INTRODUCING THE C.O.S.T.A POSTGRADUATE RESEARCH COACHING MODEL - A COMPLEMENTARY APPROACH TO SUPERVISION

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Abstract. Postgraduate research is a massive stumbling block to students who have never had an opportunity of exposure to research methods. A recent study revealed challenges in postgraduate supervision—one of these challenges was students' lack of exposure to research language (Costa, 2018). Qualitative research and its complexities, due to a variety of approaches including rigor determination, pose a plethora of challenges to novice researchers. This document presents the C.O.S.T.A model as a tool suitable for use by academics and students, with a panoramic view of steps to be taken; first to understand foundational concepts and the language of research, and second to make informed choices on the research methods and design strategy options available for the prospective researcher. Conclusions drawn on the reliability of the model are based on observation of a group of postgraduate students who were part of the first cohort at the Global Centre for Academic Research in 2018, with some students testifying to have passed their research projects satisfactorily at their respective leading universities in South Africa.

Keywords: Research Supervision; Postgraduate Research; Higher Education; Coaching;

1. INTRODUCTION

This article introduces the C.O.S.T.A Model of postgraduate research supervision as both an alternative approach to traditional supervision methods and as a pedagogical framework for integrated teaching and learning in research methods. The acronym C.O.S.T.A represents five research steps within the model and stands for Concepts, Objective, Situation, Tact, and Assessment of output impact. A full explication of each step is articulated below in Table 2. The key attribute of this model is that while assisting postgraduate research supervisors, it provides students with tools for commencement through to completion of the thesis or dissertation projects.

A plethora of literature has indicated a continuously increasing pressure both in South Africa and abroad for universities to consider their methods of teaching and conducting research, particularly at the postgraduate level (Cekiso et al., 2019; Universities South Africa, 2015; Baptista, 2011; Cranfield & Taylor, 2008). In South Africa, this is further exacerbated by the need for universities to focus on new knowledge as contended in the National Development Plan of 2013, which suggests a targeted production of 5,000 doctorates per year by 2030. In 2012, the Higher Education Department introduced a requirement for universities to start introducing research components in all postgraduate studies, starting at honors level

(Universities South Africa, 2015). A further substantial number of researchers have discovered the shortage of skilled leadership particularly in the area of research capacity in South African universities (Cekiso et al., 2019; Van der Westhuizen & De Wet, 2003).

This chapter is a sequel to a previous study on challenges facing postgraduate students in terms of academic research (Costa, 2018), which presented the following challenges:

- **Research incapacity:** Mdyogolo (2012) provided a three-dimension description of research incapacity. First it refers to supervisors who are not capacitated in research methods, but are experts in their teaching fields. Second, it happens due to the fact that most students at the postgraduate level have no research skills and proficiency in research language. Third, it occurs in an instance where there is a conflict between research coordinating unit of a university and the supervisor. This final point can further extend to a conflict between external examiners and supervisor as posted by Nyika (2014). Mutula (2009) defined research incapacity as availability of research facilities and trained research personnel in an institution of higher education.
- **Research productivity:** Most of the knowledge in the world is produced in universities, collectively by students and academics (Goodall et al., 2014). The concept of research productivity is widely debated in academic genres. According to Abramo and D'Angelo (2014), research productivity as a concept hinges on definitions of productivity as a classical prime indicator of efficiency in any production system. Therefore, research productivity refers to ability of universities to optimize available resources for optimum production of research outputs. This further refers to inherent abilities of institutions to correlate their throughput with enrollments and consequently their ability to publish research in accredited journals.
- **Research utility:** This refers to an institution's ability to produce knowledge that can be directly utilized to improve practice. This means that research should be accessible, transferable and effective with notable impacts (Beutler & Howard, 1998).

Costa (2018) further pointed out the height and depth of the phenomenon of poor completion ratios at most South African universities (Bopape, 2018).

This phenomenon, as a global problem in higher education, has been steadily observed and documented in locations such as Australia, North America, Europe, and South Africa and has been alluded to by many researchers (Cranfield & Taylor, 2008; Lessing & Lessing, 2004; Van der Westhuizen & De Wet, 2003).

