

# HOW TO CREATE A RESEARCH PROJECT



Bryan Walker BSc MSc PhD

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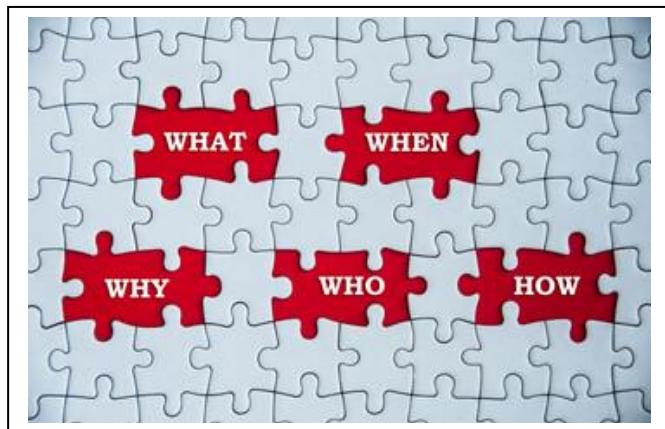
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## **1. INTRODUCTION**

Research does not necessarily demand laboratory space and expensive equipment. Fundamentally, a researcher is simply a ‘nosey’ person , who is curious and persistent enough to want to know what is happening , how a system works , or how many , how much , where , when and by whom . (Notice that ‘why’ questions require care; ‘why’ questions are usually the preserve of philosophers and theologians . E.g. Why do all living animals and plants get old and die?)



There are basically two kinds of research:

1. **Descriptive Research.** This involves keeping records of what is happening. It needs pen and paper although a calculator or computer may help in tabulating and adding up results.

E.g. How many disabled people live in my village? How many males/females/adults/children? What were their conditions? How were they treated? When (times and dates) did they attend a clinic or a hospital?

E.g. What is the incidence of nail-biting in my child’s school? Is there a difference between boys and girls of different ages? How many children are helped to stop the habit? By what means?

E.g. How many different species of birds do I see in my locality? At what time of day? Is there an educational programme about bird conservation in schools? Date, time, conditions, location, and map coordinates can all be recorded.

2. **Experimental Research.** This often arises from questions developed from descriptive research, taking other information into account.

E.g. What would happen if we changed the location, the time, the altitude, the temperature etc? It can involve making several measurements of the same thing at different times or making comparisons between other locations or different techniques. Mainly it involves changing something and measuring the outcome.

E.g. Would the impact of accidents happening to colleagues be reduced if every office or school had a qualified first-aider?



E.g. Would poverty be reduced in a village if we taught loom construction as well as

Its use?

What happens if we change something? That is the basis of experimental research.

Many have embarked on research, published one or more articles and registered for a higher degree. A few have achieved this without an undergraduate qualification.

In the [United Kingdom](#), [United States](#), [Australia](#), [New Zealand](#), [Hong Kong](#)

and some other countries, the **Master of Science** or the **Master of Arts, Law, Business Administration, and Music** degrees generally contain a balance of taught and research components.

*It is strongly recommended that you install an App on your laptop called Grammarly. There is a free version. It will offer changes to spelling, grammar and word sequences. Not all the suggestions are good, but you should think about the options presented and make your choice. Your writing will improve dramatically.*

A Research Project is a good way to extend your career, keep yourself from losing your sanity, and enhance your job prospects. After research training, your attitude to everything you do in life will change. To be of maximum benefit to your career it is best if your research is directly related to an essential part of your work. Others have done it - so can you! I am going to explain how to set about it in easy steps.

## **2. STEPS FOR FORMULATING RESEARCH**

There are many exceptions to generalisations that can be made about research projects at different levels. With an archaeological topic, experimental approaches are likely to be limited to methods of investigation. An analysis of Bach's music is likely to be mainly descriptive. Comparisons can be made between populations of nail-biters in different schools and then experimental changes can be made to the effectiveness of different treatments to discourage the habit. At any level, there may be opportunities for both descriptive and experimental approaches.

However, as a progression is made from personal research, through school-based projects to first BSc and second-degree MSc programmes, there will be a trend from descriptive towards experimental research. A Master's degree project may be mainly descriptive, while a Ph.D. or D.Phil. (Doctor of Philosophy) programme is more likely to include an experimental approach. All reports and theses will start with a literature review and probably conclude with ideas for further study as many research projects raise more questions than answers.

