

Addressing the gaps in the Johari Window through simulation-based learning: Perception vs Reality for Incident Commanders

Dr Amanda Davies
Charles Sturt University
Goulburn, NSW, Australia
adavies@csu.edu.au

ABSTRACT

The Johari Window framework suggests that individuals are unaware of aspects of themselves, and these are also unknown by others (the unknown area). Simulation-based learning exercises, which focus on placing incident commanders in decision-making situations, offer opportunities for those commanders (and others) to better understand the impact of decision-making actions taken in response to evolving critical public order policing incidents. This study reports on differences between behaviours participants anticipate displaying in specific situations and their actual behaviours displayed in simulated incidents (revealing the Johari unknown area). The study employed interviews and surveys to collect data on changes the participants could describe in their decision-making behaviour after experiencing the simulation and on return to the reality of the demands of police leadership in the workplace. The findings of the study contribute to understanding the value of simulation-based learning for the wider training and education community which is focused on developing knowledge and skill for incident command leadership. In this study the findings identify a clear shift in the perception of potential performance in the simulation and the reality of performance in the simulation and in the subsequent field-based operations. The study illustrates the value of simulation-based learning for the participants in revealing the influence of real-world circumstances on decision making vs anticipated behaviour with the potential to close the gap on their Johari Window.

ABOUT THE AUTHOR

Dr Amanda Davies PhD., BA., M.Ed., GCUL&T., SFHEA is a Senior Academic, Lecturer and Researcher and holds a Doctor of Philosophy (focused on the use of simulation for developing police officers professional identity). Dr Davies has been engaged in leading, developing and delivering police education and research for 20 years in Australia and the United Arab Emirates (as an Academic Director and a Program Chair). Dr Davies has been responsible for the design and delivery of curriculum for Vocational, Bachelor and Masters level programs for students and officers from all ranks within the Abu Dhabi Police and Military (including the design and delivery of a Masters in Police Leadership program). As an Academic Director for Charles Sturt University at the NSW Police Force Academy, Dr Davies has been responsible for the design, delivery and evaluation of curriculum content and assessment.

Dr Davies has published extensively on research that encompasses a wide range of policing, security, and emergency management domains with a key focus on the design of education and training for officers on the frontline and leadership positions, developing models for building resilience in policing, security and emergency management. A key area of research and publication by Dr Davies is on the development and evaluation of simulation-based learning initiatives for policing and the wider education community for which Dr Davies is the recipient of a range of national and international awards in simulation-based learning.

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INTRODUCTION

This paper draws from a wider study associated with the influence of simulation-based learning on the development of incident command and control knowledge, skill and competence for cadres of senior police officers (Davies, 2013). The simulation exercise is undertaken at the culmination of a week-long Incident Command and Control Training program and offers opportunity for the participants to demonstrate their knowledge acquisition and skill development attained from the program. The primary focus by the police organization for the simulation exercise is to enable the officers to apply decision-making for leading a police response to major incidents (e.g. riots, multiple fatality incidents, active armed offender incidents and similar) and understand the potential influence of the decisions they make in such replicated/simulated circumstances. The evaluation of the Incident Command and Control Simulation exercise which included examining aspects of simulation presence, immersion, engagement, performance and ultimately transfer of learning to the field of practice experienced by participants, also offered an opportunity for the participants to engage in reflective learning practice and self-awareness. It is the aspect of self-awareness that provides the nexus between experiential learning (Kolb, 1984), the Johari Window Model (Luft & Ingham, 1955, 1961) and the reality of leadership decision-making in complex, volatile, high stakes circumstances. The following paper explains the simulation exercise, the experience of the participants as it relates to the perception and anticipation of decision-making performance in the simulation exercise vs the reality of their performance and how this provides insight into quadrant four of the Johari Window.

