

Appropriate Conceptualisation: The Foundation of Any Solid Quantitative Research

David Onen

Makerere University, Kampala, Uganda

donenotoo@cees.mak.ac.ug

Abstract: This paper discusses the importance of conceptualisation in quantitative research. It explains in simple terms what conceptualisation entails, and indicates where and how the researcher should apply the techniques of conceptualisation. The paper has been prompted by the recurring challenges higher degree students and early career researchers face in enabling the readers of their research reports (dissertations or theses) to gain a common understanding of what they have written about. Problems with this have caused some dissertations or theses to be rejected for reporting on something other than what the candidate purports to have studied. In this paper, conceptualisation is examined as a multi-dimensional concept, starting with the process of forming concepts that describe the identified research problem, and proceeding to the derivation of agreed-on meanings of concepts, as well as the operationalisation of study variables, in order to avoid ambiguity and misinterpretation in a researcher's work. In the paper, the author attempts to explain in some detail how misconceptualisation can lead the researcher to err when conducting research, and the implications of this at each stage of the quantitative research process. In short, the paper demonstrates that a solid quantitative study cannot be conducted without appropriate conceptualisation. The paper may thus be used as a guide in planning and conducting quantitative studies by higher degree students and early career researchers.

Keywords: Concept, conceptualisation, research, variables, operationalisation, dissertations

1 Introduction

Over the years during viva voce examinations, I have sadly witnessed several candidates pursuing their masters or doctoral degree programmes being told outright to change the titles of their dissertations (or theses) in order for the titles to match what their reports contain, or else being asked to return to the field to collect fresh data and write altogether new reports that are in tandem with their study topics. Surprisingly, this particular recommendation has often shocked the candidates, as well as their supervisors, who are rudely brought to face the fact that what their candidates purport to have studied differ from what the reports contain. Sometimes, even when the dissertation (or thesis) topic seems suitable, one may still discover shortcomings with the dimensions and indicators of the concepts (or variables) studied. Quite often, these shortcomings might have already significantly compromised the derivation of study objectives and the quality of study instruments used to gather data, as well as several other aspects of the study. Such a scenario may prompt the following questions: why may a researcher report on something other than what he/she purports to have studied? How is it possible in the first place for a researcher to do such a thing? How can a researcher succinctly capture (in words or figures) what he/she perceives to be the question of his/her study and build an agreed-on meaning of the concept(s) (or terms) used in the study? The purpose of this paper is to answer these and many more related questions - the answers to which mostly lie in the inappropriate conceptualisation of the issues (or concepts) under investigation. In this paper, the author attempts to explain in some detail how misconceptualisation can lead the researcher to err when conducting research, and the implications of this at each stage of the quantitative research process.

The paper has been prompted by the recurring challenges higher degree students and early career researchers face in enabling the readers of their research reports (dissertations or theses) to gain a common understanding of what they have written about – a scenario which has led to the rejection of some dissertations or theses for reporting on something other than what the candidate purports to have studied.

The paper is structured in the format of answers to four core questions, namely: (1) what is conceptualisation in research? (2) How does conceptualisation occur? (3) How is conceptualisation used in quantitative research? (4) What are the limitations of conceptualisation?

2 Understanding conceptualisation in research

The term conceptualisation is a hyponym for concept. Therefore, to get a clearer understanding of what conceptualisation is in research, it is desirable to first consider concepts and variables. Ideally, a concept is an idea or area of thought formed in the mind of someone (Collins Thesaurus of the English Language, 2002). It is what someone thinks about something or a phenomenon or situation which can be expressed in a language and externalised by writing or drawing (Collins English Dictionary, 2009). It is thus a construct derived by mutual agreement from mental images to describe something or a situation (Sequeira, 2014). For example, if someone notices, through a review of literature or personal experience, that members of the academic staff of University X often resign or abscond from employment and new ones have to be recruited to replace the departed staff members, he/she may form the idea that this in-and-out flow of employees could be costly to the university in many ways, including disrupting the flow of teaching and learning. As a researcher, one can proceed to derive appropriate concepts that succinctly capture the problem scenario described above, such as labour turnover, staff attrition or staff retention. These three 'issues' (or concepts) could be used to depict the observation that University X could be experiencing the problem of high labour turnover, or high staff attrition, or low staff retention. All three concepts describe the scenario or state of losing (or not retaining) employees in an organisation. In research, forming the appropriate concept is crucial for avoiding ambiguity in understanding what a given study is all about. In our day-to-day life, there are several concepts we use for describing almost everything we know of, or think about, including words such as socio-economic status, poverty, knowledge, performance, efficiency, and many others referring to objects, situations or phenomena. In research, however, these same words are generally often referred to as variables; yet concepts and variables do not necessarily mean the same thing.