Fundamental to all research is the formulation of a **research question** that is to be addressed. The question may well be supported by ancillary questions. No research project should be started without the construction of the questions(s) that will be addressed. The following simple steps are intended to help you select your subject, construct the question, and know how to organise your final proposal. Most colleges will help you through these stages through the completion of several forms and their guidelines.

**IMPORTANT NOTE.** Although you are progressing with your studies, the higher you go with your programme, the more likely that the institution will want you to attend and complete some **workshops**. This is to be sure of your competence in areas such as writing, research methodology, the use of statistics, analytical procedures and preparation of your final report and examination. But we will start with the steps: you can face the consequences later! The residential requirements may have financial and travel implications especially if you are registered with an organisation in another country.

Another word of advice. *Wanting* a qualification is not enough to ensure success. Several candidates have started on that route and dropped out because their priorities were not rightly ordered. First and foremost, you need to be consumingly interested in research for its own sake. You want to know how things work and what makes them happen. The qualification will follow. The collection of massive amounts of data, enough to cause a fog, can be followed by the thrill of seeing images emerge from the mist. Patterns will form from what at first seemed random. That thrill and satisfaction is the main reward for a researcher. The qualification is the icing on the cake.

### **Step 1. Selecting possible areas of work**

Start by listing the major fields you have covered in earlier studies and that you found interesting. Look for subheadings within your modules/assignments and aim to finish up with a list of about 20. Your list may look similar to this:

- human resource management
- accounting
- administration
- logistics

- monitoring and evaluating
- library organization



- community participation in sports
- education for the disabled
- the transition from emergency to development
- development, conflict reduction and peacebuilding
- the natural history of Bumble Bees
- etc

Now add to the list areas of interest that were not covered in your studies.

- standards for development
- the value of workshop training to NGO staff education
- water and sanitation
- marriage and divorce
- natural childbirth
- financial support for disabled people
- etc.

Think about each in turn and write 3 or 4 words ONLY alongside each one to define the field. E.g. Natural childbirth: clinic and hospital availability, provision of staff training, education for pregnant mothers.

OK, you have outlined all the areas within which your research could be made.

Now cross out all the areas in which you have little or no current interest. Don't cross out every one (!). Leave about 6 headings and divide these into A) and B) according to more or less interest. Do not give any more thought to those areas you have discarded.

That should take about half an hour. Put the task away and go to bed. DO NOT DO ANY MORE ON THIS UNTIL TOMORROW.

You have made a good start for one day.

## **Step 2. Narrowing your options**

Look at the college proposal form and the others supplied by the institution of enquiry - then forget them: this will allow your subconscious mind to use the structure. Do not attempt to complete the forms today.

Can you get to see a copy of anybody's completed project? It is always helpful to look at the completed thesis of a successful candidate to give you an idea of what is required, even if you have little idea of the topic. Perhaps the College Library or the Department has copies you can read.

Now choose three or four areas from your list and dump the rest. Do not even think about them again. Can any of the remaining ones be combined? This may be possible if your choices are related e.g. management and leadership.

Write two or three lines outlining the areas you are left with. Do not worry that you have only a couple or three options at this stage. The actual topic is somewhat arbitrary. Every project gets interesting once you start (later it gets boring, but it finishes up more interesting again, I promise!) and the questions may change with time.

(In the next step you are going to list as many unanswered questions as you can under these three topics).

### **Step 3. The research question(s)**

Your response to Step 2 was superb. Well done!

Now you need to formulate some questions more carefully for your three topics. My view (not accepted universally) is that ‘why’ questions are for philosophers and theologians as stated earlier. Social scientists and scientists can find answers more easily to what, how, when, where and who questions. “What are the political systems that create or minimize educational opportunities?”



- a. Use these question words to formulate one main question and up to half a dozen ancillary questions for each of your three areas. Try to form your questions in a way that allows employing a research process rather than the expression of an opinion formed irrationally. That means avoiding a question such as, “Do we just sit and wait?” This could be answered with a simple ‘yes’ or ‘no’ without foundation other than supposition.
- b. Formulate your questions in a way that conveys a single idea. “Should we be relying on individuals, or focusing on consortiums or committees?” This actually implies more than one question.
- c. Now look at all your questions again and add one word alongside each which briefly describes a process or a technique that could be used to answer the question e.g. questionnaire, interview etc. Your completed modules will offer other ideas. You could scan the module to look for these even if you do not

fully understand them.