BACKGROUND

Advances in technologies have afforded new opportunities for simulation-based learning which have been readily adopted by professions training for high-risk, high stakes environments. The ever-present reality of risk to personal and public safety predicates the impracticality and untenable nature of practicing decision-making by police officers managing the response for incident command and control circumstances outside of simulated environments. It is widely acknowledged that a plethora of studies have informed on and supported the value of simulation-based learning design for education and training purposes (Levin et al., 2023; Chernikova et al., 2020; Nygaard, Courtney, & Leigh, 2012). What is less forthcoming, particularly, associated with the police profession is (a) the influence of this learning design and its environments on revealing the difference in anticipated performance (strengths and weaknesses) vs outcomes; (b) the reality of those outcomes in a simulated environment and (c) the subsequent impact of this awareness on the transfer of learning to the real world of operational leadership. The importance of those in leadership positions understanding their decision-making capability and competency under crisis and emergency situations is critical to the outcome of any mission/operation, such understanding reaching beyond the mechanics of following protocols and policy to developing self-awareness of the personal characteristics and approaches that contribute to the decision-making and its outcomes. As McNulty et al. (2019) explain, for leaders in the 21st century a required competency is to be able to deploy leadership skills in a pivot from initial panic into productive action. The conundrum is that until placed in circumstances of high risk/high stakes there remains an unknown element. The unknown element is comprised of understanding the reality of how one will perform and what strengths and weaknesses will be demonstrated. Enabling, through simulation exercises, the gathering of this performance knowledge also enables populating the 'unknown' or quadrant four of the Johari Window Model.

The Johari Window Model (Figure 1) as developed by Luft and Ingham (1955) suggests there is knowledge we know about ourselves, and others also know this about us (Open). There is knowledge about ourselves that we do not share

with others (Hidden), there is that which others see in us which we do not see or are unaware of about ourselves (Blind). The fourth quadrant is the Unknown – that which neither we nor others know about ourselves – this includes for example how we will perform under specific conditions. It is here at the fourth quadrant, that simulations offer opportunity for the leader to find out what they are capable of in environments which replicate as close as possible the real world, offer scenarios previously not experienced, enable practice (potentially in multiple scenarios) applying knowledge and understanding in the training environment. In addition it offers building forward capabilities based on what is revealed as strengths and those abilities that require attention. Importantly, simultaneously, the performance in relevant simulation exercises and environments also offers the opportunity for others associated with the simulation participant opportunity to understand the individual's application of leadership attributes and progress continuous improvement where required.

In this study the intent was to develop an understanding as to the capacity and capability of simulation-based learning to assist in populating Quadrant 4 (Unknown), and the impact on the remaining three quadrants.

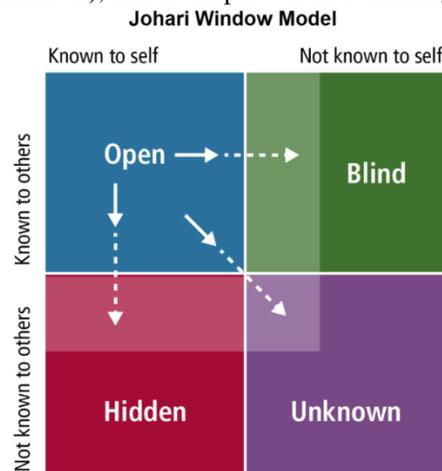


Figure 1. Johari Window Model (Luft & Ingham, 1955)

The value in consideration of the Johari Window Model as applied to leadership competencies is the nexus with educational best practice as provided by simulation-based learning. The seminal work of Kolb (1984) focusing on experiential learning was an extension of the earlier work of Dale (1969) who proposed the concept of the cone of learning, the underpinning premise being that learners who engage actively in their learning retain 90% of what they learn as opposed to retaining only 10% of learning from reading. The Kolb (1984) experiential learning cycle is particularly pertinent to simulation-based learning as it advocates five phases all of which align to a well-designed simulation-based learning exercise and environment: The cycle as indicated in Figure 2 consists of:

- Phase 1 the initial experience
- Phase 2 reflection on and review of the initial experience
- Phase 3 interpreting the experience – what has been learnt and what knowledge and skill has been demonstrated
- Phase 4 applying modification and or adjusting understanding in preparation of a further application of knowledge and skill based on what has been learnt from the initial experience
- Phase 5 replicating the adjusted knowledge and skill – hence closing the learning cycle.