Medway (2002) postulated the difficulties faced by students conducting postgraduate research, particularly qualitative research. His view was corroborated by Ely et al. (1997) and later on by Belcher and Hirvela (2005).

Students are faced with complex situations demanding high research mental capacity to unravel the fuzziness of qualitative research genres (Belcher & Hirvela, 2005).

Wadee et al. (2010) attributed the challenges in postgraduate supervision to paucity of information related to academic literacy and writing skills, power relations between research co-coordinators, and supervisors' and students' inadequate preparation in research methodology. Walker et al. (2008) further indicated that there is not much known regarding effective ways to develop capacity for excellence in research at higher education institutions. Ulrich and Dash (2013) further indicated the need for increased research competencies for the 21st century researcher through research education. Niemczyk (2018) explicated research education as, "spaces, practices and policies designed to equip prospective researchers with the knowledge, skills, attitudes and behaviours they need to conduct quality ethical research and engage in scholarly communities locally and globally" (p. 173).

Elements of research education could include research methods learning programs, research workshops, and research coaching. These are elements to add to the normal supervision program at the postgraduate level. The challenges explicated above, and other phenomenon, provide justification for integration of the C.O.S.T.A model as an andragogy (Knowles, 1984) for research development in postgraduate studies (National Research Foundation, 2017).

2. PURPOSE OF THE MODEL

I created the model to assist students and those teaching research, particularly qualitative research, in following a structured framework of learning and development in the diverse interest areas of postgraduate research (Disney et al., 2013). It is an introductory guide to novice researchers and a tool to assist those with the task of guiding novice researchers, emphasizing knowledge development, intellectual support, and strengthening behavioral attributes and skills (Solem & Foote, 2009). As has been noted above, there is substantial literature on the challenges of postgraduate students, particularly those who conduct qualitative research due to its nature of predominant reliance on texts and themes (Medway, 2002). The need for acquisition of research skills and capacity are increasingly being

affirmed by governments across the globe as critical for creation of sustainability and thriving economies (Chubb, 2013). In a response to this kind of debate, the C.O.S.T.A model, which compares favorably to initiatives such as Researcher Development Framework in the UK (Vitae, 2010), is a solution to much needed guidance by students and much needed support by supervisors and lecturers in academic research (Costa, 2018).

This model is a tool to enhance what has currently been done to supervise postgraduate students at universities in South Africa and beyond. Postgraduate supervision can be defined as a process of support to postgraduate research students by well trained academics (Maxwell & Smyth, 2010). My passion for this project was inspired by the needs of most postgraduate students who indicated a lack of knowledge on research methods, including varied intricacies of research aspects, research language, and research report writing (Leedy & Ormrod, 2005). Observations and interactions with students from different institutions of higher education, explicated in recorded interviews, with research problems further precipitated my interest (Global Centre for Academic Research, 2018).

The C.O.S.T.A model has its origin in models like the Collaborative Cohort Model (CCM), which has been introduced by one of the leading institutions of higher education in South Africa (Govender & Dhunpath, 2011). These scholars postulated that collaborative methods of supervision tend to have better results. There are quite a number of methods and models of supervision at the postgraduate level followed as a common practice both in South Africa and beyond. The Master Apprentice Model (MAM) fits in well with traditional methods of supervision which often create a lonely postgraduate journey (Bock, 2013). It cuts across quite a number of approaches at institutions of higher learning. Lee (2008) published a framework providing varied approaches to postgraduate supervision covering practices and collaborations with supervisors across the globe, an activity that has since been refined (Lee, 2018).

In view of the above, the purpose of the model is to provide incremental growth for both the researcher and supervisor as postulated in the Researcher Development Framework (Vitae, 2010) and other similar literature sources cited in this chapter. Of importance is that the leadership aspect of the C.O.S.T.A coaching model is demonstrated through the act of “influencing” through the practice of “coaching” (Bush, 2008). The best model of leadership, often cited as transformation leadership, is where there is acceptance of a common and shared purpose between the leader and the follower.