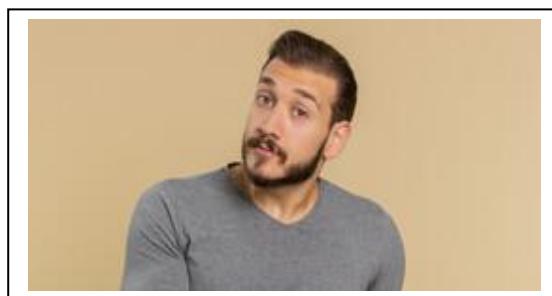
OK, we are getting there with only a couple more stages to go and one of these will be a period of reflection.

#### **Step 4. Your Turn to Answer Questions!**

You have moved a long way in a short time by reducing a huge field to a small choice of three areas. However, be flexible enough to allow for the possible need to change one or more of these areas before you finally reduce to one - and then start on the forms!

You have been *asking* many questions. Now it is your turn to *answer* some while you reflect on these three topics. You need not bother to write anything down unless you are helped by so doing.

1. First of all, there might be a problem. You may be about to change your work and possibly your location. Will your three topics be applicable in a different context? Perhaps your thinking has been limited by the ‘here and now’. If you relocated to another town perhaps a research question might be, “Are the opportunities for disadvantaged children similar in each location?”



2. So - can your research topics be applied anywhere, or is there one that can only be researched locally?
3. Think about a balance between philosophical and practical. Questionnaires and practical measurements almost always give results you can work with, analyse and plot graphically. Literature contradictions and philosophical

confusions are harder to resolve ('Managers need to make autonomous decisions' OR 'Successful managers are those who consult everybody before making a decision'). A balance of approaches gives a project a better chance of high marks than a single approach which may be a success - or unproductive. It is good to crack a problem with more than one approach, but at some stage check that this is also the view of your supervisor.

4. Think about comparing two or more analytical methods for tackling the same problem or applying one technique to two or more situations? An example comes from a psychosocial student who wanted to explore how people related a person's speech to their social class. Two approaches were: a) to use one actor to adopt presumed speech differences, or b) to use multiple actors to present communication of a different class, and then assess the reaction of the hearers. Each method has its problems
5. Have you realised by now that there are other ways of asking questions in addition to 'what, where, which, who, how and when?' For example:
  - is/are there ways of ...
  - can you ...
  - etc
6. Having read other widely different project reports, have they given you any further ideas for research topics or research approaches/techniques?
7. Lastly (for the time being!) would your topics be limited to your organisation and its activities? If your research carried you into other organisations, would they cooperate, respect your presence and give you their information willingly and openly?

Think about these things, and I will be back!

### **Step 5. Your proposal: structure and sequence**

There are several different ways of structuring information; you need to choose the one that is the best when making a presentation, a research proposal or a research report. As most people can remember three or four points, but not five or more, this will dictate the number of sections you use. Each section may be subdivided, but the same rule applies.



Please do a small exercise. There are 120 ways to arrange five sentences but here are just six examples. Choose the one which you feel is best for telling your story.

1. I was on sentry duty  
I opened fire  
It was a lucky escape  
The enemy approached  
The enemy ran away
2. I opened fire  
I was on sentry duty  
It was a lucky escape  
The enemy approached  
The enemy ran away
3. It was a lucky escape  
I was on sentry duty  
I opened fire  
The enemy ran away  
The enemy approached

4. The enemy ran away  
I was on sentry duty  
I opened fire  
was a lucky escape  
The enemy approached
5. I was on sentry duty  
The enemy approached  
I opened fire  
The enemy ran away  
It was a lucky escape
6. The enemy approached  
It was a lucky escape  
The enemy ran away  
I was on sentry duty  
I opened fire

Of course, some novels are written in a way that starts with a problem and then recapitulates to explain the events that led to this situation. (E.g. “I opened my eyes and looked down the barrel of a gun!”) While a highly skilled narrator can do this, most of us need a safer approach. Perhaps you chose number 5. It gives a chronological account - I was on sentry duty AND THEN the enemy approached AND THEN and so on. But there is another structure hidden here which is invaluable for any form of research publication, report or even an impromptu short speech.

Group 5 illustrates:

- a situation
- a problem
- a solution or solutions
- the effect
- a comment

Try it out for yourself. Think of any topic. Malaria, perhaps.

