



Evaluation Report

Certification of Airport Security Project

An Outcome Evaluation of a Royal Roads University Graduate Student Research Project

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List of Acronyms

CA	Contribution Analysis
CASP	Certification of Airport Security Project
CATSA	Canadian Air Transport Security Authority
CSTD	Canadian Society for Training and Development
CTP	Certified Training Professional
CTDP	Certified Training and Development Professional
DRAP	Deficit Reduction Action Plan
EoP	End-of-project
I4PL	Institute for Performance and Learning
KASR	Knowledge, Attitudes, Skills, and Relationships
LPA	Learning and Performance Advisor
MAL	Master of Arts in Leadership
NTCP	National Training and Certification Program
OM	Outcome Mapping
PI	Principal Investigator
QAF	Quality Assessment Framework
RFP	Request for Proposal
RRU	Royal Roads University
SCTR	Service Contractor Trainers
SOPs	Standard Operating Procedures
SRE	Sustainability Research Effectiveness
SSHRC	Social Sciences and Humanities Research Council
TDR	Transdisciplinary Research
ToC	Theory of Change

Executive Summary

Introduction

This report presents an outcome evaluation of a research project undertaken by a Royal Roads University (RRU) Master of Arts in Leadership (MAL) student. The Certification of Airport Security Project (CASP) intended to guarantee a standard and level of consistency in the delivery and measurement of airport security training within the Canadian Air Transport Security Authority (CATSA) by providing professional development opportunities through a Learning and Performance Advisor (LPA) certification program. CATSA's work focuses on air transportation system security, including passenger, baggage, and non-passenger screening (CATSA, 2021). With constantly changing terrorist threats and advances in security technology, it is imperative that CATSA evolves as an organization to uphold its mission of protecting the travelling public. LPAs are a vital part of CATSA's operations as they are responsible for training and testing screening officers to prevent threats from entering Canada's airports. While LPAs are responsible for others' certification standards, at the time of the CASP, there were no certification standards for LPAs, presenting challenges for consistent certification processes and course delivery (Martens, 2009). The CASP aimed to support CATSA's mandate for consistency by building the capacities of LPAs to ensure that LPAs were held to the same high standards across CATSA regions, contributing to positive organizational development towards continuous learning and improvement, and advancing the skills and capabilities of the principal investigator (PI). This outcome evaluation assesses whether and how the CASP contributed to these outcomes.

Methodology

The evaluation investigates whether and how the CASP generated new knowledge, attitudes, skills, and relationships (KASR) among key actors, and how those changes supported performance across CATSA departments to become more integrated and systematic. The objective of the evaluation is to critically assess the CASP by collecting and analyzing information about its activities, outputs, and outcomes to support learning for research effectiveness.

The evaluation applied the Outcome Evaluation approach, which is designed to assess research projects, specifically transdisciplinary research, sustainability research, research-for-development, and other change-oriented approaches (Belcher et al., 2020). The approach assesses whether and how a research project contributed to the realization of outcomes using a theory of change (ToC) as an analytical framework. A ToC can be used to provide a detailed description and model of why a change is expected to occur within a specific problem context, explicating the underlying mechanisms of behaviour change conceptualized as changes in KASR. It models the causal relationships between a project's activities and results, and how these are expected to manifest in outcomes, giving particular attention to the impact pathways, actors, and steps involved in the change process.

The evaluation team led a participatory workshop in June 2019 to define the scope of the evaluation, document the implicit ToC for the CASP (Figure 1), and identify possible sources of evidence to empirically test the ToC. The Outcome Evaluation method collects participant and stakeholder perspectives to identify and assess the project and external contributions within a change process (Belcher et al., 2020). To gather these perspectives, we conducted 17 interviews with 18 informants and reviewed seven documents such as personal communications and organizational documents (e.g., draft certification frameworks). These sources of evidence were used to evaluate actual outcomes against the ToC, and answer the following questions:

1. Research Outcome Evaluation

- a. *To what extent and how were outcomes realized?*
- b. *Were there any positive or negative unexpected outcomes from this project?*
- c. *Could the outcomes have been realized in the absence of the project?*
- d. *Were the assumptions pertaining to why these changes were expected sustained?*
- e. *Are the higher-level changes likely to be realized?*

