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Can education and training decision making be improved using a risk-management decision-making framework?

Barry Horton

University of Wollongong

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Description

Current research and literature reviews indicate that Australian organisations do not use consistent and effective decision making processes when undertaking education and training. This paper provides both context and background to underlying training decision making problems in Australia and introduces an innovative training decision making model for research and testing. The model to be tested develops a heuristic training decision making sequence based on risk management theory and is supported by the International Risk Management Standard ISO 3100:2009. The application of risk management logic to training decisions enables the development and testing of a unique decision making sequence that ranks and prioritises organisational training approaches in accordance with perceived levels of organisation risk. A defined series of training matrixes embody the heuristic training model and facilitate a meta-analysis approach to organisational training needs. The effectiveness of the heuristic risk management decision making model will be tested by using a two phase research approach. Phase one measures training managers' decision making confidence levels when they are asked to apply the risk management matrixes to their organisational training decision making. Phase two examines the correlation between variations in training managers' confidence levels and the perceived effectiveness of the risk management decision making model.

Location

Innovation Campus, Building 233, Rm G12

**CAN EDUCATION AND TRAINING DECISION MAKING BE
IMPROVED USING A RISK MANAGEMENT DECISION MAKING
FRAMEWORK**

Author – Barry Horton

Abstract

Current research and literature reviews indicate that Australian organisations do not use consistent and effective decision making processes when undertaking education and training. This paper provides both context and background to underlying training decision making problems in Australia and introduces an innovative training decision making model for research and testing. The model to be tested develops a heuristic training decision making sequence based on risk management theory and is supported by the International Risk Management Standard ISO 3100:2009. The application of risk management logic to training decisions enables the development and testing of a unique decision making sequence that ranks and prioritises organisational training approaches in accordance with perceived levels of organisation risk. A defined series of training matrixes embody the heuristic training model and facilitate a meta- analysis approach to organisational training needs. The effectiveness of the heuristic risk management decision making model will be tested by using a two phase research approach. Phase one measures training managers' decision making confidence levels when they are asked to apply the risk management matrixes to their organisational training decision making. Phase two examines the correlation between variations in training managers' confidence levels and the perceived effectiveness of the risk management decision making model.

1. Problem

Both the current research and literature indicate that Australian organisations undertaking training do not use a consistent training decision making framework to achieve effective and successful training outcomes. The failure of organisations to apply logical and structured decision making approaches to training suggests the following structural training weaknesses;

- Difficulty in choosing the most appropriate training structures and methods (structured vs unstructured training, formal vs informal content delivery, stringency levels of knowledge testing/ assessment, frequency of knowledge testing, linking method decisions to available resources)
- Difficulty in deciding on the type of knowledge that should be included in organisational training to ensure employees knowledge and skills remain relevant in changing business or organisational operating conditions
- Difficulties in matching training outcomes to existing organisational objectives (and make forward planning decisions) without a well-reasoned & logical decision making framework
- Inconsistent approaches to organisational training evaluation – i.e. organisations have difficulty proving and determining if actual training used is effective or not
- Difficulties in formulating training outcomes to meet uniform corporate goals – varying tiers of management may find it difficult to justify types of training (resources or methodology) without a structured process that is understood across the management hierarchy
- Difficulties in organisational resource allocation –i.e. hard to judge or justify best strategic use of finite organisation training dollars
- Inability to predict organisational training outcomes – i.e. not possible to judge if training fits purpose
- Difficult to prioritise training options in the context of vast array of legal compliance areas impacting on Australian organisations.
- Communication on training issues – without a logical and well understood decision making process it becomes difficult for managers to communicate about training related issues logically and in a well- reasoned manner

2. Research Context

Each year in Australia workplaces train over 5 million workers at a cost of over 3.5 billion dollars (ABS-2002). These organizations expect the return on their investment is justified in time, resources and money and assume that the newly-acquired employee skill and competencies organisations will continue to operate at optimum levels and meet core organisational objectives. Despite the large investment in training there is evidence many organisations in Australia do not have deliberate, transparent and defensible methods of deciding how and why to train, and often no credible method of justifying decisions about training budgets and allocating training resources (Smith, Burke, Long, 2008).

In this context, it will be argued that processes which organisations use to make training decisions are the most important “leading indicator” aspects and are the precursors of the potential success or otherwise of training outcomes. Training decision making is the critical factor in determining successful training outcomes in Australian organisations and it is therefore important to undertake research to understand the context of how & why current training decisions are made and what opportunities exist for improved training decision making approaches.

To address the issues above this research study is proposing a decision making model based on applying risk management principles to selected steps of the training decision making process. The model will be then be tested on selected levels of managers (including training managers) and trainers employed in NSW TAFE institutes and NSW Health Facilities.

The research study will therefore introduce a new training decision making methodology to the participating training personnel and ask them to compare and contrast their existing processes to the new methodology. The new methodology is a risk management decision making framework with a defined set of training related decision principles as initially developed by Horton in 2004 and subsequently developed further into the decision making heuristic of this research (see *appendix B*). This research concept is a heuristic (i.e. a model that works) and essentially it provides a particular decision making logic which can be used by training decision makers at different levels in an organisation. Horton's heuristic model is premised on the basic principle that training decisions should be made from the management of the assessed risk involved.

It is argued that Horton's heuristic model provides a logical sequence of decision making process steps that can be applied to all relevant aspects of training decision making in organisations. Using risk management enables a meta- analysis approach to training decision making leading to a higher level of quality in decision making and therefore increased opportunities for successful training outcomes.

3. Literature Review

The literature review undertaken provides both support and context to the research proposal. An initial finding of the review of literature relating to organisational training decision making is that it is not a highly researched area. The leading organisations for gathering data and publishing research about organisational training in Australia are the Australian Bureau of Statistics (ABS) and The National Centre for Vocational Education Research (NCVER). Extensive review of these organisations data bases and publications (including specific formal requests for current data) indicate that Australian organisational training data has not been collected and reported on consistently during the past 10 years. The data that is available has been referenced below and is inclusive of ABS data that is dated however is relevant in developing a general understanding of decisions relating to training costs and resourcing in Australian organisations (see research profile ABS/NIRS - NCVER/ED/Research 2002 - 2012)

To summarise the reviewed literature a series of findings from published research papers and statistical bulletins is provided below. The emerging evidence from the available literature is that Australian organisations do not have a consistent and effective framework for training decision making. The published data supporting this argument is as follows:

- Training is both an investment in personal and professional development and a contributor to stronger business performance and productivity. Training can be provided through structured or unstructured methods where in either mode of delivery training may or may not be predetermined by a specific plan or content (Australian Bureau Statistics - 2002)
- There is a strong and persistent belief in Australian training policy circles that Australia is a poor performer by international standards in the provision of training – (Smith, Freeland-2002)
- In many instances [policy] attempts have been made to compel employers to undertake more training with little reference to why employees should undertake training in the first place ... This analysis underlines the risk of simple policy solutions (Smith & Billet 2006)
- While it is recognised that Australian employers invest substantial money and time in training the exact nature and amount of this investment is poorly measured - (Smith ,Long, Burke, Dunbrell – 2008)
- Little is known about how training operates within organisations. National collections of statistics in Australia and overseas have produced evidence of the scale of expenditure on training and what training employers provide for their workers. However how employers make decisions about training remains something of a “black box”. Previous research has shown that reasons are often unique to organisations - (Smith, Oczkowski, Hill 2009)
- While there are a variety of reasons for employers to provide training to their employees , little is known about how these reasons influence choices about type of training to provide (Smith, Oczkowski, Hill – 2009)
- Factors that affect what training employers provide, why and to whom are varied and complex. Policy responses to the issue of increasing employer investments in training need to take this complexity into account (Smith, Oczkowski, Hill -2009)

- A more sophisticated and nuanced approach to encourage employers to invest in training and development of their workers is necessary (Smith , Oczkowski, Hill - 2009)

The weaknesses highlighted in the literature above provide the reasons for researching and improving training decision making in Australian organisations and justify the selection of a research model which involves a testing of the heuristic risk management approach to training decisions making. The main research question is premised on the idea that training decision making can be made more effective using risk management techniques. Specifically the heuristic model to be tested has the potential to address the issues discussed above because;

- It bases decision making on the evaluation of risk to the organisation as its underlying premise
- It provides a method for transparent & structured training decision making
- It provides a method for logical and sequenced training decisions
- It provides a method of justification for ranking and prioritising different training approaches
- It provides a method of justification of levels of expenditure (or no expenditure) for training budgets
- It provides a method of developing evidence for legal compliance agencies for verification and justification of training implementation
- It provides a sophisticated and consistent decision making training decision making framework

Systems thinking

Systems thinking and system based models are used extensively in business and industry as an approach to problem solving and as a means of defining the best actions or processes to obtain desirable outcomes. System thinking uses holistic approaches that focus on the way a system's constituent parts interrelate and how systems work over time and within the context of larger systems (Rouse 2005).

Applications of system based approaches are wide and varied and include areas such as the design of business supply chains, business continuity, quality management and project management.

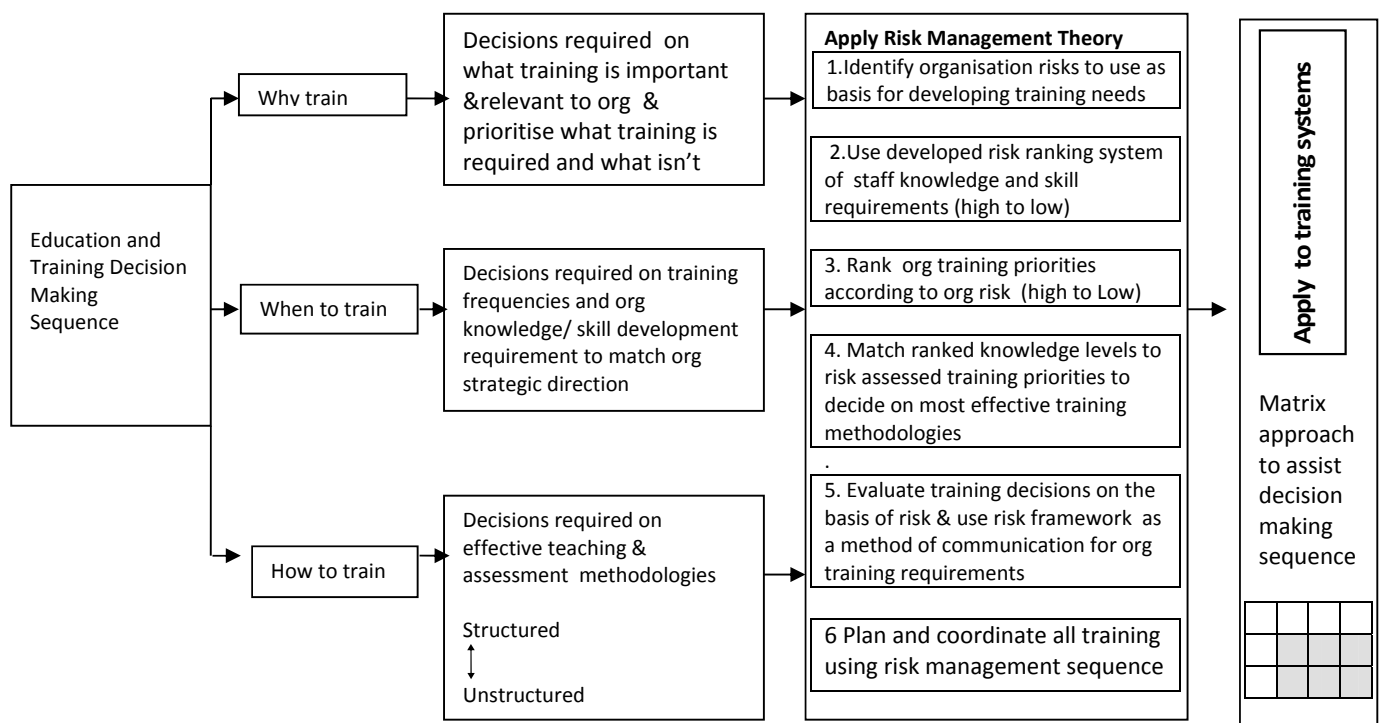
Macaulay (1996) lists the following attributes that are required for a formal systems thinking approach;

- It has some mission
- It uses decision making processes
- It has components which interact such that effects and actions are transmitted through system
- It is part of a wider system in which it interacts
- It is bounded by the wider system

In the context of the systems based literature discussed above the Horton heuristic decision making model can be described as a training and education systems thinking approach. This is an approach where training decisions are made using a system that considers the many levels of risk factors confronting an organisation and provides a decision making sequence to manage those risks.

Systems thinking is also used by psychologists to describe how individual human minds work and how people make decisions. Kahneman (2011) identifies two thinking systems in the human mind which he describes as; System 1 and System 2. According to Kahneman thinking System 1 operates automatically with little effort and no sense of voluntary control. A high degree of intuition would be used by individuals making decisions using the System 1 approach. The System 2 pattern of thinking involves more effortful mental activities and constructing thoughts in an orderly set of steps. System 2 takes over the freewheeling impulses and associations of System 1 to provide individual beliefs and deliberate choices. The Horton decision making model aligns closely with Kahnemans System 2 approach and it provides educational decision makers with a framework that enables deliberate and consistent decision making that can be applied to any organisational training requirement.

Figure A below demonstrates Horton's heuristic sequence;



Systems Development and Implementation – Key Factors

The success or otherwise of implementing a system based approach for any function or process within an organisation depends greatly on two key factors - the systems perceived usefulness and perceived ease of use. These two factors form the basis of the Technology Acceptance Model (TAM) which is a theoretical model developed by Davis (1986) to help explain and predict user behaviour of information technology (Legris, Ingham & Colterate, 2003). The TAM model indicates that the actual usage of technological systems is influenced directly or indirectly by the users behavioural intentions, attitude, perceived usefulness of system and perceived ease of use of the system.