Generally, a variable is a statistical term, meaning a quantity that can take on different possible values. It can also be looked at as a characteristic (or an attribute) that can take a variety of forms (or values) at different times, or in different people or places, or in different circumstances. Examples of variables include educational status, marital status, gender, religion, ethnic group, ability, and temper, among others. If the values of a variable are expressed in numbers to indicate the amount, degree, quantity or magnitude of the attribute, then it is called a quantitative variable. But if a variable is expressed in terms of qualities, then it is called a qualitative variable. However, it is possible for one variable to be expressed in qualitative and quantitative terms at the same time. Table 1 illustrates that scenario.

Table 1: Classification of Variables

Variable	Quantitative	Qualitative	Levels	Type
Height (m)	21 - 30, 31 - 40	Short, Tall	2	Binary
Distance (km)	0-4, 5+	Short, Long	2	Binary
Age (yrs)	15 - 19, 20 - 44, 45 - 79	Young, Youth, Old	3	Polychotemous
Monthly Income (Shs)	≤20,000; 20001-49,000; 50,000+	Low, Moderate, High	3	Polychotemous
Religion		Christianity, Muslim, Hindu, Buddhist	5	Polychotemous

As researchers, we need to remember that there are relationships between concepts and variables; that is, concepts that describe phenomena, situations, or things that have different dimensions or aspects are called variables. As variables, such concepts contain different dimensions and indicators. For example, in a study of how home environment affects the performance of students in school, home environment is one of the concepts being studied. But because this concept has different aspects, it is also a variable. In fact, ordinarily, it is referred to as the independent variable of this study. In conceptualising home environment, we can identify some of its dimensions, such as availability of reading books, availability of television sets, etcetera. But to measure the concept, indicators of the dimensions are required. In this particular case, the following could be the indicators of home environment: number of TVs, time spent watching non-academic programmes on TV, number of books in the home, etcetera. However, in general, both dimension and indicator can be variables. This is true if a concept has only one dimension with one indicator. After conceptualising what concepts and variables are, the meaning of conceptualisation in research will be discussed.

The term conceptualisation is a multi-dimensional concept which can take different meanings depending on the context in which it is used. However, as a hyponym to concept, the word conceptualisation is often first used to describe the process of forming a concept (Collins English Dictionary, 2009). In the example used

above about University X, the process of forming the appropriate concept that captures succinctly what one perceives to be the problem is called conceptualisation. It is appropriate in research to form appropriate concepts because they enable the researcher to communicate in words his/her mental image (or picture) of the problem or issues under investigation. Inappropriate conceptualisation, or misconceptualisation, can result in a researcher studying and reporting on something else other than what he/she purports to have studied. In practice, once a researcher has already formed the concept (or variable) to be investigated, he/she must ensure that this concept is understandable to others. The researcher must therefore further conceptualise the issue (or variable) under investigation in order to derive a specific agreed-on meaning for that concept. In this regard, the process by which the researcher specifies what he/she means (or does not mean) when using particular concepts or terms in research is also referred to as conceptualisation (Sequeira, 2014). It is very important for a researcher to appropriately conceptualise the study variables (or concepts) because we cannot meaningfully answer a question about something, or understand an explanation about it, without a working agreement about what it is or what its outcome would mean. In the example about staff attrition (or labour turnover or staff retention) at University X, the researcher would need to conceptualise what staff attrition is, in order to let others know what it will mean in the study. Conceptualisation, in this regard, occurs in phases. First, the researcher needs to consult experts in his/her area of research, and this is why the review of the literature in a given field of knowledge is so important. For instance, the researcher can look out for the meaning of staff attrition from other scholars who have defined it, before focusing on what the concept will mean in the current study.

After obtaining the scholarly definitions of a concept, the researcher then needs to operationalise the meaning of the concept in order to make it measurable. In this case, operationalisation can be regarded as the last phase of conceptualisation. However, the concept operationalisation is often used to refer specifically to the process by which the researcher defines a concept or variable in terms of its dimensions and indicators. Dimension in this regard, is the specifiable aspect of a concept, while indicator is the observation that we choose to consider as a reflection of a variable we wish to study. For example, in a study on socio-economic status (SES), the researcher can look at SES in terms of family income, and level of education of parents as dimensions; and the specific measures of SES could thus include mother's highest level of education, father's highest level of education, mother's annual average level of income, father's annual average level of income, etcetera. If the researcher does not conceptualise his/her study variables well, it will negatively affect the entire research project because, in quantitative research in particular, the derivations of appropriate objectives, research questions or hypotheses largely emanate from appropriately conceptualised study variables.

3 Process of conceptualisation

Although there are different methods of conceptualising issues in quantitative research, scholars agree that conceptualisation takes place in different contexts and phases. For instance, regarding context, Srinidhi (2013) noted that a researcher can conceptualise the research problem on the basis of a single-entity approach, or a game theoretic approach. In the single-entity approach, the researcher looks at the issues to be investigated in an organisation without considering the influence or presence of other organisations. This kind of conceptualisation is suitable where the organisation or firm being investigated has market influence that outweighs the others. However, conceptualising research issues based on this approach is not realistic, since the environment in which organisations or firms operate has influence over their operations. In the game theoretic approach of conceptualisation, when conceptualising issues that need investigation, the researcher assumes the presence of other firms (or organisations) that influence the behaviour of the firm to be investigated. This seems to be a more realistic approach to conceptualising issues in research than its counter-part, the single-entity approach.

