama`opo`opo – ko e konga faka`osi `o e pepa `oku totonu ke fakamamafa`i mai ai `a e ngaahi `ilo fo`ou kuo ma`u mei he fekumi, pea fakahoko mai ha fokotu`u ha mala`e `oku ke pehe `oku totonu ke hoko atu ki ai ha fekumi ke fakalahi pe tanaki atu ki he `ilo kuo ke tanaki mai.

#### Workbook review

The trustworthiness of your data is based on a process of working with your data to make that the knowledge gained is reliable. There are several processes you need to go through to do this, including triangulation, member check and validation of the data by the participants.

Analysis is process that can either 'make or break' your study. Proper analysis, can bring up all the 'gems' in your study, but a poor process of analysis can leave you frustrated and you fail to answer the research question that you had set out to do. More experienced researchers can assist in the data analysis.

Writing a qualitative report can take many forms, however, for the novice researcher, it is most important to keep the writing simple and precise. I have offered here a template to follow.

#### Test your knowledge

1. What are the processes you need to take up to ensure consistency and trustworthiness of your study?
2. What are the basic processes for data analysis?

#### Key exercise

TIOE Staff: Go through the list of processes to ensure consistency and trustworthiness and discuss other ways that your staff may work to enhance this process. Are there ways in our Tongan context that can further assist in ensuring that our study and data is trusted by our communities?

As a group take one transcript from a study a go through the basic process for data analysis.

TIOE Students: Adopt from the list of processes for consistency and trustworthiness at least 3 processes and ensure that these are carried out in your research. At least ensure triangulation, member check and data validation by your participants.

Take your transcript and begin coding large chunks of the data. Have your lecturer assist you with further detailed analysis.

## Research Approach - Quantitative

Quantitative research approach is based on hypotheses that seek to find generalisations, define causal relationships and make predictions

Research using the quantitative approach is interested in testing and measuring occurrences and using the results to make predictions and generalisations. Quantitative research approach uses statistical analysis to understand the information that is gathered. In chapter 2, I explained the theories and basic ideas that guide the quantitative research approach – please re-read this chapter now, particularly pages 9 and 10.

### Test your knowledge

---

1. What is quantitative research?
2. What are the basic assumptions about quantitative research?
3. What are the main purposes of quantitative research?
4. What are the roles of the researcher when using quantitative research approach?
5. What are the strengths and limitations of quantitative research?

In this chapter, we will learn about quantitative research and the research methods that are used in this approach.

### Hypothesis

In the previous chapter, we looked at how to formulate research questions and sub-research questions. In this chapter we will be looking at how to formulate a hypothesis and we will continue to use our example research topic as before. As with the qualitative approach, we begin with a research topic and from there we decide on the best research approach to take. In other words, you can take a quantitative approach to study the same topic that another person may take a qualitative approach for. Another option is to use a mixed approach; perhaps will use a quantitative approach to answer one of the sub-research questions you have formulated under the qualitative approach, or use quantitative data to support qualitative data throughout the research project.

### Basic rules for formulating a hypothesis

- A hypothesis is a hunch, an educated guess that is advanced for the purpose of being tested.



- The formulation of the hypothesis follows logically from the review of the literature on the problem or from theory.
- The hypothesis must be stated so that it is capable of being either confirmed or refuted. A hypothesis that cannot be tested does not belong in the realm of positivistic science.
- Define key terms/concepts used in the hypothesis statement.
- Hypothesis should be stated clearly using correct terminology, and operationally.
- Hypothesis should state **differences or relationships** between variables.
- Hypothesis should be limited in scope.
- Hypothesis should not be inconsistent with most known facts.

A hypothesis then is used to design your questionnaire survey.

#### Valuable information

To help you formulate your hypothesis, it is important to identify the variables that are involved. A variable is a characteristic that can take on more than one value among members of a sample or population - for example, religious affiliation, exam results, and social status. There are two kinds of variable.

**Independent Variable** – refer to the part of the environment that is manipulated. These are selected on the basis that the researcher thinks they will cause changes in behaviour.

**Dependent Variable** – particular behaviour effect of this manipulation i.e. what is measured. It depends on the behaviour of the subject.

Independent variable/s has an impact on dependent variable/s. The values that the Dependent variable takes on are influenced by the Independent variable. It is important to understand the relationship between the two variables.