That acceptance in the C.O.S.T.A. coaching model is demonstrated in the student's enthusiasm on their work which can be further tested through the quality of the research output (Kotterman, 2006), as demonstrated in Table 1 below.

The C.O.S.T.A model is an andragogical tool (Knowles, 1984) that promotes collaboration and collegiality using a multi-disciplinary approach to make a research journey of students an exciting one.

Table 1. C.O.S.T.A. Model in the grand scheme of things - adapted from Lee (2018).

	TRADITIONAL APPROACHES		C.O.S.T.A Model		
	Functional	Enculturation	Critical Thinking	Emancipation	Relationship Development
Supervisor's activity	Rational progression through tasks	Gatekeeping master to apprentice	Evaluation challenge	Mentoring, coaching, supporting constructivism	Supervising by experience, developing a relationship
Supervisor's knowledge & skills	Directing, project management	Diagnosis of deficiencies, coaching	Argument, analysis	Facilitation, reflection	Managing conflict, emotional intelligence
Possible student reaction	Organised obedience	Role modelling, apprenticeship	Constant inquiry, fight or flight	Personal growth, reframing	A good team member, emotional intelligence

This approach involves provision of real-time problem solving in a seminar/workshop-based where students, sometimes from different universities, come together for a common purpose of understanding research protocols and how these can be applied to their individual studies. Further, to conduct sessions in cohort mode, each student is allocated a qualified coach, who must spend time with the student discussing research coaching goals and assessment of milestones and desired outcomes (Lubb et al., 2005; Pearson & Kayrooz, 2004).

There are a few reasons why the model emphasizes coaching instead of emphasizing mentoring. Firstly, the C.O.S.T.A Model, as a multi-disciplinary approach to supervision, integrates related disciplines, such as mentoring and leadership, as integral to its implementation (Ives, 2008).

Where mentoring is generally viewed as informal, coaching is more formal and hinges on a contractual relationship between the coachee and the coach. Secondly, the approach to the creation of the C.O.S.T.A. resonates with the definition of coaching as a systematic, collaborative intervention that focusses on enhancing professional growth, increasing positive transformation, and fostering self-directed learning with the ultimate objective of attaining goals within a defined and specified timeframe (Morgan & Rochford, 2017).

Justification for locating the model within the coaching paradigm, as opposed to the mentoring approach, is further explicated below under the Theoretical Foundation section.

A digital approach, use of collaborative communication technology, and bespoke coaching sessions complete the triad of the approach.

The program proposes that students attend sessions, where the first step is to learn about fundamental research concepts and research language. This is critical as it introduces students to key terminology that will be used in their research projects.

A student's acquired knowledge and understanding of concepts and context of use, including content requirements for particular studies, demonstrates satisfactory articulation of this step. When this is done, the issue of a research question is raised before getting to the topic. The topic comes after carefully selecting a research question. This cannot be done without understanding the literature pertaining to the area of investigation.

The advantage of this model is that while it is benchmarked on the basic principles of coaching, whereby the coachee must determine the ultimate goals, it provides support to students in a structured a coherent manner from the coaches/supervisors and fellow students. Figure 1 below presents a 5-step framework of the model for further perusal.

3. THEORETICAL FOUNDATION

The first stage of the C.O.S.T.A Model starts with application of the Grow Model to map the coaching relationship between the student and the supervisor as postulated by Whitmore (1996). Coaching, which is a non-directive, solution-focussed, and developmental intervention, plays a vital role in postgraduate supervision (Keane, 2016; van der Linde, 2012). There is significant literature in support of coaching as a pathway to increase self-efficacy and personal confidence in goal attainment, and the role that coaching plays in educational settings (Rhodes, 2013).

While the key focus of the C.O.S.T.A Model is on coaching (the process), it also promotes a mentoring (relational) approach as two integrated helping behaviors by supervisors in enhancing students' abilities for attainment of their academic goals (Pearson & Brew, 2002).