This paper focusses on the process of conceptualisation in terms of the steps (or phases) followed when conceptualising issues in research. In terms of phases, Sequeira (2014) noted that the process of conceptualisation generally occurs in five phases, namely: Phase one - forming concepts; Phase two – definition; Phase three – indicator selection; Phase four – operationalisation; and Phase five – observation (or measurements), as illustrated in Figure 1.

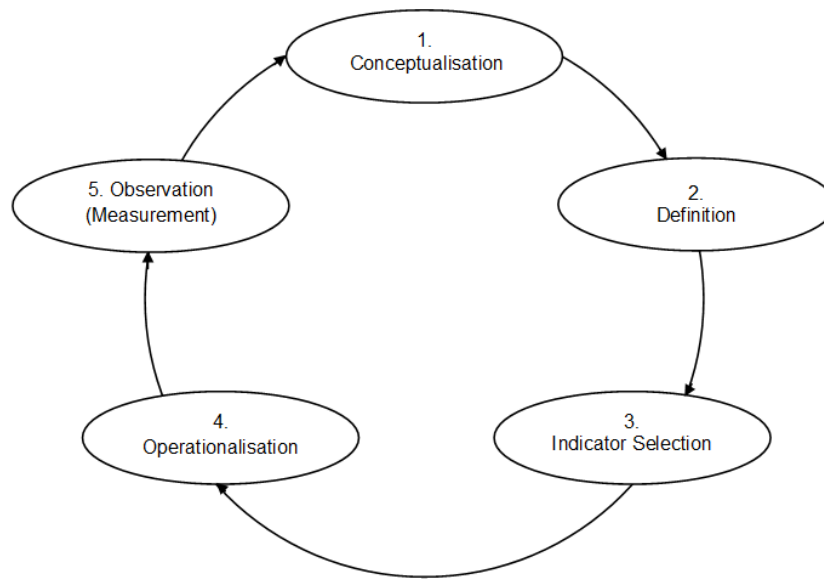


Figure 1: Conceptualisation Process

Source: Adapted from Sequeira (2014)

Figure 1 illustrates that conceptualisation occurs in a cyclical pattern, starting with forming a word to describe the idea in one's mind. This is followed by defining the concept formed. After definition, the researcher selects the dimensions and indicators that the concept will mean. Then, the researcher will give the operational definition of the concept and, finally, will identify how the concept will be measured or observed. According to Sequeira (2014), this whole process is termed explication; that is, the process of moving from definition to measurement and back to the definition. In other words, when conceptualising, one does not always start with a clear, observable, complete and useful conceptual definition and then attempt to observe (measure) that variable. The process of explication indicates that the final conceptualisation and measurement results from interplay between these two activities.

4 Application of conceptualisation in quantitative research

There are a number of areas in quantitative research where, without appropriate conceptualisation, a researcher cannot correctly perform the right task. The different scenarios of quantitative research will be discussed next in which there is a requirement to apply, step by step, appropriate conceptualisation.

4.1 Formulating the research problem

Any research often begins with the identification of a research problem. A research problem may have been identified in the literature, theory, or in practice which is 'not as it should be', and requires investigation in order to obtain a better understanding of the problem and propose solutions. The research problem may arise from issues, difficulties, current practices or problems that need to be solved or better understood, or from deductions from existing theories related to current social or political issues, practical situations or personal experiences. In defining a research problem, a researcher must form appropriate concept(s) that succinctly capture his/her mental image of what he/she perceives to be the problem. Forming those concepts is part and parcel of conceptualisation. If a researcher fails to conceptualise the research problem correctly, he/she will end up studying something other than what he/she truly perceives to be the problem. In the example given on staff attrition (or labour turnover or staff retention) at University X, if the researcher instead uses 'labour mobility' as the concept to describe the problem scenario, it may be misleading, not only to the researcher but also to everyone reading the research report because, while labour mobility involves movement of workers from one place to another, it does not describe the same scenario (or invoke the same picture) as if staff retention (or staff attrition or labour turnover) was used. In other words, the concept 'labour mobility' means something else, while the other three concepts induce a similar mental image of the situation, except that labour turnover and staff attrition are antonyms of staff retention. From this illustration, we can deduce that if a researcher fails to form correct concepts to succinctly capture what the research is about (or

misconceptualises the study), then the study report will be on something other than what he/she purports to have investigated.