The TAM model provides an important theoretical consideration for systems development and implementation. The Horton heuristic training decision making model is essentially a system based approach for developing the best possible organisational training outcomes. For the Horton model to be used and accepted as an effective training model the key factors of usefulness and ease of use identified in TAM must be recognisable by potential user groups.

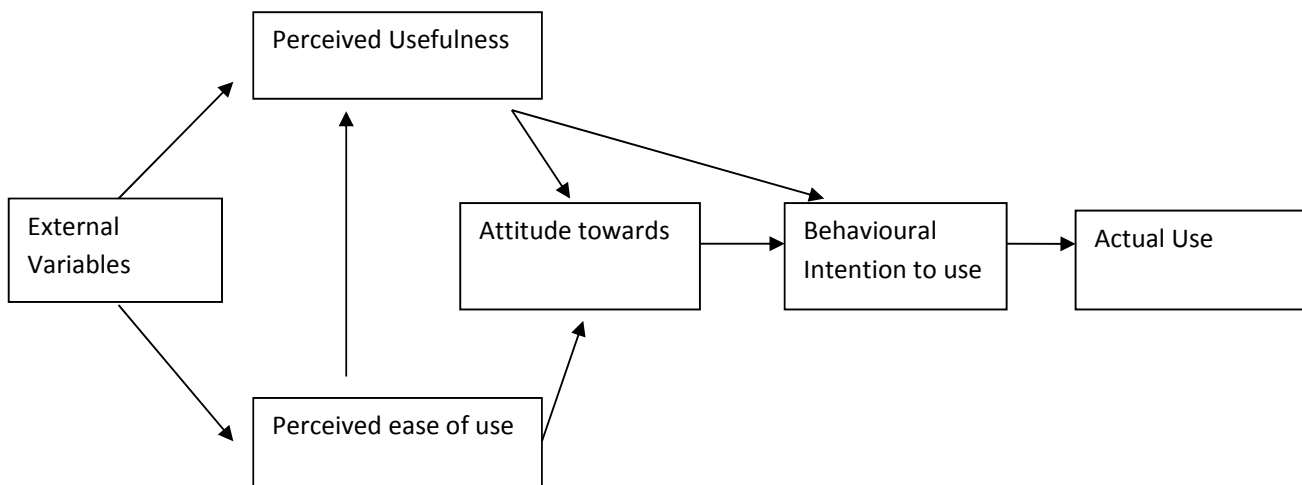


Figure B Original Technology Acceptance Model -TAM (Davis 1986)

4. Research Questions

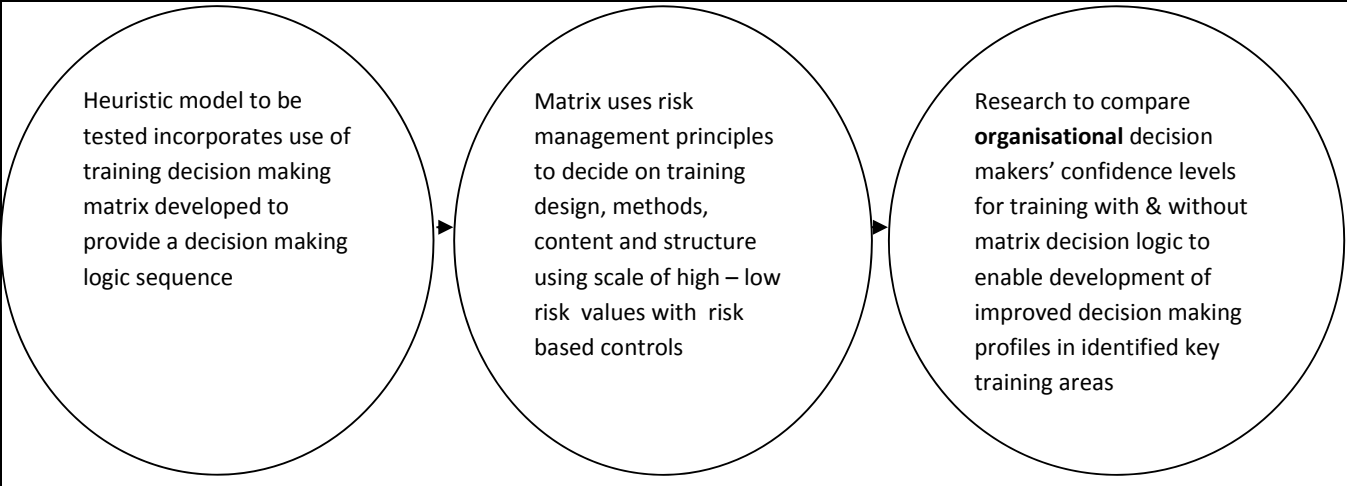
Three levels of questions are posed in this research plan. The first level question is;

Can the risk management based training decision model as developed for this research enable more effective organisational training decisions leading to more successful organisational training outcomes?

To answer the first question appropriately a series of lower order questions are developed and tested. Each one of the lower order questions enables the testing of a

selected aspect of the above major research question. The second level of questions therefore identifies and tests selected key decision making aspects that are considered key requisites for effective training outcomes.

The final level of questions applies the second order question directly to targeted managers in the stratified sample group to be tested. **Appendix A** provides details of the question development and the specific questions to be asked in the research process. Table 1 below summarizes the theory base and actions taken so far in this research plan.

In the context of identified structural weakness in Australian organisational training implementation the following table summarises a research strategy that tests a heuristic training decision making model that can potentially improve the effectiveness of training decision making leading to more successful organisational training outcomes				
				
Contributing Theory Base (Note RM= Risk Management)	Subsequent Action Steps Taken in This Research	Major Research Question	Derived First Order Research Questions	Derived Second Order Questions
RM identifies ways of thinking about decisions which lead to more informed organisational decision making	RM Matrixes can be developed and applied to selected steps of training decision process	Can a risk management based training decision model enable more effective organisational training decision making leading to more successful training outcomes	First order sub set questions identifies key decision making factors considered necessary for effective training decision making	Second order sub set questions focus on the decision making aspects of effective training
RM can be applied to the logical sequence of training decisions	A series of decision matrixes can be developed into a profile which represents how		Identification of key decision making aspects creates a means to develop	Likert Scale based questions developed to assess managers confidence levels in applying RM to

	organisations decide on training		risk profile	categories in second order questions
RM can be used to justify the outcomes of training decisions	Decisions can be analysed and justified by the risk profile created using both training process items and associated risk outcomes		Identification of key decision making aspects to minimise risk provides a basis for justification of effectiveness of decision making	Measurement of confidence levels in each question category can be graphically represented and used to produce a confidence profile when applying RM decisions
RM Best Practice profiles will differ according to type of organisational decision maker	Stratified sample of management hierarchy chosen from TAFEs and Health Service. Sample will represent different levels of organisational decision maker		RM Best Practice training profiles will need to provide data relevant to the needs and interest of each type and level of decision maker	RM best practice profiles are developed by the comparison of responses to second order questions as obtained from each selected management responsibility level in organisational hierarchy

