

The Role of Libraries in Supporting Agricultural Research and Innovations¹

By

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Introduction

The library plays significant roles in the life of human beings. Library can simply be defined as a collection of knowledge. This knowledge can be of diverse types (of plants, rocks, soil, species, etc.) and format. It is usually organised in a logical (appeals to 'common sense'), sequential (taxonomic, from one level to another, relating to one another) and consistent order (can be easily understood even if in higher quantity) which enables easy reference and retrieval for different purposes. The creation of the world in Genesis Chapter 1 is a particularly good example of format, sequence and orderliness which can easily be understood and referred to. In Genesis 1: 31, the Bible reads: *"Then God saw everything that He had made, and indeed it was very good. So, the evening and the morning were the sixth day."* Libraries are always incredibly good, in content and organisation because of what people are able to derive from them.

The library can also be described as space: physical and virtual spaces. Libraries provide spaces for interacting with great minds. Libraries are places that individuals and groups meet in pursuit of a common goal of interacting with knowledge. These individuals and groups could include one that is physically present in the library or distant, living or dead, in different languages and life pursuits through their writings.

Libraries contain resources that are comprehensive in nature. They may be texts, audio, video, maps, pictures, microfiche, microfilm, compact disk read only memory (CD-ROM), or three-dimensional objects. Library resources could also be museum objects, artifacts and other memorabilia which serve as memories of cultural areas and peoples.

Library materials are usually in various categories. There are borrowable materials and there are non-borrowable materials. There are open shelf materials and there are closed shelf (reference) materials that can only be consulted for a limited period of time by individuals. Most of the early libraries are libraries of monasteries or seminaries where the Bible was studied and preachers of the word of God were trained. They were chain libraries. The books were actually chained together. I was a privilege to visit the Hereford Cathedral in England, the United Kingdom where you have this type of early (chained) library preserved. And the

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reason for chaining the library is simple – so that knowledge would be preserved and not be misplaced or taken away leading to undue extinction.

Today, the virtual space contains digital formats of hard texts and much more. Virtual, which is also referred to as cyberspace, the online world of computers and networks (according to Meriam-Webster Online dictionary), is able to put into one space text, voice, picture and motion, with guide on how to access the materials. The keyword, therefore, is **access**, whether in physical or virtual library. The present trend in technological development makes cyberspace more compelling for the millennials, that is, those born into the digital environment, the digital natives. These are those born from the mid-nineties upwards. It is the same force for pre-millennials, the digital immigrants, those born before the arrival of networked computers and synchronous (real-time) and asynchronous (store and forward) online communication.

However, the question before us is how the library, with all the knowledge therein, can support agricultural research and innovation. In discussing this, some concepts will be used to illustrate the role of libraries in supporting agricultural research and innovation. These are concepts of discovery, understanding, application and writing. In order to be a true librarian, who is somebody who manages a library, and in line with our definition of library, these concepts shall be treated in the order of writing, discovery, understanding and application. Thereafter, a conclusion shall be drawn on the effective role of libraries in agricultural research and innovation.

Writing

Writing has to do with expression. It is an expression of thought, of observation, assessment, evaluation, or critique of a situation or another person's thought. It is largely an opinion of the writer. This opinion is formed from the world view that the writer is exposed to. So, if he or she is localized to a community, his or her opinion will most likely be based on the knowledge of the environment exposed to. If it is a more globally exposed person, the writing is largely to draw from that exposure.

Writing is also expression of communication by some individual to another or group. This is essentially the writings of prophets and men of God. They express the mind of God to his people in the situational language that they can easily understand and act upon. Where the receiver or reader is not able to understand the writing, it amounts to a proverb.

Writing, therefore, is a definition of social reality as perceived by the writer. It is situational and that is why writing will not stop until Jesus returns. Solomon in Ecclesiastes 1: 17 says *"And I set my heart to know wisdom and to know madness and folly. I perceived that this also is grasping for the wind."* Also in Ecclesiastes 12: 12. *"And further, my son, be admonished by these. Of making many books there is no end, and much study is weariness to the flesh."*

However, without writings, there is no testament, no history, and where there is no history, it is a lost generation. Remember what happened to a people in Nehemiah 7: 61 – 64. *"And these were the ones who came up . . . These sought their listing among those who were registered by genealogy, but it was not found; therefore they were excluded from the*

priesthood as defiled.” There was nothing to testify that the people referred to here were Jews and priestly.