Malaria kills many people every year, directly or indirectly, mostly children (**the situation**).

The parasite is developing resistance to anti-malarial drugs and the mosquitoes are becoming resistant to insecticides (**the problem**).

We must find a way to reverse resistance or develop better ways of treatment (**possible solutions**).

In these ways, we can combat one of the world's worst diseases (**the effect**).

In achieving this we will have to feed three million more people every year (**a comment**).

This example uses only single sentences, but it could be expanded into paragraphs, sections, or chapters. For some purposes, it may only be necessary to use the situation, the problem and possible solutions with comments after each possibility. In other situations, it may be sufficient to start with the problem e.g. a research proposal.

To summarise this section, the structure of information is important, and it should follow a logical sequence. The arrangement can be based on:

- a chronological sequence
  - describing the end situation, comparing it with the beginning, and reviewing possible causes to explain the difference
  - using situations, problems, solutions, effects and comments
  - answers to a list of questions: how, when, what and where etc
- a) Now consider Part 1 of many Proposal Forms. They ask about the problem. However, for each of your three areas write one sentence defining the situation, then in one or more sentences, describe a problem arising from the situation.
- b) Finally, discard one of your areas and complete the form for each of the other two. Hopefully, this will help you to decide which area you will select for your research.

### **Step 6. Filling the forms**

Different academic institutions have different requirements for research registration. However, you may be sent four types of forms in addition to Research Guidelines:

1. A brief initial Registration Form

This requires a Topic Outline (statement of the Problem: Key Questions to be Investigated (not more than three or four): Possible Methods: Probable Data Sources: Possible Outcomes. This information will be used to identify a supervisor who has related research interests.

## 2. A Risk Assessment Form

This will be sent if your work is to be carried out in dangerous areas. You will need to identify and rank hazards, who might be harmed and how, evaluation of precautions, and elaboration of safety plans.

3. An Ethics Form. This will be mandatory if your work is sociological, psychological or involves animal experiments.

## 4. The Full Research Proposal Form

This is the tough one! (You will be told the number of words to present). It will include a literature review, an assessment of the problem(s) to be addressed, a critical outline of the methods to be adopted, analytical procedures and possibly a time frame (bar chart) showing all activities to be followed. (The endpoints can be considered flexible. For example, the literature search will continue throughout the period. While writing your discussion you may come across other references that have to be added and there may be some cited that you can exclude. You are wise to try working to an earlier deadline than the actual one because this will allow for sick kids, backache and all the rest of the hazards that beset family members).

You are strongly advised to do some writing throughout the project; keep a record with bullet points under section headings instead of leaving all the writing to a final bang.

Do not plan to write up your project in the way in which it will appear between the blue covers. For instance, as soon as your research methods are initiated you can write up the Materials and Methods section. Probably you will rewrite your Introduction last of all when your project is finished as only then will you see what you are introducing!

MOST important. MOST important. Keep your references accurately as you go so start by deciding the method you are adopting for giving references. Kept alphabetically it is then easy to list these at the end. Finally, you will read your whole report checking that each literature citing is listed AND there are no references listed which are not cited in the text. (Perhaps you will have a

small additional block called Bibliography which contains general recommended reading without implying specific citation).

So - Methods is easiest to write and this will encourage you to avoid writer's block.

### **3. THE FINAL THESIS**

When you get writer's block (and you probably will!), write the Title Page, Acknowledgements etc that come at the front of a thesis. Contents can be done at the same time, but page numbers will change as you write. In summary:

1. Write Methods as soon as your research is underway. Write the preliminary pages (Title, Dedication etc) if you get writer's block. But they can be written later.
2. Keep references meticulously. If not, you may waste hours or even weeks trying to track incomplete references. It is most important to keep all your references in the format required by the intended journal for publication, or the university requirements for a postgraduate thesis. e.g. Harvard format. There are many free downloads to help with keeping records of references.
3. Record bullet points in sections as you get ideas. You can move information around later to ensure a balance of section lengths
4. Keep your eye on new literature arriving throughout your project time
5. Then write Results, Discussion and Conclusions
6. After Discussion and Conclusions, check all references are cited and you have not cited references not referred to in the final list
7. After Conclusions add a page on Ideas for Further Research
8. Last of all write and polish the Introduction. Only after the rest of the report is written will you know what you are introducing

9. The quality of your report will be judged by its suitability for publication. If any opportunity arises for you to give a presentation at a meeting, however small, take it. Participants will give you further ideas and comments. If you can find a journal that will publish what you are doing, also take it as this will preempt any pass/fail decision by your examiners. “Is it of publication standard?” “It has already been published!”