Participating in simulations offers the opportunity to have the initial experience, reflect on the performance, adjust approaches (consider adjustment based on the reflection) and apply the adjusted knowledge and skill.

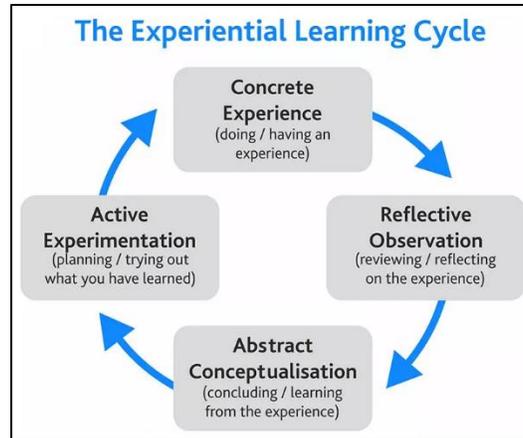


Figure 2. Kolb (1984) Experiential Learning Cycle

Phases 2 and 3 of the experiential learning cycle have the potential to reveal what sits within the 4th quadrant (the Unknown) of the Johari Window model for a simulation participant. It is in the context - utilizing simulation-based learning to develop leadership capabilities and competencies - that the following study demonstrates the influence of understanding the content of an individual's 4th quadrant on their transfer of leadership centred learning from the schoolhouse to the real work of their operational practice.

An integral factor which contributes to enabling a simulation participant to demonstrate their knowledge and skills and by so doing reveal the status of their 4th Johari Window Model quadrant is the level of realism and authenticity of the simulation exercise and environment. As the work of Eiseman (2001) and seminal authors Brown, Collins, and Duguid (1989) suggests in the theory of situated learning, that meaningful learning will take place only if it is embedded in the social and physical context within which it will be used. Herrington, Oliver and Reeves (2003) concluded in their studies that exposure to learning environments which resemble real life has the capacity to enhance student learning and retention, and it therefore follows that learning contexts and environments should simulate conditions and experiences which allow students to contextualise application of their knowledge and skills and understand their strengths and weaknesses. In this current study, exploring the simulation participants (senior police leaders) perspective on the realism and authenticity of the simulation exercise and environment was critical to validating their lessons learnt and the populating of the 4th quadrant of the Johari Window Model.

METHODOLOGY

To enable contextualization of the following discussion in relation to the data collection method and tools utilised in this study it is helpful to briefly discuss the rationale for selecting a case study approach for the study. The design framework for the wider study from which this current extract is based utilised a case study approach as defined by Stake (1994) and Yin (1993). The project objectives met the five case study criteria as identified and prescribed by Stake (2005) as:

- *Issue choice:* The choice of issue is the impact of simulation exercises on developing professional practice (i.e. leadership knowledge and skills). This issue requires the in-depth study of a phenomenon which occurs in a specific time and place and is therefore context-dependent.
- *Triangulation:* The study of simulation environments lends itself to the use of a multiple data collection methods
- *Experiential knowledge:* A case study facilitates the conveying of experience of the participants and stakeholders as well as the experience of studying the case. of the research project.
- *Contexts:* The phenomenon under study here is context-dependent, that is, this study requires that participants be undertaking training to develop their professional practice
- *Activities:* Case study research is founded on understanding the activity and the functioning of the selected case; here it is the learning through simulation.