Project design and implementation were characterized using an adapted version of Belcher et al.'s (2016) Transdisciplinary Research Quality Assessment Framework (QAF). The QAF was used to highlight elements of research design and implementation that contributed to the realization of outcomes. This assessed the degree to which the CASP incorporated recognized quality criteria of transdisciplinary research¹, organized under the principles of Relevance, Credibility, Legitimacy, and Positioning for Use. The project assessment was guided by the following questions:

2. Research Project Assessment

- a. *What elements of the research design and implementation supported outcome realization, and how?*
- b. *To what extent and how did the project engage effectively with relevant stakeholders?*
- c. *To what extent were the research findings sufficiently relevant to achieve the stated objectives?*
- d. *To what extent and how are target audiences aware of and using the project outputs?*
- e. *How does RRU support student success in research?*
- f. *What lessons about effective research practice can be learned from this case study?*

Results were analyzed and grounded in the context of social change theories to address shortcomings acknowledged within literature that the theoretical bases for many ToCs are weak (Weiss, 1997; Stachowiak, 2013). Researchers seldom make explicit the theories underlying why change is expected to manifest from their research. Social change theories applied to the evaluation to help explain changes observed include stakeholder theory, situated learning theory and social capital theory to explain the implications of outcome realization.

Project Overview

By directly engaging key stakeholders including LPAs, regional managers of learning and development, and the director of operations throughout the research process, the CASP utilized an action research focus to examine the LPA role and suggest recommendations for the future of LPA assessment and certification. The CASP completed project scoping exercises, a literature review to examine adult learning techniques and evaluation methods, and primary data collection using a World Café. Project scoping interviews with key stakeholders situated the CASP within the organizational mandate, gained buy-in from CATSA, and allowed World Café questions to be developed and refined. The CASP utilized a World Café to collect qualitative data on participants' thoughts regarding LPA assessment and certification, as well as create a forum for discussion. The key outputs of the CASP included: identifying key competencies of the LPA role; LPA beliefs on the benefits and challenges of a certification program based on competency assessment; assessment methods LPAs believed were appropriate and could give a true assessment of their roles and responsibilities; and strategies for assessment and certification. The CASP aimed to contribute to key intended outcomes such as: supporting CATSA to recognize recurrent learning requirements, value continuous learning, and uphold principles of continuous learning in practice; improving the confidence and professional capacity of LPAs; supporting CATSA to develop an LPA certification program; and supporting the PI's professional development to continue in performance management at CATSA.

Project Theory of Change

The research aimed to contribute to positive change through capacity-building and organizational learning through three interconnected pathways: an *organizational development* pathway, a *capacity-building* pathway for LPAs, and a *professional development* pathway. Each impact pathway intersects and complements the others to support the realization of outcomes. The key steps in these pathways are illustrated in Figure 1.

Within the *organizational development* pathway, the CASP engaged multiple levels of CATSA staff within the research activities and provided them with opportunities and a forum to discuss and reflect on key competencies and the future of the LPA role with other colleagues. As a result, CATSA staff were expected to gain greater appreciation for the value of LPA training certification in the context of supporting the efficiency and effectiveness of CATSA operations. By demonstrating the connection between continuous learning and effective

¹ The QAF is not meant to be a measure of excellence, but rather characterizes the project design and implementation in terms of the degree of its transdisciplinarity.

practice through CASP findings, and aligning the recommendations with CATSA’s mandate for continuous improvement, it was expected that CATSA’s decision-making at the management level would be influenced to drive the improvement of trainers’ standards. As a result, CATSA would value continuous learning and support continuous learning in practice. With the CASP demonstrating a need and willingness for these processes, CATSA was expected to recognise recurrent learning requirements for certain roles and drive the piloting of the draft certification framework produced as a research output. With a successful pilot, it was expected that LPAs would pursue other professional development opportunities and CATSA would develop process and protocol documentation and tools to further increase the consistency and effectiveness of training delivery and assessment. This in turn was expected to lead to LPAs having improved confidence and professional capacity. Overall, organizational emphasis on training was expected to lead to performance becoming more integrated and systematic across CATSA departments with staff being held to the same high standards.