Table 1 Summary of research context, actions and question development

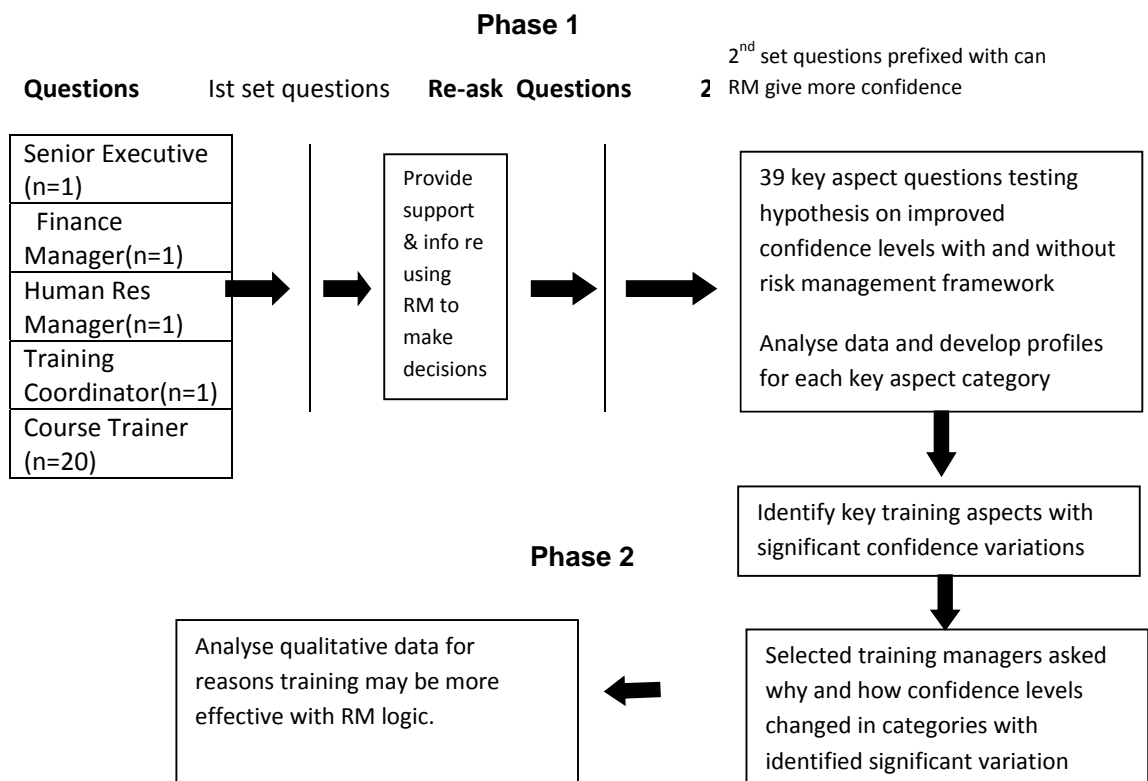
5. Research Methodology - Two Phased Approach

The research methodology will be designed using a mixed method approach with the research process consisting of two distinct phases. **Phase one** will ask a stratified sample of organisation trainers and training managers to consider the levels of confidence they have in the effectiveness of their existing training decision making and then ask them to reassess their levels of confidence after they receive information about and can then apply a risk management approach to training decisions (appendix B - using risk management logic). As summarized in table 1 above a range of questions will be asked of the research participants that will focus on the identified key aspect of their training decision making (appendix A - research questions). By asking respondents two sets of questions (confidence before using risk management for decisions compared with confidence after using risk management) the research is essentially undertaking an experimental approach to test the fundamental proposition that risk management can improve the level of confidence managers have for making effective training decisions. Phase one will collect and analyse quantitative data but on a limited scale because of the restrictions caused by the use of a stratified sample group that enables access to only a small number of representatives from the senior and middle level of the participating organisational management hierarchies. The sample size will be increased at the lower end of the hierarchy with the intention to ask twenty trainers from each organisation how they rate the risk management training approach.

In **phase one** respondents will be asked to rate the levels of confidence they have when making training decisions in their areas of responsibility. Using a measurement scale based on a Likert model (1932) the training managers levels of confidence can be measured in each of the identified key training decision making aspects. The training managers will be asked to rate their decision making confidence levels with and without the use of risk management decision making logic. The comparison of their score variation in each key decision making aspect will provide indicative evidence of higher or lower confidence levels when risk management is used for training decisions. As the research is limited by the available sample size the comparison of score variation in each decision making aspect will provide indicative evidence only of higher or lower confidence levels when using risk management logic within the range of training decision making categories.

Graphical representation of score variations in each question category enables the development of decision making confidence profiles that can be charted to show the impact of risk management logic in each training decision making aspect identified in appendix A.

Phase two of the research will undertake to use a qualitative approach to explore the relationship between the comparative values indicated on the Likert scales. An assumption is made that in each decision making category tested there is the potential for a variance in the training manager confidence levels. Where significant variation is evidenced in the profile categories a selected panel of managers will be asked two open ended questions to more fully understand why and how their confidence levels have been affected. To provide consistency and reduce bias in the data analysis the panel questions must include variance that indicates areas of both higher and lower confidence level when using a risk management of training approach.



Who and What Will be Studied

The research will be asking questions of managers from four NSW TAFE institutions and in the pilot stage four managers from one NSW rural hospital. A sample group of managers has been identified to represent a cross section of personnel who would be involved in training decisions in large organisations with typical management hierarchies.

Sample Characteristics

Training decisions in large organisations are undertaken by different managers depending on their key duties and levels of responsibilities. Successful training outcomes are important to the overall success of an organisation therefore the intended stratified sample group participating in this research will include a cross section of organisational training decision makers. The sample group of managers will include; Senior Executive, Finance Manager, Human Resource Manager, Training Coordinator and Course Trainer.

The research design will focus on connecting the key training decision making aspects identified in appendix A to the relevant decision making responsibilities of the chosen managers in the organisational hierarchy.