#### *Fa`u `o e fakakaukau ke sivi`i (hypothesis)*

*`I he fekumi ngaue`aki `a e fakafika (Quantitative) `oku ngaue`aki `a e fakakaukau ke sivi`i (hypothesis). `O hange pe ko e founa na`a tau muimui mai ai `i he founa fekumi ngaue`aki e lea, `oku `i ai `a e mala`e ke fakahoko ki ai e fekumi, pea ma`u mei ai ha tefito`i fakakaukau ke sivi`i (main hypothesis) pea toki veteki leva `eni ke ma`u ai ha ngaahi fakakaukau ke sivi`i (sub-hypothesis). `Oku `i ai pe ngaahi lao ke muimui ki ai `i hono fa`u ha ngaahi fakakaukau ke sivi`i. Ko e mahu`inga taha heni ke fakamahino `a e ngaahi fakakaukau `oku teu ke sivi`i pea moe fekainga`aki ha ongo fakakaukau.*

#### EXAMPLE BOX

Our research topic "Teaching Style for Tongan Students"

From our literature review, we have seen that there are several variables that can impact on students' learning, including teaching style used in a school, individual teacher's teaching style, and Tongan students' preferred learning style. The independent variable (IV) here is the teachers' teaching style. We believe that if it is changed this can cause changes in the dependent variable (DV) – which for our example is the learning of Tongan students. So, for each hypothesis, ensure that there is a description of the independent variable (teaching style) and what it can do to change behaviour in the dependent variable (students' learning). The main hypothesis may look like this:

Main hypothesis: There is a preferred teaching style (IV) for Tongan students (DV)

### Sample

The second step is to choose the people to participate in your study – a sampling procedure. The concept of sampling involves taking a portion of the population, making observations on this smaller group, and then generalising the findings to the larger population.

Generalisation is a necessary scientific procedure since it is rarely possible to study all members of a defined population. However, in comparison to sampling for a qualitative approach, the sample size for quantitative can be larger. Sample must also be representative in terms of those variables that are known to be related to the characteristics we wish to study. Sample must also be randomly selected that each member of the population has an equal chance of being selected; and the selection of one subject is independent of the selection of any other.

However, it should be noted that there is always some sampling error and the generalisation is an inference, not a certainty because the sample can never be exactly the same as the population.

### Random and representative sample

- **Systematic sampling** – if the defined population can be listed, then the sample can be drawn at fixed intervals from the list. Say 1 in every 3 persons.
- **Stratified sampling** - this adds an extra ingredient to random sampling by ensuring that groups or strata within the population are each sampled randomly. It offers increased possibility of accuracy by ensuring all groups are represented in the sample in the same proportion as they are in the population. For example, sample to represent the age, gender and urban/rural description of the population.
- **Cluster sampling** – sample comprises complete groups as units. It retains the principle of randomness but lists of whole population are not required; just for the selected cluster. Of benefit when population is spread widely across a geographical area.
- **Stage sampling** – a two-stage design would first take a random selection of schools, and then, within each school a random sample of children. Random selection is maintained.
- **Opportunity Sampling** – involves considerable error, and is only used when no other form of sampling is possible. It happens when there is constraint in finances or permission – research is carried out on conveniently accessible groups. There is no proper sampling involved and no possibility of generalisation to a wider population.

### Filifili ha kakai ke kau ki he fekumi

ʻI he founga fekumi ngaue`aki `a e fika, `oku fili `a e kakai `o fakatatau ki he ongo tu`utu`uni lalahi `e ua: ke fai tatau `a e natula `o e kulupu `oku fili pea mo e tokolahi fakalukufua `o e kulupu (population). Pea ko hono fili `o e kakai ko `eni `oku fakahoko ia `i ha founga `e malava `a e tokotaha kotoa mei he kulupu fakalukufua (population) ke kau mai ki he fekumi ko `eni. `Oku ou `oatu `i `olunga ha ngaahi founga ke ngaue`aki ke fakapapau`i ko e kulupu `oku fili mai `oku nau fakaha mai `a e natula `o e kulupu fakalukufua (representativeness). Ko e tokolahi `o e kakai `oku malava ke nau kau mai ki he