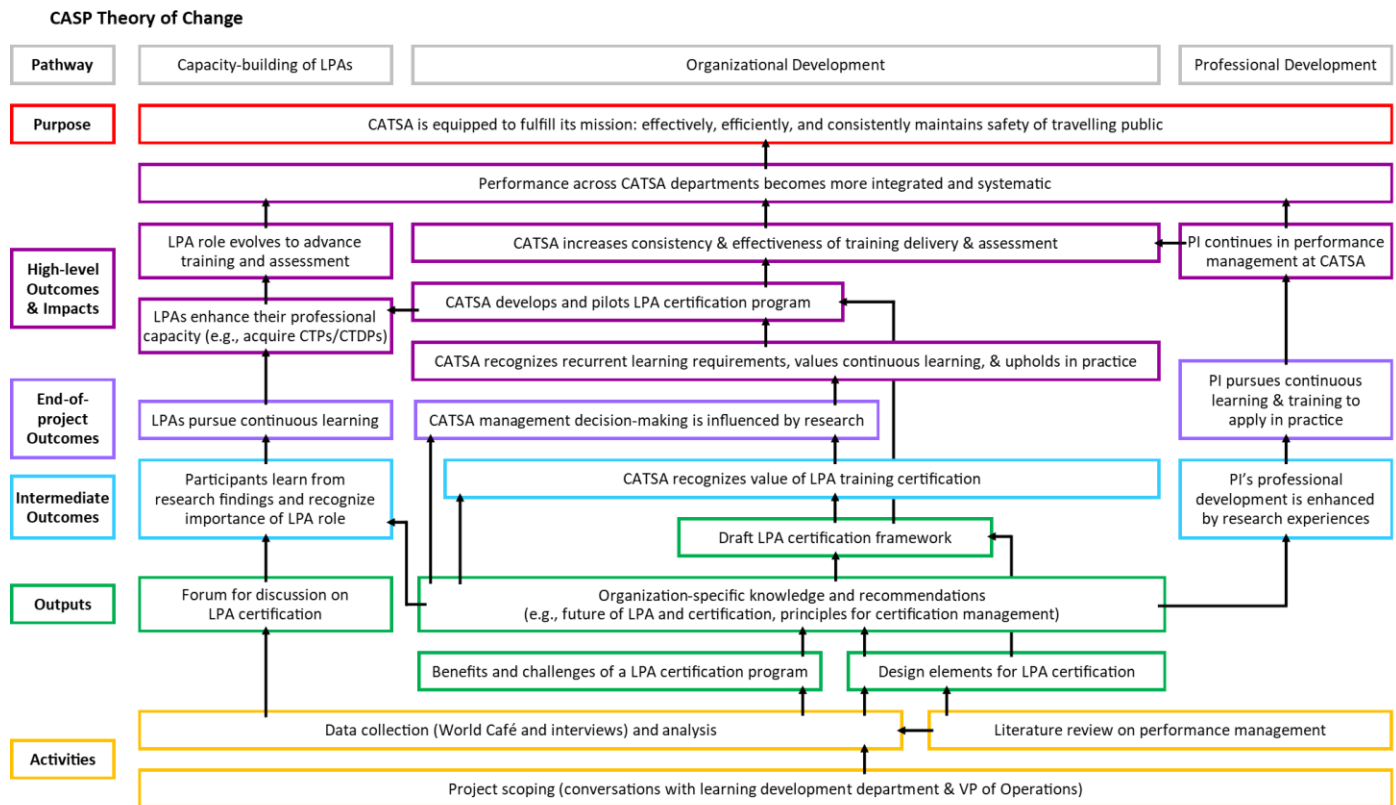


Figure 1. Simplified CASP Theory of Change

Advancing performance opportunities for LPAs within the *capacity-building* pathway was expected to influence other departments and partners of CATSA. The synergistic interaction between these two impact pathways ultimately aimed to support screening effectiveness and safety. Opportunities for discussion and reflection with other LPAs supported by the CASP’s World Café was expected to influence research participants’ recognition of existing training and assessment gaps and gain knowledge of adult learning. With this recognition, combined with their passion for the job and desire to succeed, LPAs would be motivated to pursue continuous learning. With increased knowledge of the importance of adult learning, coupled with completion of the pilot certification program, it was expected that LPAs would be designated as Certified Training Professionals (CTP) and/or Certified Training and Development Professionals (CTDP). This was also expected to create further career progression opportunities, both within CATSA and outside of the organization within other training and evaluation roles. By sharing a draft certification framework with CATSA and engaging CATSA management in the research process, CATSA was expected to invest in the development of their employees (e.g., LPAs) that teach front-line staff (i.e., screening officers and service contractor trainers) in order to ensure quality performance, increasing ability, and safety.

Overall, the CASP intended to provide a significant *professional development* experience for the PI to expand their expertise and professional recognition as a performance management expert at CATSA. By engaging in the research experience from both a researcher and practitioner lens, the PI’s professional development would be enhanced as the CASP provided an opportunity to grow leadership capacities and learn lessons. With reinforced values for adult learning gained from the research process, the PI was expected to pursue continuous learning and training to apply in their work and set more individuals up for success.

Results

Outcome Evaluation: To what extent and how were outcomes realized?

Table 1 summarizes the extent to which outcomes were realized. The CASP leveraged multiple impact pathways and mechanisms to realize outcomes. Outcomes in the *organizational development* pathway were realized through the involvement of key stakeholders in the data collection process, by co-producing knowledge, and strengthening coalitions. As an action research project, the CASP involved all key stakeholders throughout the research process to ensure a multi-perspective understanding was developed and provide co-ownership over the draft LPA certification framework. By gaining organizational support for the CASP at project inception and leveraging the PI’s