The tables below provide examples of how the key training decision making aspects have been linked to organisational hierarchy responsibilities

Senior Executive	Does your org have an effective method of ranking level of training required? Does your org have effective methods of aligning skill development with key org strategies? Does your org have effective methods to defend training decisions at law? Does your org effectively prioritise training decisions to meet org requirements ? Does your org training decision making enable a logical process for auditing requirements? Does org effectively make decisions on allocation of resources? Does org have effective processes to predict training outcomes?
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Table 2 – Example of key decision making aspect questions as developed for Senior Executive level of organisational hierarchy (list of complete hierarchy in Appendix A)

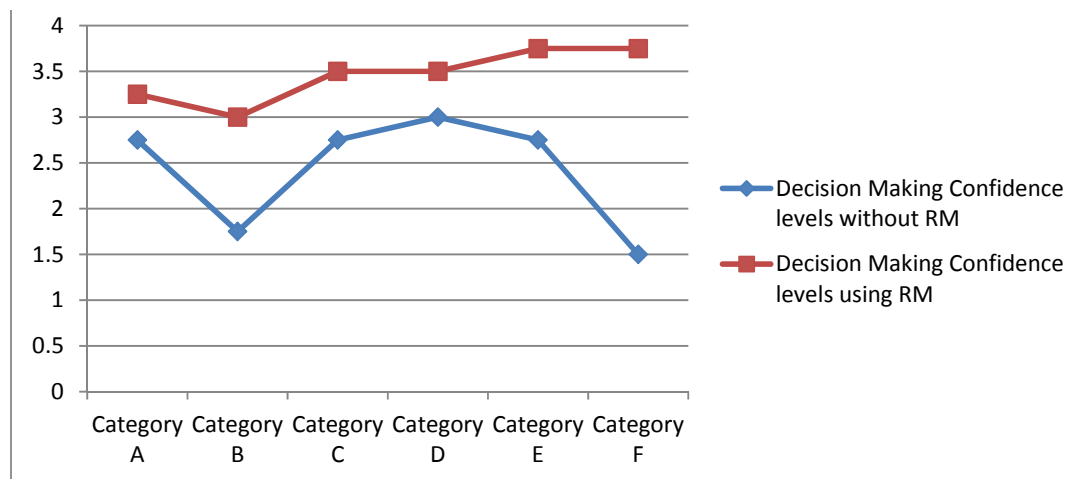
Training Coordinator	<p>Does your org have effective methods that allow you to rank and prioritise your training decision against org training goals?</p> <p>Does your org have an effective process for deciding on types of course structure?</p> <p>Does your org have an effective processes that matches course content to org priorities?</p> <p>Does your org have a logical training decision making frame work that enables effective communication with other depts regarding training decisions ?</p> <p>Does your org have processes available to help you predict results of types of training methods that are being implemented?</p>
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Table 3 - Example of key decision making aspect questions as developed for training coordinator level of organisational hierarchy (list of complete hierarchy in appendix A)

Pilot Study at Shoalhaven Hospital

To test the reliability of the phase one questions content and process the questions were trialled at Shoalhaven Hospital in a period between 11-06-2013 and 27-07-2013. The developed questions were tested and retested on a sample of Trainers and Training Managers working at the hospital (i.e. the same questions were asked twice). The graphs below indicate the outcomes of the pilot testing. The patterns of responses indicate a reliability of responses to the questions in these categories.

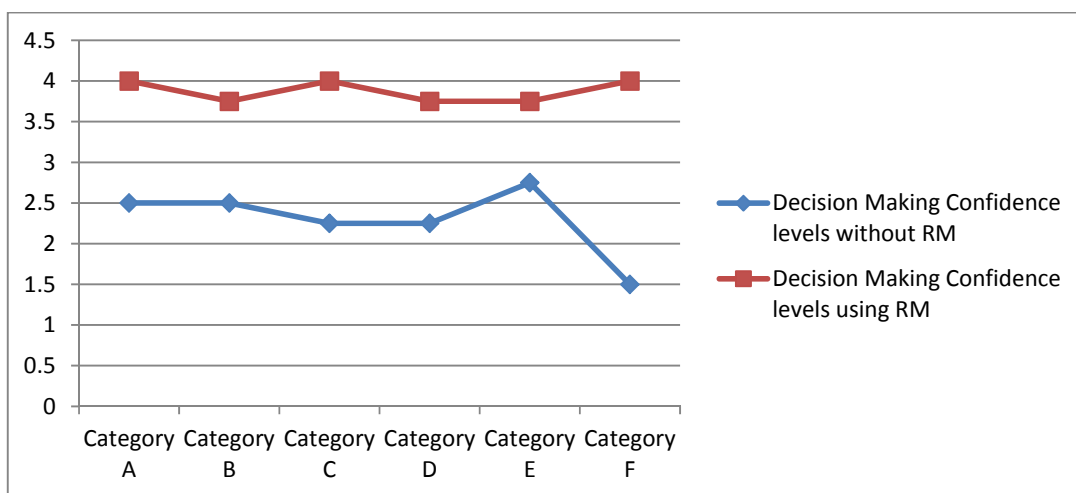
COMPARISON OF RESPONSES TO PILOT QUESTIONS ASKED AT SDMH –TRAINERS



Graph 1 - survey of 4 trainers on 11-06-2013 showing the comparative confidence levels of making effective decisions with and without applying a risk management decision making framework.

The key decision making aspects represented in the categories above are;

Cat A	Prioritising training methods to meet targeted organisation training needs
Cat B	Application of logical and coherent evaluation procedures to decide on training priorities
Cat C	Ensuring course content is structurally linked to identified corporate skill development
Cat D	Justifying on a logical basis structured or unstructured training methods
Cat E	Ability to predetermine training outcomes
Cat F	Common language to discuss training requirements with different levels of a management

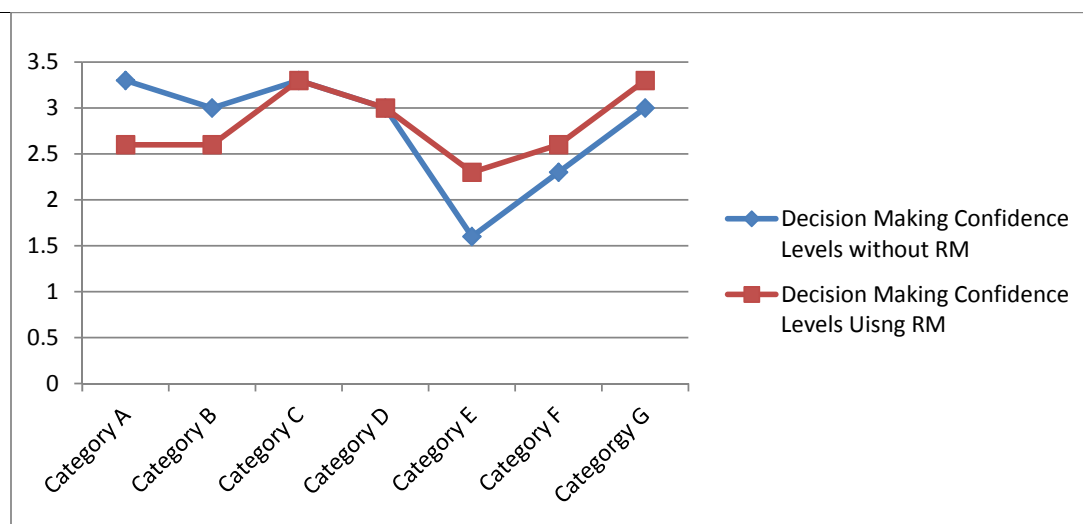


Graph 2 - survey of 4 trainers on 27-07-2013 showing the comparative confidence levels of making effective decisions with and without applying a risk management decision making framework.