Further, Yin (2003) suggests a researcher would use the case study method because phenomenon under study is situated in specific contextual conditions (e.g. simulation exercise and environment). Of note, the case study approach as advocated by Yin (2003), Stake (2005) and Creswell and Clark (2007) enables a mixed method approach to data collection. Similarly, the seminal work of Neumann (1994) followed by the work of Erzberger and Kelle (2003) and Bergman (2008) suggested that combining qualitative and quantitative data enables a deeper understanding of the study participants' experiences and perspectives. Further, qualitative and interview data has the potential to give voice to the participants experiences and provide meaning to the quantitative data (Bryman 1988; Patton, 2022).

Data Collection

The case study explored the learning journey of 33 senior ranked police officers (with an average length of service of 26.5 years) who participated in an Incident Command and Control simulation exercise. The data collection approach included questionnaires with Likert Scale and open-ended questions deployed pre and post simulation. A further questionnaire and an interview were undertaken with the participants at approximately 3- 5months post simulation and on their return to operational duties. A total of 25 participants submitted pre and post simulation surveys, the field-based survey and participated in an interview. Of note not all 25 participants provided a response to all survey questions and where the survey question is included in this paper the number of responses is note.

It is helpful to the latter discussion of the participants' experience and perspectives in relation to the development and demonstration of their leadership capabilities during the simulation exercise to offer a brief description of the simulation exercise.

The Hydra/Minerva simulation platform (Figure 3) that was utilised for the Incident Command and Control training comprised the following:

- a plenary/lecture room which acts as both a briefing and debriefing room
- four syndicate rooms containing a computer, video screen, telephone, each of which is networked to the control room, conference table and whiteboards; the rooms are outfitted with the equipment the participants would need in a real-life event
- a fixed command support/control room from which each syndicate room is monitored via closed-circuit television and boundary microphones. The technology network enables the feed of information to the participants; it may consist of intelligence briefings, police radio traffic, newscasts, or telephone calls. Officials control the exercise and the feed of information to the trainees. The control room houses the subject matter experts, program training staff, and replicated police radio communications equipment.



Figure 3. Graphic depiction of Hydra/Minerva Simulation Environment

A simulated major public disorder scenario is depicted emerging in the same time scale as would occur in a real time event (for example if it takes 1 hour in real time for specific resources to be deployed, then in the simulation it also

takes 1 hour). Emerging information about developments associated with the event are distributed to the participants in each of the pods via phone, email, police radio, video live streaming (pre-recorded) and in some instances by personnel who may arrive at the event, for example, public relations staff to conduct interviews for news broadcasts. The 8 – 10-hour simulation exercise takes place at the completion of a week-long course focused on leadership and decision-making for incident command and control circumstances. The control room is operated by experienced simulation technologists, a team of major events operatives who contribute to the release of simulation scenario stimuli (which may be dependent on the decisions made by the leaders in the pods) and an Assistant Commissioner with authority to release resources to the leaders in the pods to support their decision-making.

Data Analysis

To begin the presentation of the data analysis it is helpful to firstly understand the level of realism and presence the participants experienced with the simulation. This understanding enables consideration of whether their survey and interview responses were offered from the perspective of an authentic, situated learning environment. An important factor here is acknowledging the years of policing experience held by the participants, and by association their perspective on the realism of the simulation is premised on the real-world experience of their operational practice. Table 1 presents the results drawn from the post simulation survey Question 2 related to the realism experienced by the participants in the simulation.

Table 1 Level of realism of the simulation

Post simulation survey question	Very Strongly Agree	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Very Strongly Disagree
Question 2: I consider the scenario depicted in the simulation was reflective of real situations	38%	43%	19%	0%	0%	0%	0%

The view on the realism of the simulation environment and scenario was not restricted to the post-simulation survey Question 2. The participant field-based interview also revealed comments pertaining to the elements of the simulation which contributed to the realism experienced. For example:

Participant 8 commented: “I felt under pressure, was very realistic in the sense of phone calls coming in just like they do in the real world and for example when I was trying to get a busy, I couldn’t get a bus”;

Participant 16 commented: “as soon as we started the [police] radio started blaring as we started working on the map, time logs, listening, making decisions, it was like we were there”;

Participant 21 commented: “as the real time-based exercise progressed it gives you that sense of realism and you find yourself quickly immersed in the incident whatever role it you have at the time”;

Participant 15 commented: “hectic and stressful at times, you lose the thought process that it is just a simulation exercise”.