insider status as Regional Manager of Learning and Development, knowledge was successfully transferred throughout CATSA. The CASP supported the *capacity-building of LPAs* by involving them in the research process, enabling knowledge transfer on topics about adult learning, recognition of training and assessment gaps, and motivation to complete the pilot certification process. Capacity-building of LPA outcomes were mostly fully realized and supported outcomes in the *organizational development* pathway. The CASP provided an opportunity for the PI to develop their leadership skills, and become equipped with new knowledge, skills, and perspectives to apply in their future work in performance management at CATSA.

Table 1. Summary of outcome realization and CASP contributions

Outcome	Assessment
CATSA recognizes value of LPA training certification [intermediate outcome]	Realized, clear project contribution
Participants recognize importance and contribution of LPA role [intermediate outcome]	Realized, clear project contribution
CATSA management decision-making is influenced (principles of continuous learning, trainers’ standards) [EoP outcome]	Realized, clear project contribution
Research methods adopted into the organizational process [EoP outcome]	Realized, clear project contribution
Participants recognize training and assessment gaps [intermediate outcome]	Realized, clear project contribution
Participants gain knowledge of adult learning [intermediate outcome]	Partially realized, clear project contribution
LPAs pursue continuous learning [EoP outcome]	Realized, clear project contribution
PI’s professional development is enhanced by research experiences [intermediate outcome]	Realized, clear project contribution
PI continues using methods learned at RRU (e.g., appreciative inquiry, action research, and experiential learning) [EoP outcome]	Realized, clear project contribution

A number of unexpected outcomes emerged during and after the CASP. These were documented within the project ToC and discerned in collaboration with the PI given the time that has elapsed since the end of the CASP. These unexpected outcomes were analyzed as part of the outcome evaluation. There were few other unexpected outcomes identified by informants. However, one informant discussed how the application of a standardized program for service contractors resulted in the loss of some Service Contractor Trainer (SCTR) staff. The standardized program highlighted individuals who were not the right fit for the job and supported trainers to operate to the best of their ability. Unexpectedly, the CASP was used as an exemplar project in the MAL program at RRU, which has supported other students to learn from and create meaningful research projects that support organizational change. Few negative outcomes were discussed by informants other than the potential loss of some SCTR staff.