4.2 Deriving an agreed-on meaning of a concept

In practice, there are thousands of concepts we use to describe various objects, phenomena or situations, but their meanings often vary depending on the context in which we use them. Therefore, every researcher needs to specify what is meant when using particular concepts (or terms) in his/her study in order to avoid individuals misinterpreting or failing to understand what they are saying. For example, if someone decides to study, for instance, the effect of management on the performance of academic staff of University X, the researcher will need to specify what is meant by management in his/her study because the concept of management means different things depending on the context in which it is used. Drucker (1980), for instance, defines management as “Management is *tasks*. Management is a *discipline*. But management is also *people*” (p.4). This definition looks at management as a function, a process, a discipline, and as a profession. First, as a function, management is what is responsible for directing and running an organisation. Second, as a process, management incorporates activities by which the internal and external resources are combined to achieve the objectives of the organisation. Third, as a discipline, management is a body of knowledge that provides ideas on the theories and practice of management. Finally, as a profession, management is a type of higher-grade, non-manual occupation joined by individuals after an advanced period of training and education. In that regard, when a researcher is investigating ‘management’, he/she should then appropriately specify what management means in the current study in order to avoid ambiguity in understanding what he/she is talking about.

4.3 Formulating study objectives

In research, there are usually two categories of objectives: the general (or purpose) and specific objectives. The general objective of a study is a description of the overall intention of the study. It elaborates on the information implied in the title of the study by presenting a quick overview of what the problem is, the target population, design, and broad expectations of the study in unambiguous and largely immeasurable terms. However, in order to make a good purpose statement, the researcher needs to have appropriately defined concepts that he/she intends to investigate. This is because a purpose statement describes what the researcher intends to achieve with the use of particular variables (or concepts).

Meanwhile, objectives are specific aims or goals arising directly from the purpose of the study (Makerere University, 2011). They are statements of the intended outcomes of the study and of what the researcher is going to do. Therefore, they are statements that clarify the purpose statement, as specific small units that add up to the purpose, or more specifically, as the breakdown of the purpose into small manageable units. Each objective requires a method designed to achieve it (Makerere University, 2011). Generally, a good objective should be S.M.A.R.T (specific, measurable, attainable, realistic and time-bound), and should clearly indicate the target population, context and the variables to be investigated.

Research objectives are often derived from conceptualised study variables (or concepts). In practice, once the study variables are conceptualised (or operationalised), the researcher can then express the relationship between the independent and the dependent variables in a manner that points to the purpose of the study, using words that imply action, and in observable and measurable terms. There are usually five approaches (or models) to writing quantitative research objectives, based on the operationalisation and the placement of the independent and the dependent variables. These models are often described as: the many-to-one, the one-to-many, the many-to-many models, the model without breaking variables (Amin, 2003), and finally, the model for mediation studies (Baron & Kenny, 1986). These models can be illustrated as follows:

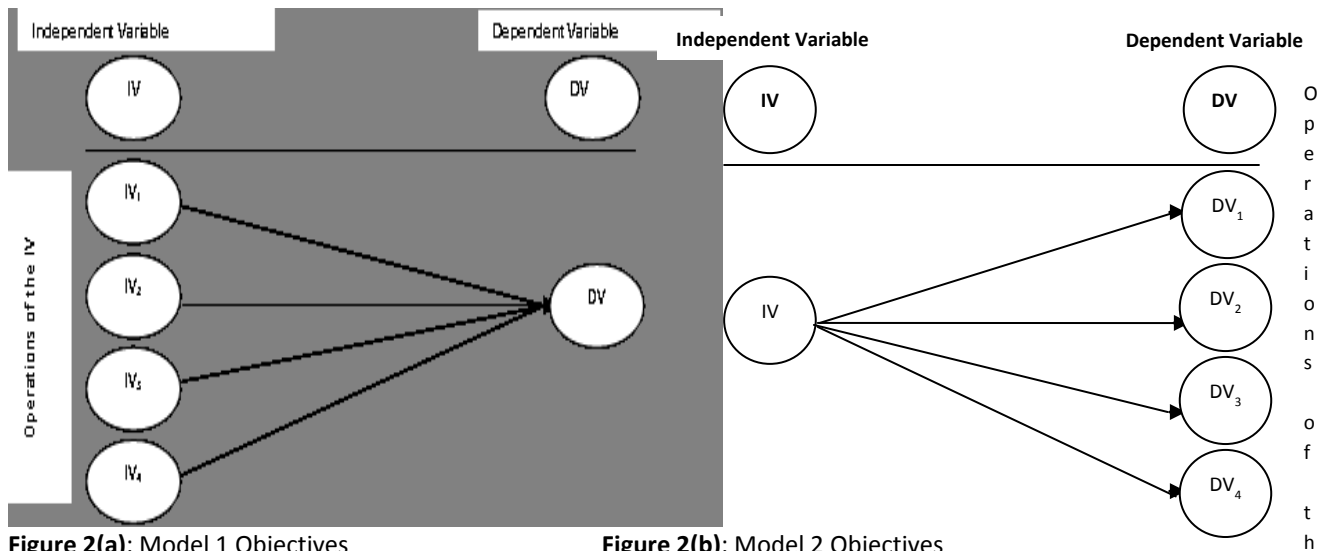


Figure 2(a): Model 1 Objectives

Figure 2(b): Model 2 Objectives

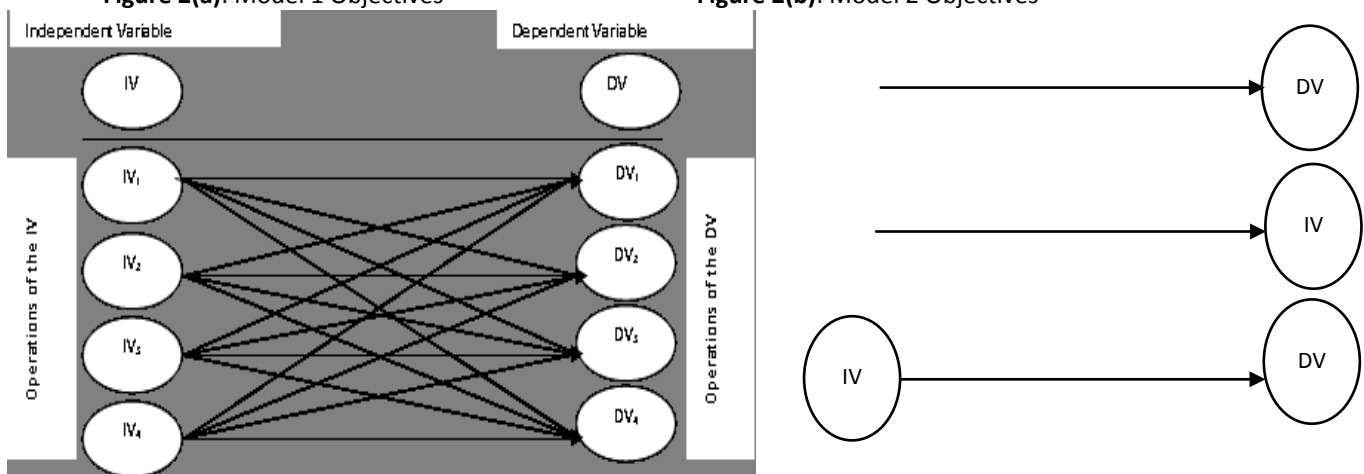


Figure 2(c): Model 3 Objectives

Figure 2(d): Model 4 Objectives

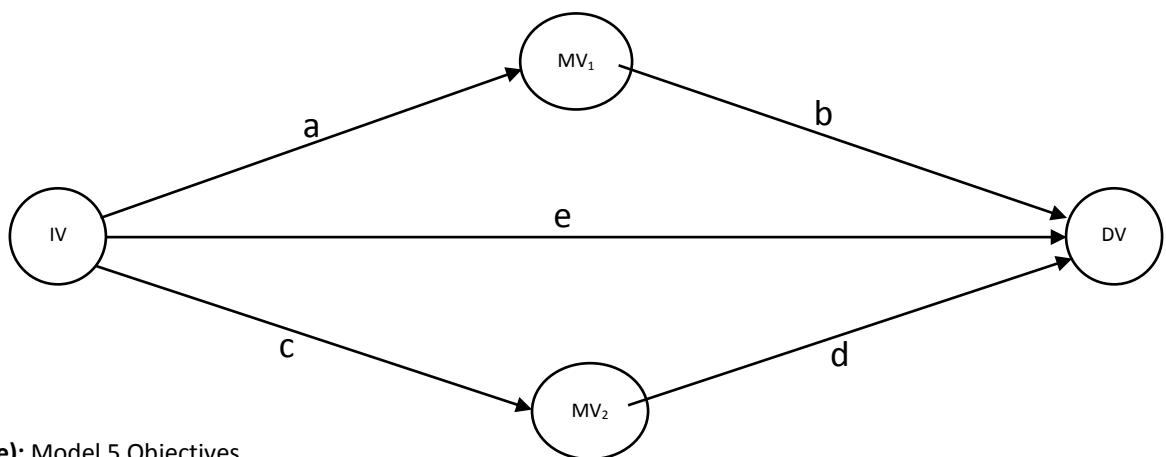


Figure 2(e): Model 5 Objectives

In Figure 2(a), Model 1, the independent variable is separated into operational units but the dependent variable is retained as a unit. This is termed as the many-to-one approach. It is the most preferred model because the researcher is linking different dimensions of the explanatory variable with the problem (or dependent) variable to establish whether it can explain the problem.

In Model 2 (or the one-to-many model), the independent variable is retained as a unit and relates to each operation of the dependent variable as illustrated in Figure 2(b). Such an approach is mostly suitable where the independent variable cannot easily be operationalised, as in experimental research. The model is also

suitable for relationship studies that do not imply causality.

In the third model (or the many-to-many approach), each individual operation of the independent variable is related to each operation of the dependent variable, as illustrated in Figure 2(c). The disadvantage of this approach to writing research objectives is that it generates too many objectives and makes the study cumbersome. But, on careful analysis, Model 3 is just a duplication of Models 1 and 2.

Model 4 objectives comprise a kind of a free approach to writing study objectives and is particularly suitable in exploratory and one variable studies, and in qualitative research. In this model, as illustrated in Figure 2(d), the objectives are generated without focusing on specific operations of the variables. However, studies with such objectives are not as easy to focus or carry out as studies with Models 1, 2 or 3 objectives.