Decision-making knowledge and skills pre-simulation exercise

The profile of the decision-making knowledge and skills of the participants prior to the simulation exercise offers indicative content for the first three of the four quadrants in the Johari Window Model. It is valuable to the later contextualization of the role of the simulation in contributing to populating the 4th quadrant to identify how the participants perceive their pre simulation leadership decision-making knowledge and skills. There are three sources of data that offer insight into the participants’ pre simulation perspective on their decision-making knowledge and

skills as a leader. Firstly, Table 2 presents the responses from the participants in respect of their perception of how they perceive the quality of their decision-making skills and how they consider they are perceived by others in this regard.

Table 2 Participants perception of quality of decision-making

Question no.	Very Strongly Agree	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Very Strongly Disagree	Not Applicable
Q.7: As a police officer I feel confident in my decision-making skills.	4	13	12					
Q.8: I consider I am perceived by my peers as competent and reliable in my decision-making.	2	15	11	1				
Q.9: I consider I am perceived by my supervisors as competent and confident in my decision-making.	3	14	11	1				

In parallel the participants were asked to identify what were the influencing factors on the development of their decision-making capabilities and the key factors identified are presented in Table 3.

Table 3 Factors influencing development of decision-making skills

Factors influencing development of decision-making skills		
Category	Inclusion	No. of responses identifying these factors
Operational police experience	<ul style="list-style-type: none"> Practice making decisions Application of decision-making skills Trial and error Decision-making in critical situations (life and death) Observation of effect of decisions made 	29
Education	<ul style="list-style-type: none"> On-the-job training (Formal training and assessing) Internal Police courses External education (for example university) 	14
Observing other officers (senior and junior)	<ul style="list-style-type: none"> Observing good decision-making in practice Observing how senior officers make decisions Observing the success and failure of decisions made by both senior & junior officers 	14
Mentoring from senior officers	<ul style="list-style-type: none"> Receiving feedback from senior officers on decisions made on the job Shadowing others in senior roles 	7

The third set of data that offers insight into the decision-making pre simulation profile of the participants is the set of personal attributes the participants consider influence decision-making in leadership positions. Figure 2 illustrates the

five key personal attributes the participants identified as influencing decision-making: personal characteristics, strength of character, humility, analytical skills, trust in others.