*founga fekumi ko `eni `e lava pe ia ke a`u `o toko 50 ki he 5,000. Ka `oku ou fokotu`u atu heni, ke ngaue`aki pe ha kulupu `o `ikai toe lahi ange he 300 - `okapau koe kau faiako `oku nau teu ke fakahoko `a e fekumi. Ka `okapau leva koe fanau ako pea `oku ou fokotu`u atu ke `oua `e toe laka hake he 100.*

### EXAMPLE BOX


Taking a quantitative approach for our hypothesis stated above, and with additional sub-hypothesis, the sample would look like this:

For sub-hypothesis 1: School A has a preferred teaching style in comparison to School B  
We take a stratified sampling approach here by taking two schools to represent School A and School B. To ensure representativeness, I would take one government school and the other from a church operated school. And to add representativeness to this, I would also add a second criterion of choosing one school from the main island and the other from an outlying island. In this case, I would choose Tonga College (government owned, main island, single sex school) and Tupouto'a College (church owned, outlying island, co-ed school).

For sub-hypothesis 2: Highly qualified teachers can deliver in a variety of teaching styles  
From the two schools already identified above, we take a stage sample (which means that we have already selected the school and from there we move to randomly select the teachers). We can take a baseline approach of using 10% of the population. So in this case, if there are 50 teachers at Tonga High School, we take five randomly selected teachers. And similarly with the teachers at Tupouto'a College. So, we could end up with a total of seven teachers (given that Tupouto'a College has fewer staff).

For sub-hypothesis 3: More qualified teachers have a variety of teaching styles  
I would use the same sample defined above.

For sub-hypothesis 4: *Tongan students prefer to learn by doing practical activities*  
I will continue with the two schools as selected above and then use stage sampling to randomly select students to participate. Again, I would take a 10% baseline approach. For example, if Tonga High School has a population of 1200 students this year that would mean a sample of 120, ensuring this number represents the gender ratio of the population as well as distribution across the different levels. A process of proportional representation must be employed so that the 120 represents the general population as accurately as possible. This means that if there are more girls than boys in the general population of Tonga High School, the sample of 120 will also have to represent more girls than boys. Similarly, if there are more students in the junior level than in the senior level, the 120 sample must also contain more students selected from junior level in the same proportion. I will also apply the same process to randomly select the sample at Tupouto'a College. In total, I may have 125 students randomly selected to participate in this study.

 Test your knowledge

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1. Describe the difference between hypothesis and research question
2. What is the difference between independent and dependent variables?
3. What are the key features of a sampling procedure for a quantitative study?

 Key exercise

---

TIOE Staff: formulate hypothesis and accompanying sub-hypothesis. Conduct a sampling procedure to identify the appropriate sample group for the hypothesis that you have created.

TIOE Students: in a group formulate a hypothesis and carry out a sampling procedure. Please refer to your teacher for assistance in formulating the hypothesis.

 Workbook review

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Quantitative research approach uses hypothesis to guide the research, not research question. Hypotheses are statements that are used to test ideas. After a hypothesis is formulated, we can further add sub-hypotheses to this further extrapolate the main hypothesis.

When sampling for a quantitative study, it is important that the sample is representative of the population and that the sample is randomly selected. Although a researcher can have more participants in a quantitative study, I recommend for novice researchers to keep the numbers low and manageable.

### Levels of measurement

The third step is to choose the most appropriate level of measurement. The level of measurement is determined by the hypothesis that you pose, and involves the process of assigning numbers to observed events (subjects' responses). It is essential to ensure that the variables being measured are the variables being investigated. These are the range of measurements that you can choose from:

- **Nominal** – to name; thus a nominal scale does not actually measure, but rather names and identifies. Observations are simply classified into categories with no necessary relationship existing between the categories.
- **Ordinal** – implies putting data into rank order. Ordinal numbers convey more information in that their relative magnitude is meaningful – not arbitrary as in the case of the nominal scale.
- **Interval** – has order; has the property that there is a specific numerical distance between each pair of levels. Can compare values not only in terms of which is larger, but also in terms of how much larger. Distances between all adjacent levels are equal.
- **Ratio** – it is possible to measure variable from a lower level at higher level, but you can't reverse the process, and measure a nominal variable at interval level. It is important to try to measure variables at as high a level as possible, because more powerful statistical techniques can be used with higher level variables.