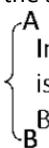
Finally, Figure 2(e) illustrates a study involving mediations. As a result, the researcher is expected to derive study objectives that link the different study variables without necessarily breaking down the variables. In this case, there can be specific objectives targeting relationships a, b, c, d and e, as shown in Figure 2(e). This model is associated with the work of Baron and Kenny (1986) and other scholars who have investigated mediation effects.

In summary, if a quantitative researcher fails to appropriately conceptualise his/her study variables, he/she will certainly also fail to derive suitable general and specific objectives of the study.

4.4 Formulating the conceptual framework

A conceptual framework (or a concept map) is a schematic presentation (or diagram) of a theory as a model where variables (or concepts) and their relationships are translated into a visual picture to illustrate the interconnections between the independent, extraneous, and dependent variables, as well as with any other variables significant to the study. It is a conception or model of what is out there that one plans to study, and what is going on with these things, and why. A good conceptual framework informs the rest of the design of the study. However, to formulate an appropriate conceptual framework, a researcher needs to fully conceptualise the study variables by identifying all the dimensions and indicators of the concepts (or variables) under investigation; and if this is not done, the researcher will develop a shallow conceptual framework.

There are general conventions and rules for developing conceptual frameworks that are designed to simplify and standardise the process of conceptualisation, facilitate keeping track of where one is, where one wants to go; the requirements for getting there, and allow for communication with others. According to Cresswell (1994), the following conventions should be adopted when developing a conceptual framework:

1. The independent variable is placed on the left and the dependent variable on the right, separated by extraneous variables at the centre, in unit boxes or circles connected by lines and arrows.
2. A straight line indicates different levels of a variable. Thus $A \rightarrow B$ indicates that B is an element (or an operation) of A.
3. A one-way arrow (\rightarrow) leading from a determining variable to a variable dependent on it suggests causality. The symbol $A \downarrow B$ indicates that if A is manipulated in some way, then B should change correspondingly, but not vice-versa. Variables described in a framework in the manner of 2 and 3 are endogenous variables because they have hypothesised causes in the model.
4. A two way arrow (\leftrightarrow) shows dual causality. Thus $A \leftrightarrow B$ indicates that if A is manipulated in any way, then B should show corresponding changes, and vice-versa.
5. A curved double-headed arrow shows unanalysed relationships between variables not dependent on the system.
6.  Indicates that it is not yet hypothesised how A and B could be casually related to B, but there is evidence of a relationship between A and B not dependent on others in the system. A and B are therefore exogenous variables.

7. Broken arrows $\cdots>$ or $<\cdots$ leading from a determining variable to a variable dependent on it indicates feedback.
8. An open box with a bent arrow leading out of it $\left[\begin{array}{l} \\ \\ \end{array} \right]$ shows information received from outside the system.
9. The strength of a relationship is indicated by inserting valence signs on the pathways, or by using lines of different thicknesses. The pathways with the same valence could have the same number of signs (e.g., +++, or ---) or lines of the same thickness.

A general model of a conceptual framework should take the form depicted in Figure 3.