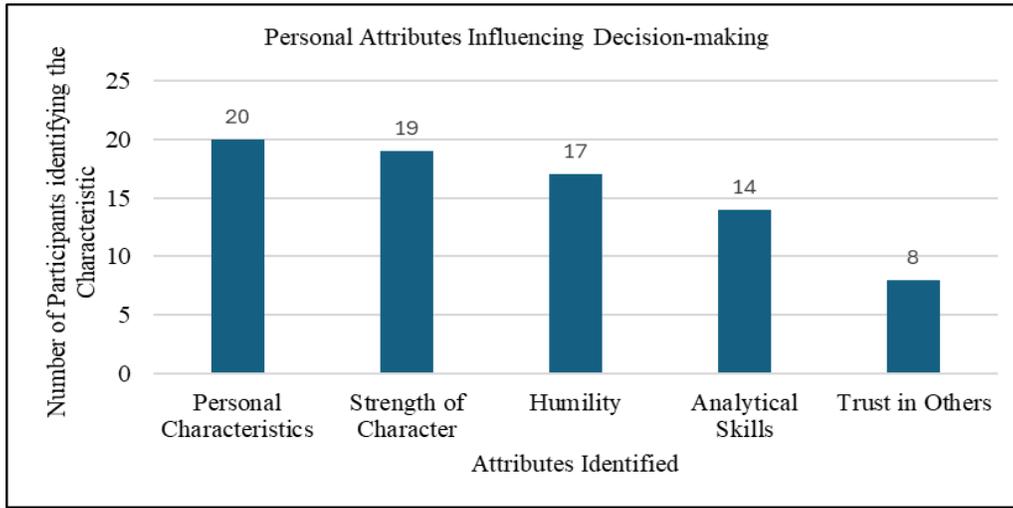


Figure 4. Personal Attributes Influencing Decision-making

The final set of data that contributes to informing on the subsequent changes in the participants experience in making decisions in the simulation and from the later field-based perspective is the work-based factors that influence decision-making. As indicated in Figure 5, seven key factors were identified as influencing police decision-making.

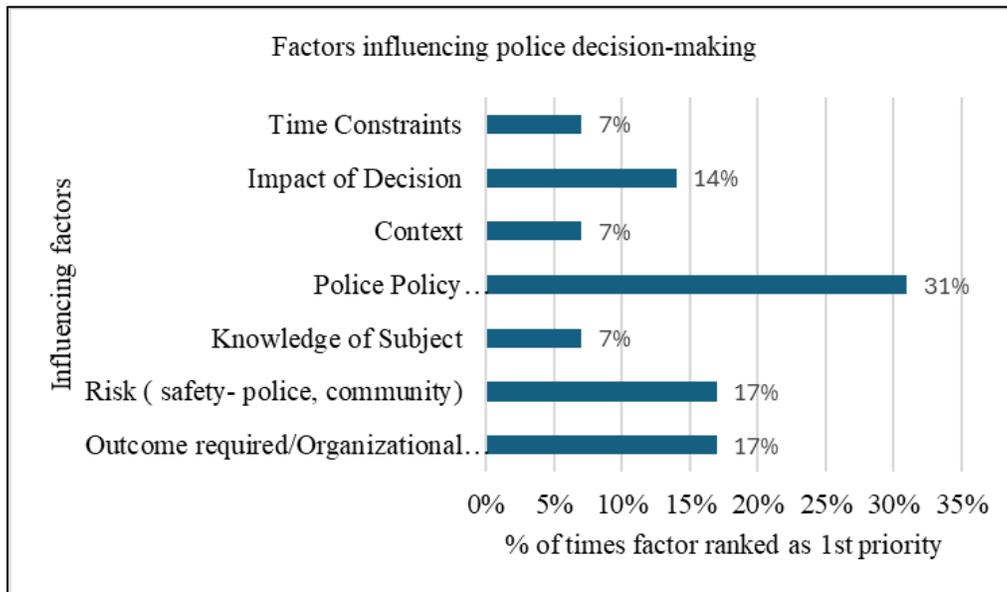


Figure 5. Factors influencing police decision-making

Decision-making knowledge and skills post-simulation exercise

It is at this stage, post-simulation exercise that populating the Johari Window 4th quadrant becomes feasible. The post-simulation data revealed three key themes, firstly, participants agreed they were immersed and engaged in the simulation exercise and able to apply decision-making skills they had learnt prior to the simulation exercise. Secondly, the participants agreed they had the opportunity to develop awareness of their strengths and weaknesses in decision-making during the scenario. The third theme that emerged was participant agreement that the simulation exercise

afforded the opportunity to apply decision-making knowledge and skills they had not previously applied in their policing duties.

To place into context the following results from the participants’ simulation experience, it is helpful to explain the level of consciousness in relation to the decision-making process during the simulation exercise. The participant responses included a range from “I was extremely aware” (Participant 2), “Fully aware of my decision-making process” (P. 11) to “not really, not until I stopped myself, it is easy to go into auto-pilot” (Participant 7). Similarly Participant 4 commented: “I wasn’t really aware of my own decision-making process... I found myself thinking about my own operational experience and deciding what needed to be done”.