**Ngaahi founa ke fakahoko`aki fua `o e `ilo kuo tanaki**

Ko e ngaahi `ilo `e tanaki mai `e fakafofonga`aki kinautolu `e he ngaahi mata`i fika. Pea ko e ngaahi mata`i fika ko `eni `oku tau ngaue`aki leva ha ngaahi founa ke fua`aki. `Oku fokotu`u atu `i `olunga ha ngaahi founa `o fakatatau ki he ngaahi me`a `oku ke loto ke sivi`i. Hange pe koe fakatata `oku ha atu `i lalo, `oku ngaue`aki `a e founa fua `o fakatatau ki he fehu`i pe ko e fakakaukau `oku sivi`i (hypothesis). `Oku lahi ngaue`aki pe `a e Nominal pea mo e Ordinal ki he ngaahi fekumi `oku fa`a ngaue ki ai ha taha kei akoako ki he fekumi. Ko e ongo founa ko `eni `oku fiema`u pe ia ke fakaha hingoa mai `a e ngaahi `ilo fekau`aki pea mo ha me`a `oku fai ki ai e fekumi. Pea ko e founa Ordinal - `oku `uhinga pe ia ki hono fokotu`utu`u `a e ngaahi `ilo kuo tanaki mai ki ha tu`unga `e mahino mai `a e fakakaukau `oku mahu`inga ange.

**EXAMPLE BOX**

Using our example hypothesis above, the most appropriate levels of measurement here would be nominal and ordinal.  
 This means that we are only interested in identifying the teaching styles that are used – so we are basically naming the various types of teaching styles used per school and by teachers (nominal).  
 We are also interested in identifying the preferred learning style for Tongan students. This will involve identifying the various learning styles (nominal) AND ranking them in order of most common occurrence (ordinal).  
 This means that when designing the questionnaire, we are only interested in the identification of the preferred teaching styles and the learning styles. Therefore the questionnaire would ask the questions and for each question provide a selection of answers for the participants to choose from. From the responses we can then identify the range (nominal) and frequency (ordinal) of the teaching and learning styles.

**Choosing statistical tests**

The next step is to choose the statistical tests. A range of considerations govern the appropriateness of which to use statistical test for any particular study. The major considerations involve assumptions about the distribution of the data, types of hypothesis used, research design employed, and the level of measuring the data. There are two types of statistical tests:

- **Parametric:** analyses interactions between two or more variables. More powerful at picking up significant differences.
- **Non-parametric:** tests the effects of single variables, useful when measurement is at nominal or ordinal level (order, rank).

**Computer software programme:** the SPSS programme is useful for complex statistical analysis that involves a large sample (e.g. over 300), involving large numbers of questions (over 30 questions) and involving two or more variables. However, if the study involves a sample of less than 300, has just a small number of questions, and is only interested in measuring single variable or measuring at the nominal level, then the statistical tests can be done using Excel from Word.

**Fili ha founa fakafika ke sivi`aki `a e `ilo ne tanaki**

Hili `a hono fili `a e founa ke fakahoko`aki e fua `o e `ilo `oku tanaki mai, `oku fakahoko leva ha fili pe ko e ha e founa fakafika ke sivi`i `aki. Ko e founa sivi lalahi `e ua:

Founa sivi `uluaki `oku sivi `a e fekainga `a e fakakaukau `e taha ki he fakakaukau `e taha. `Oku ngaue`aki `eni `okapau `oku ke fiema`u keke `ilo ki ha faikehekehe `o ha ongo fakakaukau.

Founa sivi hono ua `oku ngaue`aki ia ke fua ha fakakaukau pe `e taha `o kau ai `a e ngaue`aki `a e fakahingoa (nominal) pea mo hono fokotu`utu`u fakatatau ki hono mahu`inga (order, rank).

**EXAMPLE BOX**

Using our example topic stated above, we recall that we are measuring a single variable (students' learning) and are interested in nominal and ordinal measurement. We also recall that we only have a student sample of 125 students and 7 teachers from 2 schools. This is a small manageable sample for a quantitative study, so we will use Excel from Word to run our statistical analysis.