Figure 1.C.O.S.T.A Model (created by author)

The C.O.S.T.A Model places a strong emphasis on integrating supervision behaviors with coaching in order to realize an outcome that supports well developed, independent thinkers who will actively contribute in professional practice. Whitmore (1996) defines coaching as a process of unlocking one's potential to maximize latent potential.

This view is further evident in the conceptual definition of coaching as a process that involves a series of activities with a specific objective for developing, improving, and ultimately achieving an outcome (Passmore & Fillery-Travis, 2011).

As a proponent of a collaborative approach to supervision, the C.O.S.T.A Model encourages processes that enhance learning and development for improved performance and researcher competence, as posited by Parsloe (1999).

Similar models developed earlier, like the Researcher Development Framework (Vitae, 2010), further support helping behaviors such as coaching in research development, whereby the student is enabled to explore their intrinsic motivation toward their research objectives, set their own goals in line with their axiological position, and reflect on their strategies for goal achievement while being held accountable to attainment of those goals (Keane, 2016).

4. APPLICATION OF THE MODEL

The C.O.S.T.A Model is a framework and pathway of research coaching that follows five distinct yet inter-related steps towards the attainment of a research output by novice researchers. I observed and tested its application over a period of 12 months from March 2018 to March 2019 at the Global Centre for Academic Research (Costa, 2018).

The model focuses on spending time with students, introducing them to concepts that will be critical in their research projects. As in the case of the collaborative cohort model (Govender & Dhunpath, 2011), students and supervisors get together in an interactive workshop where the project leader makes presentations and the rest of the audience interacts with the topics. Such topics include concepts or different stages of the research project.

One-on-one interaction with the student by a supervisor follows these seminars/workshops. A team of peers, who submit their findings to the chief supervisor, view student submissions, which are uploaded on an interactive online portal. This process introduces the student to the peer review system.

4.1 Step one

This step introduces students to research concepts. This is a step of ensuring the students are fully prepared to go through with the research project. This step prompts students to prepare essays for presentations on key concepts and conventions of research methods and methodologies to identify differences. This initial stage of the model takes students through a process of questions and topics. Philosophical assumptions and their impact on research questions are dealt with, ultimately helping students to prepare a conceptual framework of their chosen studies. Understanding the language of research is a huge switch for postgraduate students who meet this academic expectation for the first time, save for sporadically condensed research methods workshops often provided by universities. To ensure students are able to articulate concepts and concept usage, the process of this step takes a minimum duration of four to six months.

4.2 Step two

The second step focuses on a student's intention (proposal) and methodological steps necessary to complete that stage. At this stage the student researcher has requisite

foundation competence (theory and practice) required for a postgraduate scholar. He or she is able to articulate concepts, formulate a theoretical framework, and distinguish it from the conceptual framework while demonstrating relationships. The student articulates and understands contexts and usage of language. The ability to present a clear road-map and capture the whole concept within a proposal is introduced to students. At this stage writing starts and coaching occurs.

4.3 Step three

In terms of this step, the scholar needs to understand the problem and its magnitude from reviewing the literature so as to clearly articulate the identified gap, formulate the background of the study, write a problem statement, and draft research questions. These facts necessitate the need for a pre-proposal literature review. At this stage, students work on developing critical reading and writing skills whereby supervisors introduce students to concepts such as critical thinking, synthesis, and summarization, as depicted in Table 2 below.

4.4 Step four

I created a concept of Step 4 called TACT (Trustworthiness, Auditability, Credibility and Transferability). TACT is demonstration of skills particularly to collect data, analyze data, present findings (or results), and discuss and formulate a conclusion. The validity, reliability (which are predominate concepts in quantitative research) or trustworthiness of the study is then demonstrated. This is where we meet the concept of TACU for the first time. The TACU represents the following quality criteria values to determine rigor in qualitative research studies: Truth value, Applicability value, Consistency value and Unbiasness or Neutrality value. I created TACU as a means to ensure quality criteria alignment as already postulated by leading qualitative research theorists such as Creswell and Miller (2002), and Lincoln and Guba (1985). Figure 2 above displays TACU, which is further articulated in Table 2 below.

