

DEVELOP RESEARCH CONCEPTS

UNIT CODE: MATH/OS/AS/CR/01/6/A

Unit description

This unit describes the skills, knowledge and competences required to: Formulate a research problem, objectives/hypothesis, develop research proposal/literature review, develop sampling procedures, develop data collection tools, develop data analysis framework, develop research budget proposal & time plan, pilot data collection tools, analyse pilot data and validate data collection tools

It applies to leaders or managers using applied research to ensure learning can enhance individual, team and organisational performance. The intended purpose and approach to applied research may vary across a range of contexts and organisations. In this unit, the focus is on applied research to attain improved organisational outcomes.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Formulate a research problem, objectives/hypothesis	1.1 The proposal title is stated as per the problem and general objectives/research questions/hypotheses. 1.2 The background of the study is outlined as per the study problem. 1.3 The problem statement is formulated as per the research proposal 1.4 Hypotheses are stated as per the research objectives.
2. Develop research proposal/literature review	2.1 The importance/significance of the study is stated as per the problem statement. 2.2 Research design is determined as per the problem statement.

ELEMENT	PERFORMANCE CRITERIA
	<p>2.3 Information sources including citations and authors relevant to the research is assessed and captured as per the problem statement.</p> <p>2.4 The scientific methodology is captured as per the problem statement.</p> <p>2.5 Relevant research ethics and codes of conduct are reviewed as per the research proposal and target group.</p>
3. Develop sampling procedures	<p>3.1 The population characteristics are determined as per the target population</p> <p>3.2 The sample size is determined based on statistical procedures</p> <p>3.3 The sampling method is determined as per the population characteristics</p>
4. Develop data collection tools	<p>4.1 Data collection questions are determined as per the research objectives</p> <p>4.2 Tool (s) for collecting data is identified as per research design</p> <p>4.3 The tool (s) is developed as per the research hypotheses</p>
5. Develop data analysis framework	<p>5.1 The appropriate tools are selected as per the research design.</p> <p>5.2 The constructs/items of the research tools are determined based on the hypotheses/objectives/research question.</p> <p>5.3 Appropriate tools for use in data collection are developed as per the type of data and available resources.</p>
6. Develop research budget proposal & Time plan	6.1 Direct costs are determined and estimated as per the research design

ELEMENT	PERFORMANCE CRITERIA
	<p>6.2 <i>Indirect costs</i> are determined and estimated as per the research design.</p> <p>6.3 The budget narratives are captured as per the cost estimates.</p> <p>6.4 Total estimates are made and captured as per the costs.</p> <p>6.5 Time plan is developed as per stipulated time</p>
7. Pilot data collection tools	<p>7.1 Stationeries and other material are procured and organized as per the workplace procedures.</p> <p>7.2 Data collection tools are prepared as per the number of respondents.</p> <p>7.3 Data collection tools are piloted as per the research design</p>
8. Analyse pilot data and validate data collection tools	<p>8.1 Piloted data is entered and analysed as per the methodology</p> <p>8.2 Reliability and validity tests are performed as per the procedure</p> <p>8.3 Data collection tools are validated as per the analysis results and responses</p>

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range

1. Prepare research concept may include but not limited to:	<ul style="list-style-type: none"> • Research purpose and needs of the target group • Statement of a problem • research strategy and hypothesis • sources of information and contributors relevant to the research • available literature on other similar researches
2. Research design may include but not limited to.	<ul style="list-style-type: none"> • applied research methods, theories and suitable data collection techniques • appropriate methods for use to gather research data
3. Research tools may include but is not limited to:	<ul style="list-style-type: none"> • questionnaires • emails • calls • list • interview guides • audio recording • observation • experimental etc.
4. Direct costs may include but is not limited to:	<ul style="list-style-type: none"> • transport/travel • stationary • wages
5. Indirect costs may include but is not limited to	<ul style="list-style-type: none"> • Administrative • Miscellaneous

Required skills and Knowledge

The trainee needs to demonstrate knowledge of:

- Communication skills
- Data collection techniques
- Data analysis methods including the use of technology and technology services
- ICT literacy skills
- Research skills
- Report writing skills
- Use of Internet
- Citation and Referencing skills
- Laws relating to piracy and plagiarism

- Development of data collection tools
- Legal requirements, policies, procedures and guidelines relating to research including handling storing data and freedom of information
- Research ethics and codes of conduct
- Applied research tools and methods and their applications.
- Research design

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills, knowledge and range.

<p>1. Critical Aspects of Competency</p>	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> 1.1 Formulated a research proposal or plan as per the problem 1.2 Specified and stated the research questions as per the objectives 1.3 Stated the hypotheses as the objectives 1.4 Formulated the research budget and costing as the research design 1.5 Developed research design as per the set objectives 1.6 Developed data collection tools as per the research design 1.7 Planned and conducted research as per the research design 1.8 Determined sample size as per the procedures 1.9 Described the geographical, cultural, social or institutional context within which the research will be carried out as per the procedure 1.10 Analysed the limitations to research design including the reliability and validity of data as per the problem statement.
<p>2. Resource Implications</p>	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> 2.1 Computer 2.2 Printer 2.3 Printing papers 2.4 Stationary

3. Methods of Assessment	Competency may be assessed through: 3.1 Portfolio Assessment 3.2 Interview 3.3 Case Study/Situation 3.4 Practical Tests
4. Context of Assessment	Competency may be assessed on the job, off the job or a combination of these. Off the job assessment must be undertaken in a closely simulated workplace environment or during Industrial Attachment.
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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