**Reliability and validity**

In the previous chapter we discussed "Consistency" and "Trustworthiness" when using a qualitative approach. In quantitative research, we use the terms "Reliability" and "Validity". These considerations are to be addressed in your methodology section.

**Reliability**

The extent to which results are consistent over time and are an accurate representation of the total population under study is referred to as reliability; when the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable (Webster, 1998). There are three types of reliability in quantitative research –

1. Degree to which measurement, made repeatedly, remains the same
2. Stability of a measurement over time
3. Similarity of measurements within a given time period

**Validity**

This determines whether the research truly measures that which it was intended to measure, and how truthful the research results are. In other words, does the research instrument allow you to "hit the bull's eye" of your research object? There are two types of validity to consider:


4. *External Validity* asks the question, "Given these demonstrable effects, to what populations or setting can they be generalised?"
5. *Internal Validity* asks, "Do the experimental treatments in fact make a difference in the specific experiments under scrutiny, or can the differences be ascribed to other factors?"

**Sivi`i `a e falala`anga `o e fekumi**

Ko e fakakaukau lalahi `e ua `oku ngaue`aki ke sivi `a e falala`anga `o e founa fekumi ko `eni.

Founa `uluaki `oku `eke ai ngaahi fehu`i fekainga`aki pea mo e malava `a e fekumi `o toe

*fakahoko, pea ka fakahoko `e toe ma`u pe `a e tali `oku vaofi pe tatau.  
Founga hono ua `oku `eke ai ha ngaahi fehu`i mahino mai pe na`e tali ko aa `a e  
fakakaukau ne tuku mai ke sivi`i.*

 Test your knowledge

---

1. What are the different levels of measurements?
2. How would you choose the statistical test to use for your study?
3. What questions do you ask in order to ensure your study is reliable and valid?

 Key exercise

---

TIOE Staff: Choose the level of measurement and statistical tests that you think most appropriate for your study. This may require you to become familiar with Excel or a more powerful statistical analysis program.

TIOE Students: How can you ensure that your study is reliable and valid? Work with your teacher to identify the appropriate level of measurement and statistical test to use.

 Workbook review

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In quantitative research, we use statistics to measure the data gathered. There are several ways to measure this data as there are several ways to carry out statistical tests on the data. For novice researchers, it is sufficient to use Excel program and choose nominal and ordinal as ways to measure the data and this can be done with descriptive data analysis. As with qualitative, it is important to ensure that your study is reliable and valid and I have given several options on how to carry out this process. This process should be documented in your methodology section.

## Survey design

There is only one research tool used under a quantitative research approach and that is a questionnaire. There are two types of questionnaires:

- **Open-ended questionnaires:** questions are asked but no answers are given for participants to choose from.
- **Close-ended questionnaires:** questions are asked and choices are given for participants to choose from.

### Basic rules for survey design

- Keep the question items simple – one question for one question item.
- Keep the language simple so that it is easily understood by all.
- Make it clear that participants only choose one answer for each question.
- Pay attention to the layout of your questionnaire to ensure that there is a logical progression from one section to another.
- Label each section to indicate to your participants which questions relate to which sub-topic.
- Provide sufficient information on the front page to describe what the study involves; how the study findings will be used; an indication of the time you anticipate it would take for a participant to complete the questionnaire; and inform participants where or how to

submit the completed questionnaire. Also provide clearly labeled spaces here for the date the questionnaire was completed; the name of the researcher responsible; and for the participant to initial (not give name) to indicate their willingness to participate.

- Always begin your questions with more simple and non-threatening questions such as age, gender, place of residence.
- It is advisable to have the completed questionnaires collected as soon as they are completed. Having the questionnaire implemented by others is fine as long as you are also there to complete the papers or someone trusted is responsible for the questionnaire. The best approach to use is to be present to conduct the questionnaires and collect them yourself.
- Make sure that you pilot or test out your questionnaire before you conduct the questionnaire with your sample. The results from the pilot should inform you on how to refine the questionnaire and inform the most appropriate way to conduct the questionnaire.
- Proof read your questionnaire before implementation – and get someone else to do this for you!