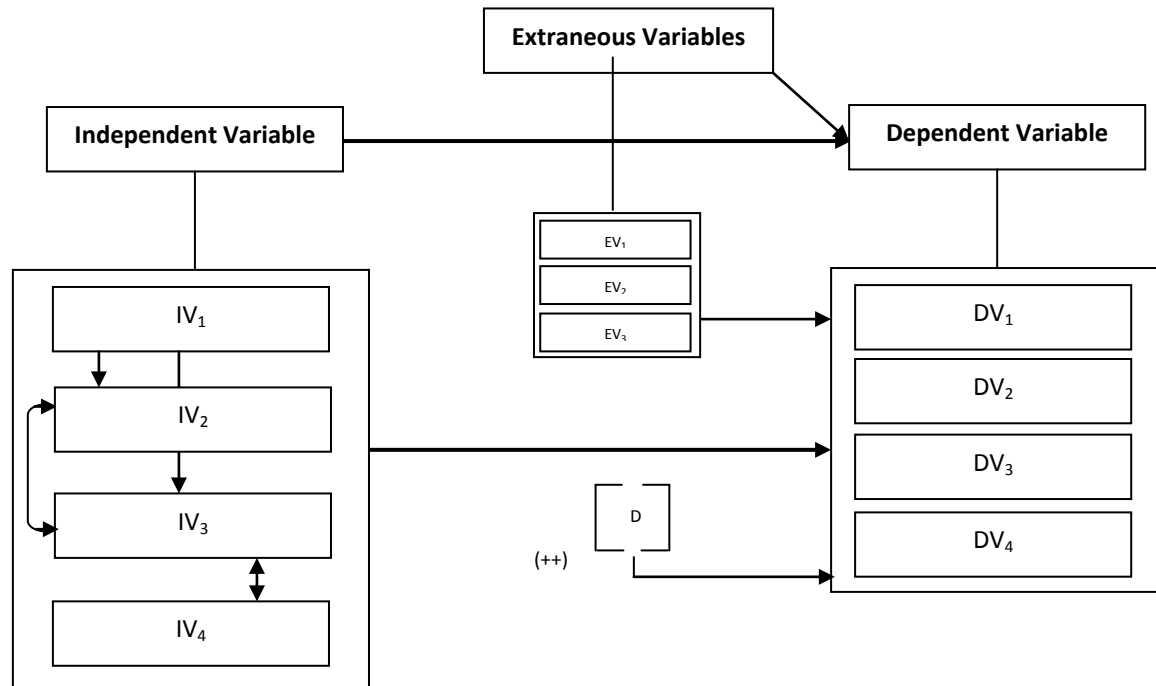


Figure 3: A General Model of a Conceptual Framework

Source: Oso & Onen (2009)

In the framework in Figure 3, IV₁, IV₂, IV₃, and IV₄ are the operations of the independent variable; and DV₁, DV₂, DV₃, and DV₄ are the operations of the dependent variable. EV₁, EV₂, and EV₃ are the extraneous variables. D represents other matters, unrelated to the variables but which could inform the findings of the study. If the researcher has confidence that all the extraneous variables have been adequately controlled and will therefore not influence the dependent variable significantly, then they may be omitted from the model so that only the independent and the dependent variables are related directly. It is important for the researcher to provide a brief explanation of the interconnections between the variables immediately after the scheme.

4.5 Reviewing the literature

One of the major requirements of scientific research is a demonstration by the researcher of having a thorough understanding of the issues and facts surrounding the problem under investigation. In order to understand the problem at hand, a researcher must obtain and extensively read information materials that relate directly to the topic under investigation. This is referred to as a literature review (Oso & Onen, 2009). To do a thorough literature review, the researcher needs to identify related scholarly works. One way of identifying the related literature is to establish if the other authors talk about any of the concepts, and their dimensions and indicators that are similar to those the current study is based on. For instance, if someone studied the concept 'management' (as in section 2 above), if he/she defined management in a different way from that of the current researcher, then that literature may not be relevant to review for the current study. Therefore, conceptualisation is important in guiding the researcher when selecting literature for review.

4.6 Choosing the research design

The importance of design in research does not need to be over-emphasised here. According to Trochim (2005), the design of a study is the 'glue' that holds all the elements in a particular research project together and gives it direction. The choice of a study design is very important in any research. However, to make an appropriate choice of research design, the researcher must take into consideration firstly the concepts he/she is investigating and, secondly, their dimensions and indicators, because the design should ensure the systematic collection and analysis of data appropriate for those dimensions and indicators of the concepts studied.

4.7 Constructing data collection instruments

In research, it is not enough to identify an appropriate research design, determine a representative sample size and take care of all the other logistical requirements, without ensuring that appropriate data collection techniques and tools are identified and used in a particular study (Trochim, 2005). In simple terms, the researcher must choose from the array of data collection techniques the appropriate method(s) and corresponding instruments that can able him/her to achieve the study objectives. However, it is not easy to develop valid and reliable study instruments, such as questionnaires and interview guides, without appropriate conceptualisation of the research variables under investigation. This is because the questions (or statements) set in a questionnaire or interview guide must focus on the indicators of the concepts studied, in order to make them measurable and researchable. Without appropriate conceptualisation and operationalisation, the researcher cannot construct a valid and reliable questionnaire or interview guide (or schedule). For example, a doctoral student, who investigated the process of decision-making at one university where the author was a panel member during her defence, was heavily criticised for using in her questionnaire statements such as "There is order in decision-making at this University"; "There is coordination in the making of administrative decisions at this University" and many other such statements with which she asked respondents to agree or disagree. Words such as 'order' and 'coordination', which the student used in her questionnaire, were themselves concepts that were prone to different interpretations by the individual respondents. The student should have conceptualised further what 'order' and 'coordination' meant, in order to formulate suitable statements that could measure what she was investigating. Despite the glaring anomalies detected in the questionnaire, the student was marginally passed and still awarded the degree of Doctor of Philosophy of that university. This kind of scenario could have been avoided if the candidate had fully conceptualised the concepts (or variables) that she investigated. Misconceptualisation of study variables can lead a researcher to make mistakes when conducting research.

4.8 Testing for validity and reliability

Validity and reliability play a vital role in research. Validity is often measured in several ways, and tests whether the results yielded by the research are credible and trustworthy. The three types of validity are content validity, construct validity and criterion-related validity (Shuttleworth, 2008). Content validity is the extent to which an empirical measurement reflects a specific domain of content, while construct validity is concerned with the extent to which a particular measure relates to other measures in ways consistent with theoretically derived hypotheses. Criterion-related validity determines whether a measure predicts other measures that can be measured more objectively. To ensure content validity, the researcher must ensure that the items contained in an instrument, such as a questionnaire or interview schedule, are based on the constructs (indicators) that measure the study concepts. Consequently, this means that the researcher must have fully conceptualised and operationalised the study variables if the study instruments are to have high content validity indices.