Quadrant 4 of the Johari Window Model is centred on the Unknown, and it is through participation in the Incident Command and Control simulation where participants are required to make decisions, their strengths and weaknesses which were previously unknown are revealed. The data with which to populate Quadrant 4 is drawn from survey and interview questions that require the participants to reflect on their performance and experience in the simulation and further, what changes they would adopt in their decision making for application in the real world of leading police operational endeavours.

The participant responses to Question 14 of the post-simulation survey: What were the most valuable aspects for your future policing practice gained from participating in the simulation exercise for you? offered a direct injection into Quadrant 4. Here 95% of the survey responses identified a valuable outcome for them in participating in the simulation and for influencing their future practice was understanding their strengths and weaknesses for decision making in an Incident Command and Control situation. This theme is evidenced in the following participant comments:

- Participant 13 suggested: ...get a feel for what works and what doesn’t work
- Participant 21 commented: ...the simulation-based process was valuable for understanding where we are at, our strengths and to work on any perceived weaknesses
- Participant 4 suggested: ...I did make a significant change to how I approach these situations, based on upon my learning;
- Participant 14 reflected: ...my knowledge of Incident Command and Control prior to attending this course was minimal. Learning the structure and application of the model and putting it into practice in the simulation, I am now more confident and comfortable if I am faced with a situation to run an Incident Management Team

Table 6 indicates the respective level of agreement the participants learnt about their strengths and weaknesses by participating in the simulation exercise.

Table 6 Level of agreement the simulation experience revealed strengths and weaknesses

Post-simulation survey question (n=21)	Very strongly agree	Strongly agree	Agree	Undecided	Disagree
Question 5: I learnt about my strengths and weaknesses by participating in this simulation exercise.	6 (28.5%)	7 (33.3%)	7 (33.3%)	1 (4.7%) This participant identified in interview they had undertaken management of incident command situations prior to the course and simulation	0

An important aspect here is that the participants did not only identify strengths and weaknesses in relation to applying processes, there was also a theme that resonated with the earlier attributes of good decision-makers (Figure 4). For example, Participant 16 referred to the ability to manage stress as a leader:

...the opportunity to participate in a simulation exercise that resembles real life helped me to identify the stressors I would be under in such a situation which has helped me to understand my strengths in this area and what I need to work on to be able to handle a situation like this in real life.

The post-simulation surveys also offered insight into the level of confidence and competence the participants considered displayed to others during the simulation exercise. This is a valuable contribution to Quadrant 4 as it provided an opportunity for the participant to realise their strengths and weaknesses and in parallel demonstrate these attributes to others.

A design element in the Incident Command and Control simulation exercise is that the performance of the participants is observed by their colleagues in the simulation and also by an Assistant Commissioner with responsibility for managing major public policing events/incidents. This observation provides an important contribution to Quadrant 4, balancing for the participants what they now know for themselves about their leadership for incident command and what others now know about the participants' – their strengths and weaknesses in an incident command role. During the conduct of the simulation exercise during the period of the study reported here, there was no formal assessment of the participants' performance. Rather, the Assistant Commissioner provided a debriefing session to the cohort as a whole on the performance and a one-on-one debrief discussion for individual participants.

DISCUSSION

Whilst identifying that simulation-based learning offers opportunity for participants and others to learn previously unknown aspects about a participant is not new, for example, this is often at the centre of assessment performance in a simulation, what is new, is the concept of aligning the Johari Window Model, the Kolb experiential learning model and simulation participant performance in areas beyond the mechanics of the application of knowledge and skills. The findings from this study indicate that participating in simulation-based learning events that participants consider is an authentic and situated learning environment provides a conduit for participants to learn about themselves and for others to also learn about them – closing the gap to populate Quadrant 4 (Unknown) of the Johari Window (Luft and Ingham 1955, 1961). Whilst finding avenues for populating Quadrant 4 enables understanding previously unknown characteristics and capabilities of a person, it also releases such findings into the remaining relevant three quadrants and therefore Quadrant 4 becomes empty again. This is a continuous cycle, and from an educational perspective, it integrates with the Kolb (1984) experiential continuous learning cycle. In particular, step two in the Kolb (1984) experiential learning cycle which involves reflection, contributes to identifying what a person learns from an activity, knows and understands (step 3), followed by adjustment of their approach/ view and a reapplication of knowledge and skills (step 4). As indicated in the analysis of data in this study, the participants indicated:

- (a) the incident command and control simulation exercise and environment realistically replicated the real world of policing such events;
- (b) the design of the simulation exercise and environment enabled the participants to apply their knowledge and skills of incident command and control, this led to the participants realizing their strengths and weaknesses in this area of leadership – this resonates with the work of Herrington et al., 2003, who advocate immersing learners in environments that replicate the real world enhances the attainment of learning outcomes and transfer from the classroom to the real world of operational practice;
- (c) participation in an authentic simulated learning exercise and environment has the potential to enable participants to learn about themselves in areas other than the mechanics of applying knowledge and skills, and this learning is exposed also to others
- (d) the reflection on and demonstration of their experience and performance in the simulation is a catalyst for adjusting their future approach to leadership in incident command and control circumstances (Kolb 1955).

As with a multitude of other professions it is not appropriate for learners to practice the application of knowledge and skills outside of the learning environment. The development of critical police leadership application skills is pivotal for the safety and security of the community in which they work and the wider policing community efforts. It therefore

relies on simulation-based learning to offer the arena in which senior police leaders are able to ‘practice’ their leadership decision-making and understand the consequences of their actions. In a team-based environment, of which policing is one, enabling officers to learn about their strengths and weaknesses in relation to incident control and command and for others to also be witness to these attributes contributes to building an effective, efficient and cohesive entity. Aligning the Johari Window Model with participation in simulation-based learning exercises and environments for learners is identified in this study as a valuable approach for supporting the development of leadership capabilities.

There is an important outcome in relation to the wider study that also has implications for the key theme of this paper. During the conduct of the wider research study (as mentioned in the Introduction), the Chief Investigator identified that the participants, whilst receiving a debrief on their performance, were not afforded opportunity to receive either a digital or hard copy performance assessment that they could utilize in the future, as a reflection on performance tool. This is particularly relevant when they face the demands of critical decision making in policing high risk, high stakes situations. To address this short fall, a self-assessment rubric was developed by the researcher and implemented for all future leadership simulation-based exercises within the respective organization. The rubric enabling reflection on, and identification of the level (novice, intermediate, advanced) of the knowledge and skills demonstrated by the incident command and control simulation participants in all key domains. The relevance of this initiative to this current paper is the self-assessment rubric enables participants to have a record of their performance and the alignment with the Johari Window 4th quadrant which they have populated from their simulation-based learning experience. The opportunity to review the record of what they have learnt about their leadership performance and decision-making in critical time constrained situations affords a continuous learning and development cycle (as advocated by the experiential Kolb (1984) learning model) and contributes to potential improved field-based performance.

CONCLUSION

The study reported here is drawn from a wider study of the influence of simulation-based learning on the development of decision-making skills and professional identity in operational policing

The demands on police leadership across the globe are continually increasing as the world sees the emergence of different and more devastating criminal activity (e.g. International and national terrorist and active armed offender incidents). The support of an efficient, effective and pro-active policing response predicated the continuous design, application and evaluation of leadership decision-making education and training in ‘safe environments’ where emerging leaders are able to ‘practice’ decision-making and understand their strengths and weaknesses. This study indicates there is the potential to expand the application of the Johari Window model to simulation-based exercises to examine and identify leader characteristics and attributes including, for example, unconscious bias, integrity, courage, respect, compassion and resilience. Establishing future research endeavours that connect practice, as enabled through simulation-based exercise participation, with models such as the Johari Window as a conduit to best understand leadership capabilities has the potential to inform on continuous improvement strategies for developing leaders responsible for the safety and security of the community they serve.

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