**Fa`u `o e tali fehu`i pe koe savea**

Ko e naunau fekumi `oku ngaue`aki `i he founa fekumi fakafika `oku taha pe - `a ia ko e tali fehu`i pe ko ee `oku tau fa`a ui ko e savea. Pea `i he tali fehu`i `oku ua pe kalasi pepa tali fehu`i. Ko e `uluaki founa `oku `eke pe fehu`i pea toe `oatu moe tali ke fili mei ai `a e tokotaha `oku kau mai ki he fekumi. Ko hono fai kehekehe `eni pea mo e tali fehu`i `i he founa fekumi ngaue`aki lea, he `oku tuku atu pe pepa tali fehu`i ia ke tali pe `e he tokotaha ko `eni `oku kau mai. Koe founa hono ua, `osi pe hono `oatu `a e fehu`i pea tuku atu leva ki he tokotaha ko `eni ke hiki mai `a `ene tali.

`Oku ou fokotu`u atu ha ngaahi lao pe tu`utu`uni `i `olunga ke tokoni atu ki hono fa`u `o ha pepa tali fehu`i. Ka `oku fu`u mahu`inga `aupito ke mahino `a ho`o pepa tali fehu`i, ke fakasi`isi`i ha ta`e femahino`aki.

**EXAMPLE BOX**

Using the research topic that we have been using, here are examples of an open-ended questionnaire design and a close-ended questionnaire design.

*For sub-hypothesis 2: Highly qualified teachers can deliver a variety of teaching styles*

I can have several question items to explore this hypothesis, and these questions can look like this as a close-ended questionnaire:

Instructions: Please circle your answer. Choose only ONE answer.

My highest qualification is

1. Diploma Teaching from TIOE
2. Bachelor of Education from university outside of Tonga
3. Master of Arts from university outside of Tonga
4. Doctorate from university outside of Tonga

My most effective teaching style involves

1. Group work
2. Doing practical activities



3. Discussions and telling stories
4. Writing notes and reading
5. All of the above

If I were to use the same questions in an open-ended questionnaire it would look like this:  
Instructions: Please write your answers in the space provided. If you require more space, please use extra paper given.

What is your highest formal qualification and from which institute did you receive it?

.....

What do you think is your most effective teaching style?

.....

### Data analysis

In quantitative research approach, we use statistics to analyse the data.

#### Basic processes of statistical analysis

Data preparation

- All questionnaire sheets have been completed and are collected. All questionnaires are checked that all question items have been completed.
- Questionnaire answers are input into spreadsheet using agreed-upon coding for existing value and missing value or when providing multiple answers (using 00, 99 etc).

Data coding

- Quantitative coding – use numbers that you have allocated to each question item and answers, as the code for your questionnaire. The coding for the questionnaire can take place quickly but, this will depend on how well the questionnaire had been prepared and the size of the sample. To input 30 questionnaire items for a sample size of 30 should take about 30 minutes to 1 hour.

Data Analysis

- Quantitative coding – data input into the spread sheet is used to identify key patterns and variances in the data. Descriptive statistical tools found in Data Analysis Toolpak under Excel can be used for fairly manageable sized samples requiring basic descriptive statistical analysis for medium, mean, mode, standard deviation etc and producing basic graphs for display of results.

#### **Veteki `o e Ngaahi fika kuo tanaki**

*Hili ha fakakakato `a e ngaahi pepa tali fehu`i `oku tanaki mai ia `o fakahu `a e ngaahi mata`i fika kuo faka`ilonga mai ko e tali, ki he Excel `o ngaue`aki ha spreadsheet. Ko e lava ko ee hono fakahu e ngaahi tali, `oku toki lava leva ke fakahoko ha veteki pe analaiso `o e ngaahi mata`i fika ko `eni. Ko hono `analaiso ngaue`aki e Excel `oku fakahoko ia `o fakatatau ki he founga fua (level of measurement) na`e `osi filii, pea mo e founga sivi fakafika (statistical test). `Okapau `oku ngaue`aki pe `a e fakahingoa (nominal) pea mo hono fakahokohoko (ordinal) `oku fa`a lava pe `o ngaue`aki e sivi fakafika ki he fika avalisi*

(average), fika `oku ha lahi taha (mode) moe ngaahi sivi `oku mei tatau atu mo e ongo sivi ko `eni.