The key decision making aspects represented in the categories above are;

Cat A	Prioritising training methods to meet targeted organisation training needs
Cat B	Application of logical and coherent evaluation procedures to decide on training priorities
Cat C	Ensuring course content is structurally linked to identified corporate skill development
Cat D	Justifying on a logical basis structured or unstructured training methods

COMPARISON OF RESPONSES TO PILOT QUESTIONS ASKED AT SDMH – TRAINING COORDINATORS

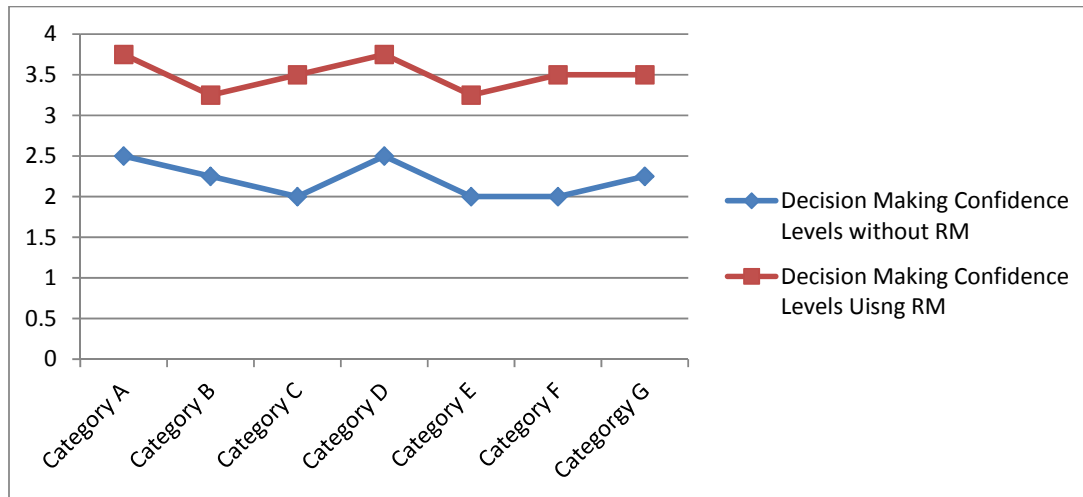


Graph 3 - Survey of 3 training coordinators on 11-06-13 showing the comparative confidence levels of making effective decisions with and without applying a risk management decision making framework.

The key decision making aspects represented in the categories above are;

Cat A	Assess corporate goals and match employee skill level requirements
Cat B	Selection of most suitable training methods
Cat C	Logical process for assessment and evaluation existing course implementation
Cat D	Process for ensuring inclusion of most relevant content
Cat E	Prioritising resource allocation for discussion with other org train managers

Cat F	Use of common training language for training decisions
Cat G	Ability to predetermine training outcomes.



Graph 4 - Survey of 3 training coordinators on 25 -7-13 showing the comparative confidence levels of making effective decisions with and without applying a risk management decision making framework.

The key decision making aspects represented in the categories above are;

Cat A	Assess corporate goals and match employee skill level requirements
Cat B	Selection of most suitable training methods
Cat C	Logical process for assessment and evaluation existing course implementation
Cat D	Process for ensuring inclusion of most relevant content
Cat E	Prioritising resource allocation for discussion with other org train managers
Cat F	Use of common training language for training decisions
Cat G	Ability to predetermine training outcomes.

6. Data collection

A questionnaire approach will be used to create and collect data. As the identified sample groups are in widely distributed organisations across NSW a questionnaire approach provides the best opportunity to collect consistent and reliable data.

Use of Likert Scale

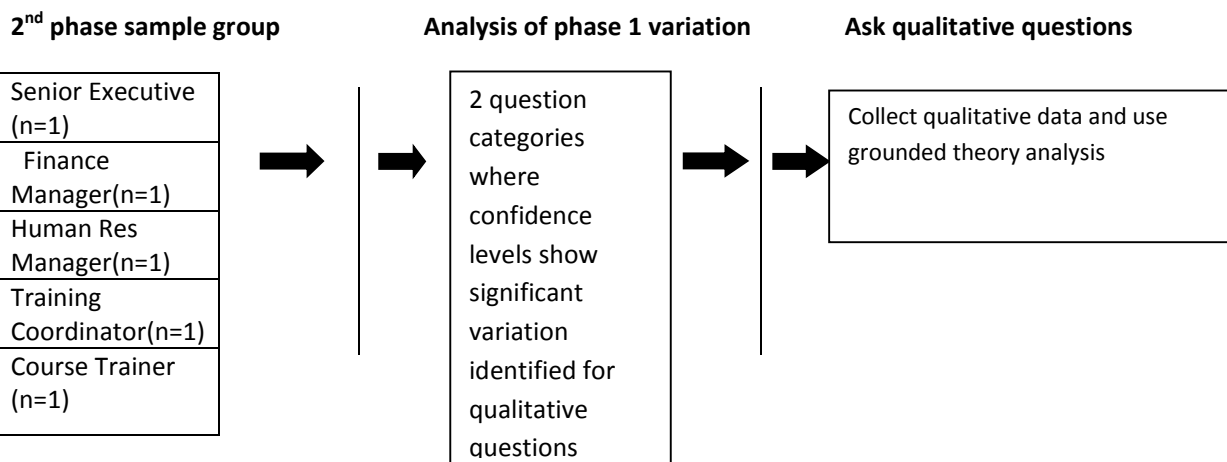
The Likert technique constructs a scale on equal numbers of favourable and unfavourable attitude objects. Respondents can be scored on their responses and the Likert model provides a good diagnostic tool if individual responses correlate well to overall responses within the specific area being tested. The weakness of the Likert technique is that over simplification diminishes the scale value of attitudes that are being measured. Scales developed by Thurstone and Guttman for example build in scoring values that potentially provide a stronger attitude value for comparison and analysis.

The Likert approach is proposed as acceptable for this research project as it is testing the application of a set of decision making principles as they can be applied to specific training decision factors. The specific nature of these questions lessen the requirements for Thirstone or Guttman style approach although the weakness of the Likert approach must be acknowledge. Other concerns with the Likert scale is the tendency towards a non committal or “undecided” position with creates ambiguity within the data. The typical Likert scale has a range of 1-5 (1 strongly disagree to 5 strongly agree). The scale to be used to test the training decision making aspects will use a scale of 1-4 which will lessen the opportunity of respondents to “sit on the fence” and produce more consistent data than the 1-5 scale.

7. Data Analysis

Two approaches are required to analyse research data. Phase one questions are measuring respondents levels of confidence when they apply risk management to training decision making. To undertake this testing a range of questions has been developed that are inclusive of factors identified as being the key to effective training decision making and are included in the question development (see Appendix A). As the level of confidence is being measured using a Likehart type scale (1-4) a continuum is developed (a continuum of confidence levels) therefore measurement of the dependent variable can be undertaken on an interval basis. A mean score of the pre risk management decision making confidence levels (for each specific question across range of sample group) can be determined and compared to the post risk management decision making confidence levels mean. This data will be tested and analysed using the Wilcoxon related data method.