Alternative Explanations of Outcome Realization

It is difficult to separate outcomes resulting from the CASP and those resulting from the PI's ongoing work on the topic within CATSA. The PI continued to contribute to changes within CATSA following the CASP to support increased consistency and effectiveness across airport screening operations.

Some alternative explanations for outcome realization were raised by interview informants. For example, other individuals working alongside the PI in the Learning and Development Department also have focused their efforts on developing standardized courses across other CATSA regions. The Learning and Development Department also completed their own research on human factors within security to support and address these within training programs delivered by LPAs to amend and prepare curricula. Other alternative explanations include public pressure that drives a continuous response from CATSA to improve screening operations and accommodate evolving threats. As a learning organization, CATSA has continually supported professional development of staff by offering courses and training workshops to build staff capacities. Some informants also discussed challenges relating to the government budget deficit reduction and changes in organizational structure which resulted in the loss of momentum behind the draft certification framework. However, resource limitations also highlighted the importance of ensuring professional standards throughout CATSA and elements of the CASP have been used in other CATSA initiatives such as the onboarding checklist.

Project Assessment: What elements of the research design and implementation supported outcome realizations, and how?

The QAF assessment reveals that the CASP's design and implementation align with many principles and criteria of relevant, credible, and legitimate research that is well-positioned for use, and produced knowledge that is useful and used (see Appendix 5 for QAF results and justifications for the project assessment).

Under the relevance principle, the CASP clearly defined the problem context and identified research entry points drawn from analysis of the problem context and the PI's personal experience as a former LPA. The CASP addressed a socially relevant research problem and identified a clear gap as the topic was highly specialized. The practical gaps of the research problem were relevant for CATSA and affected LPAs due to the need for systemic accreditation of the LPA role. The research problem also aligned with CATSA's organizational purpose and the need for the organization to continually evolve to keep up with changes in technology and threats to security. The PI strategically and successfully communicated with senior management for buy-in and sponsorship of the research. The collaborative action-oriented research approach involved LPAs, as the actors under study, in the development of a certification program for the LPA role. These characteristics supported co-ownership over CASP outputs. However, the CASP did not utilize an explicit or documented ToC and assumptions underlying expected changes were not explicit; a fully articulated ToC would have improved the strength of the project and resulting thesis.

Regarding credibility, the PI interviewed key actors at the start of the CASP to foster buy-in with decision-makers and support joint problem formulation. Paired with a broad literature review, the research was based on a well-integrated theoretical and empirical foundation. The World Café method was an appropriate method to collect data from diverse participants and enable participant engagement with themes and data that came out of the interviews. Consultations with the advisory team supported reflection, and informants indicated that the PI was critical and reflexive in the design and implementation of the project. Research objectives are also not described in the CASP thesis, with a singular objective stated in the appendices; a better formulation of objectives would have aided the structure and purpose of the project. Overall, the PI had adequate competencies and position within CATSA to support the CASP.

Under legitimacy, the PI was aware of their own bias as a manager within CATSA and clearly distinguished their identity as a researcher from their role as Learning and Development manager. Informants perceived the CASP to be collaborative and appreciated how they were brought on as collaborators to develop the pilot LPA certification program. The CASP achieved "*mastery in the area of ethics*" (Res1) by adhering to RRU's Research Ethics Policy and Tri-council Policy. A section of the thesis is dedicated to ethical considerations for human

dignity, informed consent, privacy and confidentiality, justice and inclusiveness, reducing harm, and enhancing benefits. Overall, the CASP was collaborative, transparent, and ensured a sense of co-ownership over the LPA certification process to support CATSA's uptake and use of CASP findings and recommendations.

Regarding positioning for use, the CASP clearly contributed to the partial or full realization of all ten intermediate and EoP outcomes. The CASP resulted in positive outcomes for participants, LPAs, and CATSA, and was a direct catalyst for CATSA's pilot LPA certification program. The CASP emphasized the importance of the LPA role, setting standards, and ensuring consistency. Several LPAs successfully achieved their CTP/CTDP designation as a result of the pilot. The CASP also supported capabilities by allowing the PI to build upon their own research capacities, resulting in the transfer of these skills to other aspects of the PI's job. Although the CASP-developed certification program is not mandatory for LPAs because of organizational change outside of the project's control, CATSA has since standardized assessments that align with the PI's recommendations. Informants noted that the CASP set the standard for assessment within CATSA and opened the door for LPAs to achieve a level of subject matter expertise.