This case of testament at the right time in history, is perhaps one of the reasons why students are usually required to write Long Essay, Research Project, Dissertation or Thesis; and staff engage in continuous research in order to personally write down their experience in the situation that they found themselves during their study. They are to express their understanding, evaluation, or discovery which can be taken up by another for verification. This is what Kuhn (*Thomas Kuhn’s Structure of Scientific Revolutions*, n.d.), in the philosophy of science refers to as the necessity of scientific revolution. It is while scientists use the familiar tools and methodologies with distinct insights that they discover new truths about their paradigms or ways of reasoning which lead to another paradigm. Kuhn calls it paradigm shift and it leads to revolution because it was never planned. It occurred while a fresh insight was brought into writing down all that had been imparted and evaluating the lessons, assumptions or statements.

It is imperative therefore, that we be bold to write down our observations. Researchers and students should be eager to bring their insight into scientific experiments and revolutionalise their disciplines by challenging current methodologies, even though we start with the current. This is what is called innovation and discoveries. And it is in the library that the different methodologies written down in forms of research reports can be found. These previous research findings have been gathered together, classified, organised and made accessible in the library for new researchers.

In Agriculture, there are so many reports of past and ongoing research in several formats, though increasingly digital. The Food and Agricultural Organisation of the United Nations has so much to share through its database, AGORA Research in Agriculture, available at [AGORA: Global Online Research in Agriculture \(research4life.org\)](http://research4life.org). The database grants access to up to “15,500 key journals and 48,000 books on food, agriculture, environmental science and related social sciences”. See Figure 1.



Figure 1. Home page of AGORA database.

The Library of the International Institute for Tropical Agriculture (IITA) in Ibadan has documented all the results of its research (*Knowledge Center*, n.d.) and it is these reports that several renowned scholars today interrogated in breaking out with their findings in Nigeria and Africa. See Figure 2.

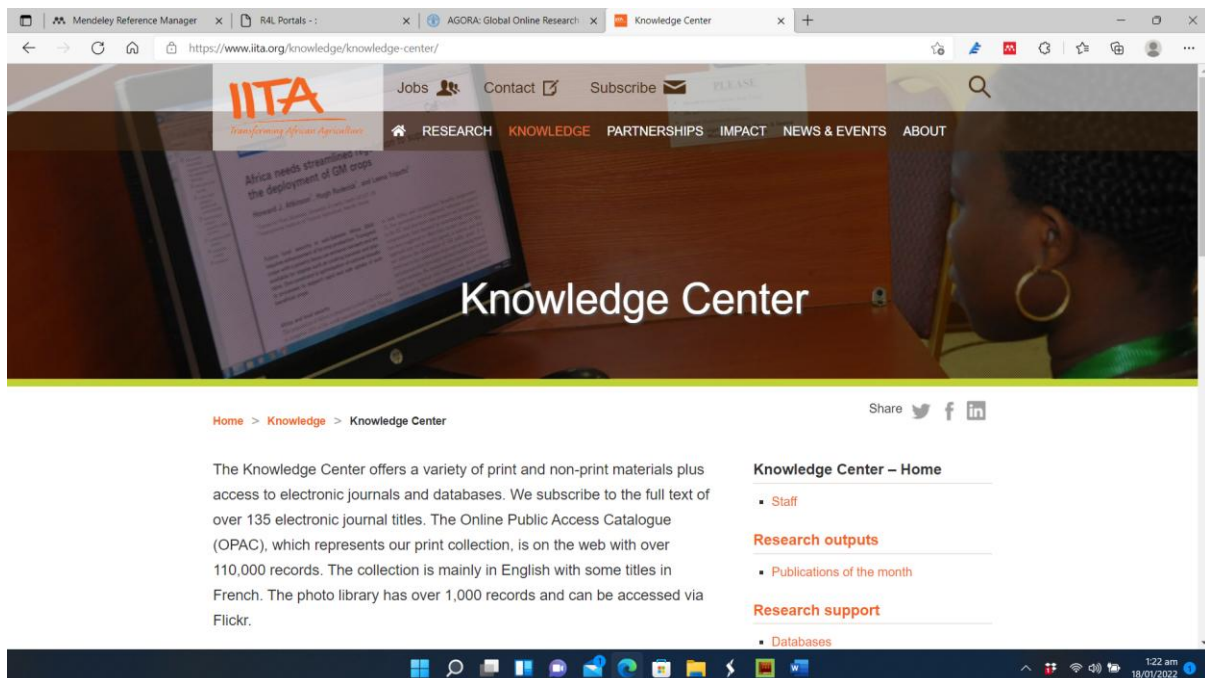


Figure 2. home page of IITA Knowledge Center.

The Peace House Agricultural Training Institute (PHATI) will surely document the findings of its research in such a way that other researchers can start from the present findings in order to arrive at scientific revolution. And I see this happening in a greater dimension because

PHATI is not just a 'normal' agricultural institute; it is unique because it is based on deliberate and wholistic Biblical principles of the wisdom of God which cannot be comprehended by man (Romans 11:33; James 3: 17).