The second phase questions will be analysed using the grounded theory approach. Grounded theory analysis aims directly at generating abstract theory to explain what is central in the data (Punch 1998). Three levels of coding will be used; open, axial and selective to explore the data and develop labels and indicators that can be used to interpret the responses from the open ended questions. The second phase questions are aimed at determining if a correlation exists between higher confidence levels when using a risk management training approach and the potential for more effective training outcomes when the risk management approach is used.



Phase 2 Questioning Approach

8. References:

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Appendix A- Question development

Three levels of questions are posed in this research plan. The first level question is;

1. Can the risk management based training decision model as developed for this research enable more effective organisational training decisions leading to more successful organisational training outcomes?

To answer the first question appropriately a series of lower order questions were developed and are tested. Each one of the lower order questions enables the testing of a selected aspect of the above major research question. The second level of questions therefore identifies and tests selected key decision making factors that are considered key requisites for effective training outcomes.

2. Second Level Questions

- Does the organisation have training decision making systems that can predict or attempt to predict training outcomes?
- Does the organisation have a logical and well -understood process for deciding when to undertake training and why do training?
- Does the organisation share training decisions across organisational hierarchy to ensure continuity of decision making and focus on shared corporate training goals
- Does the organisation have decision making processes that ensures the most effective training methods are used for the organisation (i.e. How to train - structured /unstructured training / formal assessment - informal assessment processes)?
- Does the organisation have decision making processes that ensure types of knowledge and levels of knowledge in training programs is targeted appropriately toward organisational knowledge outcome goals and relevant employee skill development ?
- Does the organisation training decision making process ensure training resources are targeted effectively?
- Does the organisational training decision making process provide a credible justification to stakeholders as to the appropriate allocation of training resources
- Does the organisational training decision making system provide a transparent process that is defensible at law
- Does the organisational training decision making process provide evidence of analysis of training needs as required for internal/external compliance audits

- Does the organisation training decision making process include the evaluation of existing organisational training and linking outcomes to future training requirements?
- Does the organisational training decision making process provide a clearly understood framework that enables good communication of training decisions across the whole organisation

3. Final level of Questions - Specific Research Questions Linked To Management Decision Making Responsibilities in Organisational Hierarchy

The final level of questions link the key decision making factors identified above to specific management responsibilities in an organisational hierarchy. Responsibility for training decisions will vary for each management tier in an organisational hierarchy. This research has identified the following sample group of managers representing a typical medium sized organisation; Senior Executive, Finance Manager, Human Resource Manager, Training Coordinator and Course Trainer.

The managers from this stratified sample group will be asked the final level of questions and the research process will measure their levels of confidence for making effective training decisions in their areas of responsibility.

Tables 1&2 below summarise organisational management responsibilities as they relate to training decision making and detail the subsequent final level questions that will be asked of each research participant according to their position in the management hierarchy.

Table 1 showing organisational hierarchy and the area of questions as they relate to management responsibility.

Senior Executive	Legal/Corporate governance train req
Finance Manager	Resource allocation /return on invest
Human Res Manager	Workforce skills/align corp strategies
Training Coordinator	Course provision/types of training
Course Trainer	Knowledge requirements/evaluation

Table 2 showing development of specific questions to be asked of managers as developed from second level key decision making aspect questions

Phase 1 questions	
Senior Executive	<p>Does your org have an effective method of ranking level of training required?</p> <p>Does your org have effective methods of aligning skill development with key org strategies?</p> <p>Does your org have effective methods to defend training decisions at law?</p> <p>Does your org effectively prioritise training decisions to meet org requirements ?</p> <p>Does your org training decision making enable a logical process for auditing requirements?</p> <p>Does org effectively make decisions on allocation of resources?</p> <p>Does org have effective processes to predict training outcomes?</p>

Finance Manager	<p>Does your org have an effective method of allocating of training resources to match skill development?</p> <p>Does your org have effective methods of ranking training requirements to prioritised training investment?</p> <p>Does your org have an effective method of allocating of training resources in line with corporate goals?</p> <p>Does your org have a a logical frame work to communicate to other dept decision on resource allocation?</p> <p>Does your org have an effective process for auditing training resource decision making?</p> <p>Does your org have effective processes available to predict training outcomes of training resource allocation and decision making?</p>
Human Res Manager	<p>Does your org have effective methods of matching corporate goals to skill development requirements of employees?</p> <p>Does your org have effective methods of ranking and prioritising staff training to ensure relevancy of staff skills?</p> <p>Does your org have a logical frame work to communicate to other dept on training decisions?</p> <p>Does your org you rank and prioritise your training decision against assessed org training goals?</p> <p>Does your org have effective processes available to predict training outcomes ?</p>
Training Coordinator	<p>Does you org have effective methods that allow you to rank and prioritise your training decision against org training goals?</p> <p>Does your org have an effective process for deciding on types of course structure?</p> <p>Does your org have an effective processes that matches course content to org priorities?</p> <p>Does your org have a logical training decision making frame work that enables effective communication with other depts regarding training decisions ?</p> <p>Does your org have processes available to help you predict results of types of training methods that are being implemented?</p>
Course Trainer	<p>Does your org have an effective method of selecting training approaches and prioritising them to meet targeted org training needs?</p> <p>Does your org have effective course assessment and evaluation decision making procedures that establish priorities for future training implementation?</p> <p>Does your org training decisions effectively link course content to ranked and prioritised corporate skill development requirements</p> <p>Does your org training enable effective decisions that logically align course structures with key corporate strategies</p> <p>Does your org have a logical training decision making frame work that enables effective communication with other depts regarding training decisions</p> <p>Does your org have processes available to help you predict results of types of training methods that are being implemented?</p>
Phase two questions	
Senior Executive Finance Manager Training Coordinator Trainer	<p>A. What decision making logic aspects contained in the risk management training decision process gave you a higher level of decision making confidence? – please give examples</p> <p>B. Do you think your higher confidence levels when using risk management process and logic for training decisions would translate into more effective organisational training outcomes? – please give examples and reasons why.</p>

Appendix B - Questionnaire Supporting Information – Please read this before answering your questions

Preamble

This questionnaire asks you to undertake three tasks as follows;

1. To Read a summary of risk management with a practical example of how it can work
2. To Read a summary of how risk management can be applied to training
3. To rank a series of provided questions twice. The initial ranking will be your thinking about your current training practices and the second ranking will be your thinking as it relates to whether the proposed risk management model would improve the training outcomes for your organisation.

What is risk management?

Risk Management is a process used to make decisions.

Risk management decisions are based on a simple formula of assessing levels of **risk (high to low)** and matching suitable **risk controls** to achieve expected outcomes.