10. Do not publish your work unless you have consulted your tutor.

It is important to recognize that research work needs to be published as unpublished work has no lasting value, however good your thesis is. It is useful to present research ideas to meetings and workshops to get significant feedback from like-minded colleagues before you send a draft to a journal. In this way, you can modify ideas before publication. Uncorrected errors stay in print for a long time!

# Research Paper Outline

## I. Introduction

- A. Background information
- B. Research problem or question
- C. Significance of the research

## II. Literature Review

- A. Overview of relevant literature
- B. Key theories or concepts
- C. Gaps or controversies in the literature

## III. Methodology

- A. Research design
- B. Data collection methods
- C. Sample selection
- D. Data analysis techniques

## IV. Results

- A. Presentation of findings
- B. Data analysis and interpretation
- C. Support for research question or hypothesis

## V. Discussion

- A. Interpretation of results
- B. Comparison with existing literature
- C. Implications and limitations of the study

## VI. Conclusion

- A. Summary of key findings
- B. Contributions to the field
- C. Recommendations for future research

## VII. References

- A. Citations of all sources used in the paper

<https://www.ResearchMethod.net>

#### **4. THE LAST WORD - OR ANOTHER STAGE?**

We are living in extraordinary times with history being rewritten daily. These dramatic changes are going to give rise to new approaches and new opportunities for research. Perhaps you have decided on your study subject or your research topic. If you are old enough to read this book, you may be young enough to remember events of the last decade or so. The current Covid-19 pandemic is inclined to push past events from your mind, and they are easily forgotten. Yet grandparents may still talk about the ‘good old days’. But do we want to go back just a century or thereabouts (a mere blink in biological time) when there were no general or local anaesthetics, no antibiotics or vaccinations? And no mobile phones. Do we want bloodletting or blood donation? In those days we had little idea of what was happening in other parts of the world: now we know in an instant.

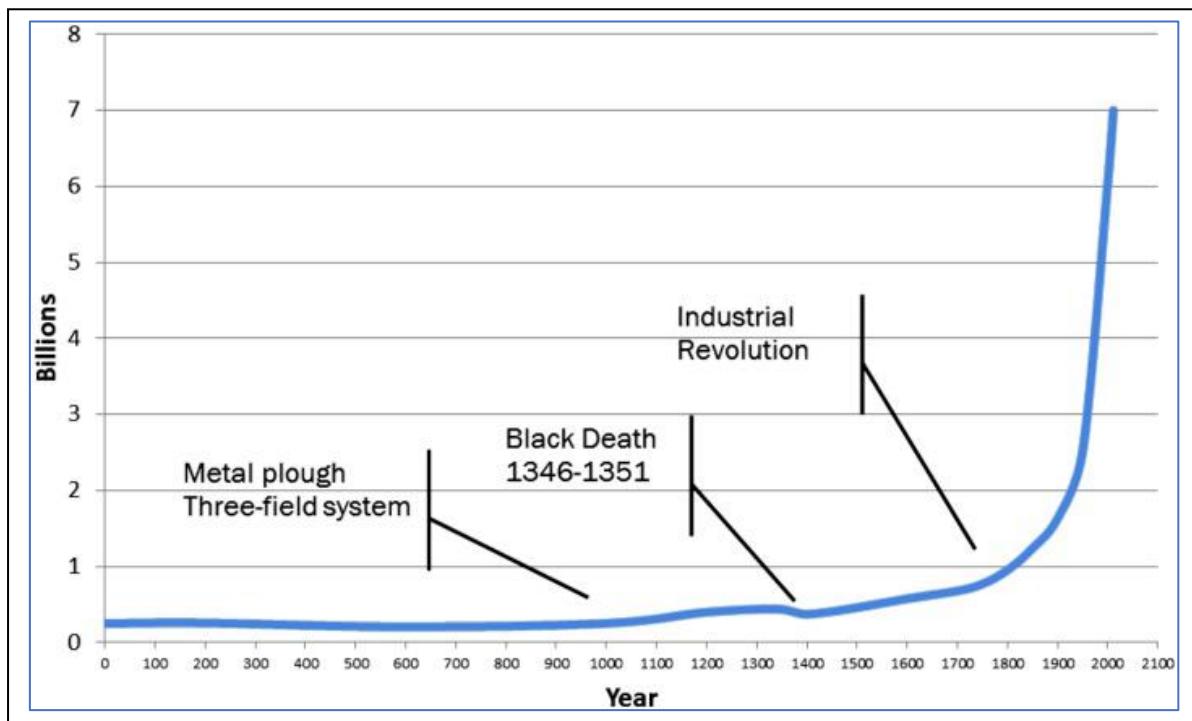
If you are still looking for a topic, address some of these questions: maybe one will catch your attention.