Figure 1. TACU (Truth value, Applicability value, Consistency value and Unbiasness value): created by author

4.5 Step five

In this step the student measures success of all her steps to the final stage. The final stage requires students to present a cogent argument, conclude the writing of the thesis/dissertation, and prepare an article for publication. The other important element of this stage is a mock defense where students are prepared to defend their output through a presentation to a panel of scholars.

Table 2. C.O.S.T.A Postgraduate Research Coaching Model

STEP	STAGE	APPLICATION	SIGNIFICANCE
1	CONNECTION	Connection between the supervisor and the student is critical. The suggested method is the GROW model to determine the preparedness and willingness of the student.	ESTABLISHMENT OF RESEARCH'S FOUNDATIONAL SKILLS
	CONCEPTS	In-depth introduction to research language and applicable concepts. This cannot be done in one week, it should be a minimum of full three months programme.	

2	O	OBJECTIVES	This deals with the objective of the project. The student should be able to articulate the following: Introduction, Background, Study Objectives, Assumptions/hypothesis, The Study Significance, Study limitations, Delimitations and Research Question.	RESEARCHER'S INTENTION (Research Proposal)
3	S	SITUATION	Thorough assessment of literature on the subject and identification of gaps. Formulation of a Theoretical Framework and Conceptual Framework and knowledge of the difference between the two. Application of Blooms' complex thinking skills (critical analysis, synthesis and evaluation).	RESEARCHER'S AWARENESS OF CURRENT DEBATE
4	T	TACT TACU Truth Value Auditability Value Credibility Value Unbiasness value	Credibility: In addressing credibility, investigators attempt to demonstrate that a true picture of the phenomenon under scrutiny is being presented Transferability: Investigators provide sufficient detail of the context of the fieldwork for a reader to be able to decide whether the prevailing environment is similar to another situation with which he or she is familiar and whether the findings can justifiably be applied to the other setting. Dependability: Researchers should at least strive to enable a future investigator to repeat the study. Confirmability: Researchers must take steps to demonstrate that findings emerge from the data and not their own predispositions	METHODOLOGY UNDER SCRUTINY Trustworthiness in Qualitative Studies Validity & Reliability in Quantitative Studies
5	A	ASSESSMENT	Ability to make judgment on the strength and weakness of the study. Provision of a cogent argument in support of study objectives and its benefits to targeted audience. Implications and recommendations.	RESEARCHER'S INTELLECTUAL JUDGEMENT OF RESEARCH OUTPUT

5. CONCLUSION

This chapter established that research coaching in postgraduate supervision as an intervention is critical. I further articulated that research supervision integrates by and large elements of transformational leadership.

The collaborative nature of the C.O.S.T.A Model seeks to enhance relational and supportive behaviors that encourage students to develop as critical thinkers who are able to set their

goals for attainment of study goals as per agreed timelines. It encourages them to enhance independence and relevance to their respective economic professional activities while at the same time being held accountable for their own development. Students who attended sessions and applied the C.O.S.T.A. Model in their postgraduate studies claimed that it heightened their confidence in research, demystified abstractions, and provided a framework for tackling difficult issues.

Group sessions further provided participants with a platform to network and interact with scholars from different backgrounds, thereby providing an avenue for a collaborative drive and research solidarity. Some of their comments may be found on the commentary section of the Preprints.org (Costa, 2018). This study could contribute to professional development in many ways such as:

- provide an andragogical framework for teaching research;
- encourage helping, collaborative methods and an alternative to traditional methods of supervision, such as the master-apprentice-model inherently used in many academic supervision roles;
 - enhance researcher growth and development as professional and scientific investigators; and
 - assist, reduce, and deal with the current problem of research capacity, research productivity, and research utility.

This chapter presents a case for institutions to encourage:

- establishment of models that enhance development of novice researchers;
- research education;
- serious scrutiny of the plethora of research on challenges facing postgraduate researchers and supervisors; and
- use of C.O.S.T.A. model in postgraduate research.

I recommend further research into the readiness of supervisors and institutions to pilot implementation of the C.O.S.T.A. Model or similar models such as the Researcher Development Framework as alternative approach to postgraduate research supervision.

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