Risk management allows organisations to rank all types of organisational **risk (high to low)** and prioritise the levels of **controls** required. Risk management theory is supported by an International Standard (ISO 3100:2009).

Example 1

A common use for risk management is for making decisions about work place Health and Safety. The example below demonstrates how risk management decision making is undertaken.

A. Organisation engages workers to install antennae on the roof five storey office block. The decision making to assess the level of risk for this task is undertaken using the standard risk assessment matrix below

		Likelihood →			
		Highly Likely	Likely	Unlikely	Very Unlikely
Consequences ↑	Fatality/ Catastrophic event	High Risk	High risk	High Risk	Medium Risk
	Major injuries/Serious operational event	High Risk	High risk	Medium risk	Medium Risk
	Minor Injuries/Moderate Operational event	High Risk	Medium Risk	Medium Risk	Low Risk
	Negligible Injures/Minor operational events	Medium risk	Medium risk	Low Risk	Low risk

Table 1 Standard risk decision making matrix

The standard risk matrix is used to make decisions by matching the likelihood axis against the consequence axis to establish the risk level. In this example it would be **highly likely** that a worker would fall of the roof and the **consequences** of the fall would be fatal therefore the activity would be judged as **High Risk**. Decisions can now be made for appropriate **controls** as they can be ranked according the level of risk (i.e. **high risk activity** – highly structured control –**low risk activity** –lowly structured control). In the example above a highly structured control would include the use a scaffold system or equivalent as opposed to a lowly structured approach of working off a ladder. The advantage of risk management decision making is that identifying risk levels provides an opportunity to rank organisational activities in a framework of **high to low risks** and make decision about the best ways of prioritising risk controls. This enables more effective decision making on a range of factors from organisational goal setting to targeting of organisational resources.

Using Risk Management for Training Decision Making

It is considered the advantages of risk management decision making as highlighted above can be used by organisations to make their **training decision** making more effective. The questionnaire you are now asked to complete contains questions that identify key training decision making factors that are considered important for effective training outcomes. The questions ask you to make two judgements and responses; (1) - to consider your current decision making processes and then; (2) - consider if a risk management decision making approach would provide you with any advantages. The following example **(2)** is provided to demonstrate how risk management can be used to make training decisions with the help of a training matrix based on the same methodology in example one above.

Example 2 - Decisions on types of training structure

B) A Health Service has a finite training budget and is currently planning for its next year of training implementation. Using risk management the organisation has undertaken a risk assessment to prioritise its training requirements and allocate targeted training resources. It has developed a risk ranking (high to low) for many of its courses by rating the current operational requirements of the organisation against the appropriate knowledge requirements of employees. It now has to decide on the appropriate methods for undertaking the training that has been ranked according to risk level. The training decision making matrix below provides a risk management approach for the Health Service Managers to decide on the best training methods.

Below is a sample of four courses from a range of courses implemented at a Health Service that have each been risk ranked (high to Low)

- 1. Nurse medication training- **High Risk** – (training method from matrix- highly structured training)*
- 2. Frontline Managers Training- **Medium Risk** – (training method from matrix - medium structured training)*
- 3. Communication Techniques Training –**Low Risk** (training method from matrix –Low Structured training)*
- 4. Obtaining best results from meetings training - **Negligible risk** (training method from matrix –unstructured training)*

Required employee Knowledge levels ↑	Evaluation of training requirements in organisational risk context →				
		High Risk	Medium Risk	Low Risk	Negligible Risk
	Level 1 Essential knowledge/skill	Highly structured training	Highly structured training	Medium Structured training	Unstructured training
	Level 2 Important knowledge/skill	Highly structured training	Highly structured training	Low Structured training	Unstructured training
	Level 3 Basic knowledge/skill	Medium structured training	Medium Structured training	Low structured training	Unstructured training
	Level 4 Associated knowledge/skill	Unstructured training	Unstructured training	Low structured Training	Unstructured training

1.Highly Structured training	Rigorous test at instruction & follow up rigorous test/assess at regular intervals.
2.Medium Structure training	Rigorous testing at instruction. Sample follow up testing.
3. Low Structure training	General testing at instruction- sample follow up assessment only
4. Unstructured training	No testing at instruction- general assessment and sample follow up

Table 2& 3 matrix for deciding on training methods & table showing definition of levels of training structure

In this example the types of **training method (defined by level of training structure)** can be judged. This demonstrates an effective decision making process where training decisions can be clearly justified and aligned with corporate training goals and training resource allocation.

Further decision making matrix

Risk management can be further applied to training decision making by using a matrix table approach to evaluate to potential outcomes of training decisions and judgement of the potential effectiveness of selected training methods. A matrix of this type can be used as evaluation process to help define or predetermine the potential outcomes of training decisions.



		Level of training structure 			
Expected outcomes 		Highly Structured training	Medium structured training	Low structured training	Unstructured training
	Level1 Essential knowledge acquisition	Effective outcome highly likely	Effective outcome possible	Effective outcome Very unlikely	Effective outcome very unlikely
	Level 2 Important knowledge acquisition	Effective outcome highly likely	Effective outcome highly likely	Effective outcome unlikely	Effective outcome un likely
	Level 3 Basic knowledge acquisition	Effective outcome possible	Effective outcome likely	Effective outcome possible	Effective outcome possible
	Level 4 Associated knowledge acquisition	Effective outcome unlikely	Effective outcome possible	Effective outcome possible	Effective outcome likely

Table 4 Matrix for assessing potential training effectiveness outcomes

It must be remembered that risk management is providing a decision making process for trying to determine the most effective training decisions. Therefore the table above in defining **Highly Structured Training** as being unlikely to provide **effective outcomes for associated knowledge** acquisition is not indicating that learning won't take place but is indicating that a more appropriate method can be used to obtain that knowledge for both organisation and employee.

The final matrix below can be used by training managers wanting to consider and evaluate the cost implications of training course required by their organisations. The matrix follows the same methodology as the other matrixes with the core logic that highly structured training will come with a higher dollar cost needing more time and resource allocation than training at the unstructured end of the continuum.

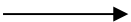
		Evaluation of training requirements in organisation risk context 			
Level of training structure ↑		High risk	Medium risk	Low risk	Negligible risk
	Level1 Highly structured	High dollar cost- Low financial risk	High dollar cost Medium fin risk	High dollar cost High Fin risk	High dollar cost High Fin risk
	Level 2 Medium Structured	Medium Dollar cost Medium Fin risk	Medium dollar cost Medium fin risk	Med dollar cost Med fin risk	Med dollar cost High fin risk
	Level 3 Low Structured	Low dollar cost High Financial risk	Low dollar cost Medium fin risk	Low dollar cost Low fin risk	Low dollar cost Low fin risk
	Level 4 Unstructured	Very Low dollar cost Very High Fin risk	Very low dollar cost Medium fin risk	Very low doll cost Med Fin risk	Very low doll cost Very low fin risk

Table 5 – matrix table for assessing organisational training financial risks