##### **1. Emergencies**

Start by looking at questions about earthquakes, tsunamis, volcanoes, tornadoes, floods and droughts. In addition, there are deaths caused by lightning strikes, wildfires, landslides, avalanches and meteorite strikes.

##### **2. Human-induced problems**

Is the world more united by the Internet or more divided? Can democracy exist in a country with a monarchy? Did Chairman Mao kill more of his people than the number of deaths from the 2<sup>nd</sup> World War? Should governments concentrate on issues of international diplomacy and human rights, infrastructure, transport, health, education and international economics and be free of religion? Should machines in gyms have attached dynamos to generate their own lighting and air conditioning? The need for food, water, sex, urination and defaecation are biological drives. Is there justification for treating one differently from the others?



### The Human Population Explosion

#### 3. Biological problems

How many children are born with birth defects? How many of these are hereditary and in which countries do they occur? What are the causes? What is the percentage of birth ‘defects’ associated with gender? Is health care so advanced that people are surviving who would have died 50 years ago i.e. are we getting survival of the unfit and not the fit? Can more be done by international cooperation to control Covid-19 and future pandemics? Is the current climate change unique or have there been many ice ages in the past each followed by a period of global warming?

Has life expectancy doubled in 50 years? What is the impact of an increasing percentage of elderly in the population? Can anything be done to reduce the human population explosion? Is more spent on arms in one day than humanitarians spend in a year? Have mosquitoes caused more deaths than wars?

#### **4. Individual responsibility**

What can I do for myself or others? Can I do anything about world problems as an individual? Start by looking at Avaaz. (It is a 60-million-person global campaign network that works to ensure that the views and values of the world's people shape global decision-making. Avaaz members live in every nation of the world; the team is spread across 18 countries on 6 continents and operates in 17 languages). Is there something paradoxical about spending billions of dollars to destroy weapons that cost billions of dollars to manufacture? Am I facing the worst period in human history or have there been worse past periods?

You have embarked upon your journey into research, but you need not stop there. Perhaps you will take a break and then you can continue for the rest of your life.

A final thought. If the population explosion was reduced there would be little need for any other measures in terms of food and water production and increasing temperature and air pollution! That is where we started. The next hundred years will be fascinating in terms of robotics, artificial intelligence, technology and developing governmental and biological changes but somebody else will have to do the research and revise this module.

#### **5. GENERAL READING**

Walker B (2021). *Online Learning: An Overview*. International Journal of Community Resilience 1, 1-13. (<https://doi.org/10.51595/INJCR/11111119>).

Walker B (2012). *How to Succeed in Your Work: a tool kit*. 2<sup>nd</sup> edition. (Download free from <https://www.obooko.com>).

Walker A, Walker B and Walker R (2012). *The Guide to Humanitarian Employment - getting started, getting in and getting on*. 3<sup>rd</sup> edition with Foreword by Baroness Caroline Cox. (Download free from <https://www.networklearning.org>).

## **6. THE AUTHOR**



Bryan Walker BSc MSc PhD FRSBiol FRSMed has followed careers in industry, hospitals, academia and the civil service. After being Head of a University Department of Pharmacology for fifteen years he was appointed as one of Her Majesty's Inspectors of Higher Education. His research achievements resulted in election to Life Fellowships of The Royal Society of Biology and The Royal Society of Medicine.

His academic appointments have taken him to Asia, Africa and countries in Europe where he has given more than a hundred invited lectures, workshops and seminars. With extensive and varied experience in the UN, Oxfam, SDU (Patron) and other non-government organisations he has run courses in research and modern teaching methods, interviewing and other aspects of management. In addition to his academic publications, he has made many contributions to humanitarian websites.

### **IMAGE SOURCES**

- [www.freepik.com](http://www.freepik.com)
- [www.pexels.com](http://www.pexels.com)
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