Reliability assesses whether the research yields consistent results. Researchers often use different methods to test reliability, which include the test-retest, alternative, split-halves and internal consistency methods (Shuttleworth, 2008). The instruments used in data collection and analysis should be tested to ensure that the results are reliable. These tests are performed on the instruments basing on each concept with its dimensions and indicators. Without appropriate conceptualisation, it would therefore be difficult to measure both the validity and reliability of study instruments.

4.9 Data presentation, analysis and interpretation

Upon collecting data, the researcher is expected to present, analyse and interpret the data. All these tasks should be carried out bearing in mind the concepts, and their dimensions and indicators investigated. It is important at this stage for the researcher to be aware of the concepts of the study to avoid reporting results on something other than what has been studied.

4.10 Composing the discussion, conclusions and recommendations

During the discussion of study results, the researcher needs to cross-reference his/her results with the work of other scholars in order to detect the similarities and differences in their findings. This is important in order to tease out the contribution of the current study to the generation of new knowledge. In the same vein, the researcher should draw conclusions and make the necessary recommendations on the basis of the findings made with regard to the concepts (or variables) and their dimensions and indicators studied. This means that the application of conceptualisation runs throughout the entire process of conducting a particular study.

5 Limitations of conceptualisation

Despite the enormous benefits of conceptualisation, in practice, it is not always easy to conceptualise issues in research. This is because the concepts formed and used in a given context must never be arbitrary but should match with reality. But the question is – does reality exist or is reality just a creation of society? Nonetheless, researchers cannot just proceed to form a concept and claim this concept means this or that, when others experience that concept differently. This partly explains why a researcher must consult experts in the field when conceptualising issues in research so that his/her conceptualisation is consonant with that of the wider society or, at least, his/her peers. Again, the challenge here is to determine who is an expert in the field and who is not. Take the case where a researcher is investigating the effect of management on the performance of workers in an organisation; who should the researcher regard as an expert on management? Is it on Peter Drucker's, Henri Fayol's or Michael Armstrong's definitions that he/she will base the conceptualisation of management? Fortunately, the conceptualisation of management as a concept has been incremental over the years; that is, whoever defined management after another scholar has considered the previous definition while adding his/her views on the concept. This approach to conceptualisation avoids misconceptualisation, and helps to create new insights that build on existing knowledge. According to Squeira (2014), the data-gathering process is, generally, a complex interplay between the conceptual process and the actual observation or measurement process. Therefore, conceptualisation and measurement are often limited by physical, psychological, cultural and technological limitations. However, he (Squeira) counsels that, when conceptualising issues in research, the researcher must be cognisant of these challenges, so that he/she can avoid misconceptualisation and addressing something other than what society or his/her peers understand/assume to be the topic.

6 Conclusion

In conclusion, several points can be made. Firstly, credible research should not only gather information on a given phenomenon, but should also derive ways and means of addressing that phenomenon. Secondly, a good research study will have clearly defined goals and objectives that guide the researcher throughout the research. Thirdly, good research should portray validity and reliability, and its results should be replicable in other studies. All these can be achieved only if the researcher forms appropriate concepts to succinctly capture his/her study problem; identifies the dimensions and indicators of those concepts that are under investigation; and finally, develops the study objectives, conceptual framework, research instruments and all the other parts of the study in tandem with the concepts investigated.

References

- Amin, M. E. (2003) "Overview of the methodology of research", A paper presented at a seminar on overview of Educational Research Methodology for teachers of the School of Education, Makerere University, Kampala.
- Baron, R. M & Kenny, D. A. (1986) "The mediator-moderator variable distinction in social psychological research: Conceptual, strategic and statistical considerations", *Journal of Personality and Social Psychology*, Vol. 51, No.6, pp1173-1182.
- Collins English Dictionary (2009) Complete & Unabridged (10th ed.), William Collins Sons & Co., Glasgow.
- Collins Thesaurus of the English Language (2002). Complete and Unabridged (2nd ed.), Harper Collins Publishers, Glasgow.
- Creswell, J. W. (1994) *Research design: Qualitative and quantitative approaches*, SAGE publications, Inc., California.
- Drucker, P.F. (1980) *Managing in Turbulent Times*, Harper & Row, New York, NY.

- Makerere University (2011) Guidelines for writing research proposals and dissertations, Kampala.
- Oso, W.Y & Onen, D. (2009). A general guide to writing research proposals and reports, The Jomo Kenyatta Foundation, Nairobi.
- Sequeira, H. A. (2014), Conceptualising in research: An overview. A paper presented on 11/09/2014 at the National Institute of Technology, Karnataka, Surathkal.
- Shuttleworth, M. (2008) "Quantitative Research Design" [online] <http://explorable.com/quantitative-research-design>.
- Srinidhi, B. (2013).An essay on conceptualization of issues in empirical accounting research. China Journal of Accounting Research Vol 6, pp 149–166.
- Trochim, M. K. (2005) Research Methods, the Concise Knowledge Base, Workbook. Atomic Dog Publishing, Ohio, USA.