PHATI research must lead to a paradigm shift because, not to do so is to capitulate to the world view of research and 'innovations' which is sponsored by questionable agencies to fulfil desired goals. It is even more urgent today to *write our own* in the present global confusion, mischief and manipulations. It is important to note that agricultural products are used as biological weapons (Casagrande, 2008; Chai et al., 2018; Tucker & Vogel, 2008) and are also the main ingredients for medicinal drugs which can also be manipulated. The king in Esther 8: 8 asked the queen to write her own decree for the salvation of her people. *"You yourselves write a decree concerning the Jews, as you please, in the King's name, and seal it with the king's signet ring; for whatever is written in the king's name and sealed with the king's signet ring no one can revoke."* They did, and this saved the Jews from an otherwise imminent extermination.

The implication of this is that PHATI must have a well organised rich library that captures past and current developments in the agricultural sector and related disciplines which will now form the platform for ongoing research and innovation. It also implies that PHATI must develop into an effervescent research institution with its own publication outlets according to her own decree. This way, findings will be made that will lead to paradigm shifts leading to more discoveries for the good of world population.

Discovery

Discovery is the art of finding. It is innovation that leads to relief. It is usually solution inclined. The outcome of writing is documentation in a sequential and discoverable manner. Any writing that is undiscoverable is tantamount to loss. However, when it is discovered, it is a great relief because 'truth', according to any author, is discovered and it forms the starting point for further research and paradigm shift. The discovery of the dead sea scrolls has revealed many biblical truths that were hidden before then. The discovery of the saving act of Mordecai in the Bible led to the salvation of a nation as recorded in the book of Esther Chapter 6: 1. *"That night the king could not sleep. So, one was commanded to bring the book of the records of the chronicles; and they were read before the king. 2. And it was found . . ."*. I dare say that whenever you lack sleep, please bring out the book and read. You may discover a life-saving writing.

Finding or discovery involves a knowledge of strategic search. There has to be a strategy to read up research or other research reports that have been documented. The more obvious strategy is to approach search by discipline. So, a researcher has to acquire sufficient knowledge of his or her field of study to know the boundaries. The boundaries may be related fields or fields that are related but not contributory. That way, the researcher will now focus on the particular field of interest and look for journal articles, textbooks or other relevant resources on the desired topic of investigation.

While doing this, the researcher should particularly and immediately note down the sources of the different research reports. This can be done manually or electronically through reference styles. The referencing styles are more easily adapted in the course of writing for

particular publication outfits who have unique ways of referencing sources cited in the course of writing the research report. The criticality of citing sources referenced is that it “gives honour to whom honour is due”. It is courteous and avoids plagiarism which is a criminal offence. And this should never be named among children of God. It is taken for granted that “there is nothing new under the sun” (Ecclesiastes 1; 9).

It is therefore expected that all works cited and consulted in the course of a particular study or research should be acknowledged, even if it is already paraphrased, that is using your own words. When this is done, it makes it easier for the reader to verify the methodology, conclusions, assumptions and propositions of the new researcher. Research is simply *re – search* and should be so understood. The result and reports of research can be affected by situations such as instruments of research, methodology, geographical location, cultural environment, and background of the researcher. This is also another reason research is replicated, and results could be significantly varied in some instances when those variables are replaced.

When a good literature search methodology is adopted, the research is most likely to access and interrogate appropriate sources that can affect the outcomes of their research. The use of appropriate keywords is significant. In libraries that operate the card catalogue, the Subject catalogue would usually list relevant subjects, but these are few when compared to the keywords generated through digital search. The digital search turns out hundreds and thousands and millions of results in nano seconds.

The process of research therefore involves literature search as of utmost priority. Literature is all the writings that authors had previously written around your topic of interest in books, journals, magazines, newspapers and, indeed all formats. Getting to the library, look for works that had been done previously on your subject of interest, note down the sources meticulously (the author, full title, place of publication if a book, date of publication and page if you are quoting directly from the source. If it is a periodical, it is the same requirement except that you put the name of the periodical instead of a book, and you include the volume and issue numbers).

Get into the library with an exercise book, phone, notebook, iPad or laptop to document the findings from your literature search. These will facilitate your documentation. It is always good to learn to type well. This is a progressive development. The more you practice, the better. As you jot down your ideas from your readings, you may discover gaps in the literature. Gaps are areas of interest which previous writers are yet to investigate. You may also want to evaluate some previous conclusions or hypothesis or proposition, which lead to more understanding and proficiency in your research process.