Evidence indicates RRU programming supported the realization of CASP outcomes in the *professional development* and *organizational development* pathways. RRU programming supported the PI in identifying key stakeholders who needed to participate in the research process and who are well-positioned to contribute to sustainable organizational change. The MAL program encouraged the PI to obtain a sponsor within CATSA to ensure buy-in for the CASP. RRU introduced the PI to action-based inquiry which provided the PI with the appropriate knowledge base to create an effective inquiry and engage effectively with stakeholders. The action-orientated nature of the MAL program targets the development of leadership skills and competencies to support students in accomplishing abilities specific to their role.

Lessons Learned

Project Lessons

- Leveraging the PI's insider perspective of the organization, as well as their knowledge of the LPA role, supported effective data collection and uptake of the research outputs.
- Applying participatory methods with key system actors and target audiences can gather a diverse range of perspectives and ensure co-ownership of the project outputs thus increasing the likelihood for subsequent uptake and use.
- Utilizing an interdisciplinary approach ensured successful application of academic learning theories into the practical application of LPA assessment and certification.
- An in-depth understanding of how a project is expected to contribute to change (e.g., through ToC) can support recognition of further opportunities for potential impact.

Contextual Lessons

- Due to the nature of CATSA as a security organization, it is challenging for outsiders to complete research on operations or have access to participants. Future research in the context of CATSA and other security organizations should be led by those with an understanding of operations and in positions of trust within the organization to ensure buy-in from stakeholders, and support the uptake and use of research outputs and recommendations.
- No previous research had been completed to explore LPA assessment and certification strategies due to the specialized topic and context. Future research on highly specialized topics should also be grounded in interdisciplinary academic literature to support rigour and the transferability of findings.
- Participatory methods are important when researching assessment and certification due to notions of uncertainty that may arise within participants. Participatory methods such as World Cafés provides participants with the opportunity to ask questions and develop an assessment and certification process that was in-line with the necessary competencies for the LPA role.

Evaluation Limitations

Limitations of the analytical framework: Having the PI identify informants to test outcomes can increase the risk of introducing bias into data collection as informants may be selected for their likelihood to reflect positively on the project's results and outcomes. To address this limitation, snowballing for additional perspectives and sources of information was undertaken and a variety of documents were reviewed. The period of time between the inceptions of the CASP and the development of the project ToC (i.e., more than ten years) also resulted in a number of unexpected outcomes being included within the ToC. This meant that the ToC development process relied greatly upon the PI's recall of the project.

Limitations of the data and results: Assessments using the Outcome Evaluation approach rely on informant perspectives, which can be affected by several factors, including time. Recall of project details and processes was difficult for many of the informants. There were also some challenges in separating outcomes related to the CASP from the PI's continued work on the topic. For example, the PI has contributed to a number of changes in CATSA over the past ten years in the Learning and Development Department aligned to the same purpose of the CASP, which is to support increased consistency and effectiveness across Canadian airport screening operations.

Recommendations

Considering the results of the case study evaluation, we propose the following recommendations for the design and implementation of future research:

1. Leverage the PI's insider perspective, as well as in-depth knowledge of the context to support effective data collection (e.g., access to participants) and uptake of research outputs through aligning the research with organizational initiatives and mandate.
2. Utilize participatory methods with key system actors and target audiences to gather a diverse range of perspectives and ensure co-ownership over research outputs.
3. Interdisciplinary approaches can ensure the successful application of academic learning theories into practical application to support the rigor and transferability of findings to other contexts, particularly where there is minimal previous research on the topic.
4. Use a ToC to plan and monitor progress in order to support the recognition of further opportunities for potential impact
5. Future research in security organizations should be led by those with an in-depth understanding of the context and in positions of trust to ensure buy-in, applicability, and uptake of research outputs in order to contribute to sustainable organizational change.