**EXAMPLE BOX**

Here is an example of data input into a spreadsheet. The codes are the numbers that are input – they represent the answers that the participants have identified. I have also included the statistical test that I have chosen, which is to calculate the average using Excel. The example below also shows that I had chosen to use nominal and ordinal as way to measure the findings.

<b>Research and the Teacher: Introduction to School - based Research</b>							
<b>Statistical Evaluation Report</b>							
1.1 Time	5	5	5	3	4		5
1.2 Venue	5	3	5	5	5	5	5
1.3 M. Tea	5	3	5	5	5	5	5
1.4 Lunch	5	3	5	5	5	5	5
1.5 Gen. Org.	5	3	5	3	5	4	5
<b>Ave. Logistics</b>	<b>5</b>	<b>3.4</b>	<b>5</b>	<b>4.2</b>	<b>4.8</b>	<b>4.75</b>	<b>5</b>
2.1 Overview	4	3	5	5	5	5	5
2.2 Introduction	4	3	5	5	5	4	5
2.3 Ethics	4	1	5	4	5	3	5
2.4 Framework	5	4	5	5	5	4	2
2.5 School - based	5	3	5	5	5	5	
2.6 Proposal	5	3	5	5	4		
2.7 Sample	5	3	5	5	4	4	
2.8 Interview	5	3	5	5	5		
2.9 Biography	4	4	5	4	5	4	
2.10 Literature	4	3	5	5	4	5	
2.11 Document	4	3	5	5	5	5	
2.12 Survey	4	2	5	5	4	4	
2.13 Observation	4	3	5	5	4	5	
2.14 Coding	4	3	5	5	4	4	
<b>Ave. Presentation</b>	<b>4.357143</b>	<b>2.928571</b>	<b>5</b>	<b>4.857143</b>	<b>4.571429</b>	<b>4.5</b>	<b>1.214285</b>

**Quantitative research report**

In writing a quantitative report, there is a need to be clear, precise, and simple. As we saw with the qualitative report, the first three sections of your report comprise your research topic (rationale, research hypothesis and sub-hypothesis); literature review; and methodology section (sample size, level of measurement, statistical tests, questionnaire items). The remaining sections of your research report include the findings, discussions, and the conclusion.

Findings

For quantitative data, the results are usually displayed as tables, graphs, and digraphs depicting the statistical analysis of the data. For small samples (less than 30) the statistical analysis tends to use basic descriptive statistics such as mean, mode, median etc.

Discussion

This section will draw out the significant findings from the above section and explain how these answer, either by accepting or refuting, the hypothesis that was posed. By the end of the discussion, there should be a clear indication of whether the hypothesis is accepted or rejected.

Other sections of the report are similar to that outlined in the qualitative report. An example of a format for writing a quantitative report is presented below.

### EXAMPLE BOX

**Title:** sufficiently brief, yet able to provide a clear indication of the content  
**Abstract/Summary:** does it convey a brief essential impression of the research in less than 200 words, covering aims, subjects, variables, design, and conclusions?  
**Introduction:** should contain brief overview of issues and concepts to place research in its context. Aim(s) and hypothesis should be stated clearly in a predictive form.  
**Method:** give enough detail to enable readers to repeat the study as you did it.  
**Design:** detail the variables, the design form, the statistics employed, the subjects, materials/tests, procedures/instructions.  
**Results:** verbal description of results plus summary tables clearly titled and labeled (raw data in appendix if necessary) are essential with significance levels stated and statements about rejection or support for null hypothesis.  
**Discussion:** relate results to hypothesis, background theory and previous research. Note and explain, if possible unexpected results. Suggest modifications and future directions for the research area. Discuss limitations.  
**Reference:** list all studies referred to using standard formatting  
(Burns, R.B. 2000. Introduction to Research Methods., Sage Publication: London)

Once you have written up your report, it is advisable to have someone review the paper before it is submitted.

#### Test your knowledge

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1. What are the two types of survey design?
2. Describe the coding process for a questionnaire?
3. Explain the basic process for statistical data analysis

#### Key exercise

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TIOE Staff: Design a questionnaire that will identify the answers to your hypothesis. Ensure that your survey design includes two different types of questioning. Make sure that your questionnaire is coded.

TIOE Students: Draft a questionnaire that will find answers to your hypothesis. Ask your teacher to assist and pilot the questionnaire with your friends.

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