Understanding

In the library, when properly engaged, a researcher gains understanding. This understanding develops into boldness and strategic direction as exemplified by Daniel in Daniel Chapter 9: 2-3. *“In the first year of his reign [Darius the son of Ahasuerus], I Daniel, understood by the books the number of the years specified by the word of the LORD through Jeremiah the prophet, that He would accomplish seventy years in the desolations of Jerusalem. 3. Then I set*

my face toward the Lord God to make request by prayer . . .". Recall that Daniel was an excellent scientist and administrator par excellence as recorded in the book of Daniel.

By reading from, probably his private (personal) library, he was able to understand the time determinately set by God for the return of the Israelites from exile. Note that he read books. He seemed to have been a notable example of a consistent reviewer of literature. So, he read the prophecies of Jeremiah and other prophets and came to discover that the year that God promised had come. But he needed now to plead with God to bring it to pass. He did. God answered his prayers.

This is a great understanding for anyone who would succeed in ministry. Ministry is not underlined by dry pulpit ministry, it is ministry in the marketplace, in the professional market. The Apostle Paul was also a successful man of God who was a diligent reviewer of literature. He also seemed to have had a private library as evidenced in his words to his disciple in II Timothy 4: 13. *"Bring the cloak that I left with Carpus at Troas when you come – and the books, especially the parchments."* The book of Jeremiah also reveals that the prophet wrote many prophecies through his secretary Baruch Neriah (for example Jeremiah 36: 4).

These examples reveal that men of understanding and action, men who imparted their generations were men who studied books, the Scriptures and all related writings which gave them wisdom and all kinds of knowledge. So, whether it is agriculture or theology, or education, the use of the library is essential and relevance. It is the gateway to abiding, abounding and fruitful research from where we move to Beersheba in a paradigm shift which we call innovation.

Application

The end result of the appropriate use of the library in agricultural research is innovation. Library resources include general and special materials, open source and regulated materials. When there is a breakthrough, an innovation, it is usually published in a 'scientific' journal after patent might have been secured. The patent grants recognition to the discoverer or innovator. It also protects the product from hackers, and it attracts rewards to the innovator through recognition and material rewards if the product is to be adopted or used by organisations. Above all, it brings glory to God as Christ is lifted up when a child of God is the innovator and people get to know this very clearly.

The application of research is also further enhanced when the process of research that leads to innovation is documented. It becomes a standard for others to follow and seek to refute which also inevitably leads to another innovation, the circulation of innovation. By documenting and adding the new report to previous reports, greater and enlarged room is made for all to draw from. Scientists will now begin to use the new paradigm as basis for their research and the use of their research products. We must set the pace for others to follow as lights of the world (Matthew 5: 14).

Libraries, documentation and application are universal. John the beloved apostle reminds us that there is a private library that God Himself is keeping in heaven and God will publicly apply the documented results of all His findings about each person on the day of judgement. Revelations 20: 12 says: *"And I saw the dead, small and great standing before God, and books*

were opened. And another book was opened, which is the Book of Life. And the dead were judged according to their works, by the things which were written in the books".

Conclusion

From the ongoing, it is imperative that libraries play significant roles in research, especially agricultural research and innovation. Agriculture is key to human existence. That was the first job that God gave man at creation. The mismanagement of the opportunity is what led to the fall of man and the destruction of the first world. Man has been graciously given another opportunity to reclaim that glory as of the first through Jesus Christ's suffering, death and resurrection. Every space must be explored and exploited to ensure that souls of men are harvested into the kingdom of God. Instead of using agriculture as a destructive weapon, the new creation man can use it for the salvation of souls since all creatures have need of agricultural products for their survival. This is possible through diligent study and application of Scriptures in the marketplace of agricultural research. The library is a necessary space to aggregate knowledge, organise, disseminate and access same. In the hands of a truly disciplined child of God, the library is a gateway to meaningful and glorious innovations.

References

- Casagrande, R. (2008). Biological terrorism targeted at agriculture: The threat to US national security. *Http://Dx.Doi.Org/10.1080/10736700008436827*, 7(3), 92–105.
<https://doi.org/10.1080/10736700008436827>
- Chai, P. R., Hayes, B. D., Erickson, T. B., & Boyer, E. W. (2018). Novichok agents: a historical, current, and toxicological perspective. *Toxicology Communications*, 2(1), 45–48.
<https://doi.org/10.1080/24734306.2018.1475151>
- Knowledge Center. (n.d.). Retrieved January 18, 2022, from
<https://www.iita.org/knowledge/knowledge-center/>
- Thomas Kuhn's *Structure of Scientific Revolutions*. (n.d.). Retrieved January 17, 2022, from
<https://www.uky.edu/~eushe2/Pajares/kuhnsyn.html>
- Tucker, J. B., & Vogel, K. M. (2008). Preventing the proliferation of chemical and biological weapon materials and know-how. *Http://Dx.Doi.Org/10.1080/10736700008436797*, 7(1), 88–96.
<https://doi.org/10.1080/10736700008436797>