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The Exploration of Body-Worn Video to Accelerate the Decision-Making Skills of Police Officers within an Experiential Learning Environment

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The exploration of Body-Worn Video to accelerate the decision making skills of Police Officers within an experiential learning environment.

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Abstract

Previous research has highlighted benefits of Body-Worn Video (BWV) to support the work of

police officers. The daily demands of policing requires officers to make highly pressurised

decisions (with associated rapid action) in unpredictable changing environments. It is important

that new officers learn techniques of decision making in a safe and controlled way, which

minimises the risk and harm to all parties whilst at the same time facilitating effective learning.

Whilst the benefits of experiential and immersive learning characterised by active participation

40   have long been used in related professional disciplines, the application to police education has

41   been under explored. BWV can be used to identify decision making cues from the environment

42   and nurture pattern recognition, essential to the development of mental models within the

43   officer's decision making process. The paper will therefore explore the application of BWV in

44   the context of experiential immersive learning to accelerate police officers decision making.

45

46   **Keywords**: Body Worn Video cameras, decision making, immersive learning

47   environments, training, reflective practice;

48

49

Introduction

Since 2012 there has been a surge of interest into the use and application of Body Worn Video (BWV) cameras into the context of modern policing (Lum, Koper, Merola, Scherer & Reioux 2015). The introduction of such sophisticated technological advancements combined with extensive media interest (Ariel, Farrar & Sutherland, 2015) has therefore intensified the deliberations surrounding BWV and the role they can play in influencing the public perception of the police and other emergency services (Culhane, Bouman & Schweitzer 2016; masonadvisory, 2015). According to Custers and Vergow (2015) there is very little robust evidence regarding the effectiveness of using technologies in policing; as very few evaluative studies are being embarked on. However, body worn cameras are associated with "instruments for accountability and an effective way of reducing violence, discrimination or corruption" (Coudert, Butin and Le Métayer 2015: 749). Whilst some authors highlight the potential for body worn cameras to reduce the use of force and limit abuse (Ariel, Farrar and Sutherland 2015), reduce the numbers of stop and search and make subsequent arrests (Ready and Young 2015) and may result in a greater willingness amongst the public to report crime (Ariel 2016); through a range of studies all conducted in the United States of America. Other writers (Grossmith, Owens, Finn, Mann, Davie & Baika 2015) found that compliance with activating body worn cameras by officers was relatively poor, and was associated with increased likelihood (Grossmith, et al, 2015) of officers to arrest; and seemingly no impact in terms of increased incidence of resisting arrest (Katz et al 2015). Furthermore, Rieken (2013) asserts that officers may lose the discretion that comes as part of interpreting a situation resulting in mechanistic performance. Whilst these studies are important, education and training of officer recruits is not the main aim of this body of work indicating the need for further focused research. To date the relevance and impact of BWV has not been fully considered and realised within the police training environment. However, experience from members of the research team recognises that certain aspects of synthetically created environments have been in existence for

76 some time and have been successfully used in other contexts. For examples HYDRA suites for

77 Senior Investigating Officers training and Simunition simulators are used predominantly with

78 firearms training. Although these environments are valuable they are designed around the

79 creation of simulated environments and they do not have the interactive elements of the artificial

80 intelligent platforms.   Research on integrating BWV has only been tentatively explored with

81 two RCT's (Owens et al. 2015; Grossmith et al. 2015) based in the UK, highlighting some

82 potential for continuing professional development when officers have access to BWV footage.

83 Within these two trials the pedagogical underpinning of the mechanism by which such

84 development takes place is sketchy. Currently within police training, the emphasis of the use of

85 BWV has focused on the capture and presentation of evidence in court cases.

86   While the emphasis of discussions surrounding BWV has focused on increasing the

87 accountability of officers in response to meeting operational demands, other perceived benefits

88 have received less attention. It has been recognised that BWV can provide the additional

89 operational benefits (Grossmith et al. 2015) and facilitate the gathering of evidence through the

90 automated recording of incidences in which officers attend; resulting in a reduction of police

91 use of force (Ariel et al, 2015). In a guidance document Goodall (2007) suggests that in some

92 cases the footage garnered through body worn cameras can facilitate the support of reluctant

93 witnesses in domestic abuse cases. Although a more recent randomised controlled trial

94 indicated increasing proportions of detecting domestic violence but no impact on arrest rates

95 and subsequent sentencing. Although the complexity of integrating BWV into the strategic and

96 organisational structure of police forces is multifaceted and still very much in its infancy,

97 limited attention has been directed towards the benefit of using BWV in a training environment

98 with the specific aim of helping to accelerate the decision making capabilities of police officers.

99 White (2014) points out that examples of body worn cameras in providing opportunities for

100 police training remain largely anecdotal and untested. Although, Goodall (2007) provides some

101 advice outlining the training officers require, regarding technical and practical aspects of using

102 the equipment; he does not go on to consider how body worn camera footage could be used to

103 enhance officer performance; suggesting that there may be a subconscious improvement in

104 officer awareness when they view their own practice (Goodall 2007). The capturing of officers

105 decision making in training situations from the first person's perspective, provides a unique

106 opportunity for officers to engage with experiential learning in a safe and controlled

107 environment. This paper explores the integration of BWV cameras into police training

108 environments to accelerate the development of naturalistic decision making skills in officers.

109 The paper therefore begins by presenting an overview of naturalistic decision making and the

110 challenges faced by officers as they undertake their role in an unpredictable, highly pressurised

111 environment which is continually changing. For the purpose of this paper naturalistic decision

112 making is the term used to outline the investigation of experts in dynamic environments which

113 are uncertain, and are continually changing (Klein, 2008). Such environments are complex and

114 are characterised as containing ill structured problems; shifting, or competing goals; multiple

115 event-feedback loops; time constraints; high stakes; multiple players, organisational norms and

116 goals that must be balanced against the decision-maker's personal choice (Richards et al, 2009).

117 Such characteristics typify the challenging environment of modern day policing. The paper then

118 explores how BWV can be integrated into the training environment of officers, whereby key

119 models and other mechanisms used to support police decision making (College of Policing

120 National Decision Making Model, 2013 and THRIVE) can be embedded into a naturalistic

121 decision-making framework to accelerate the development of decision making skills in officers

122 and new recruits. The paper will then briefly explore how BWV can be combined with other

123 technological advancements (oculus rift, virtual dome environments etc) to create an active

124 experiential immersive learning environment, enabling officers to develop associations

125 between cognitive decision making skills and rapid physical actions in a safe and harm free

126 setting. It is envisaged the paper will open discussion as to how policing practitioners and

127 researcher can design safe and controlled training environments which maximise the transfer

128 of learning to real life situations.

129

130 **Naturalistic Decision Making Skills and the Police Officer**

131 This commentary paper proposes that the nature of decision making performed by police

132 officers lends itself to the Naturalistic Decision Making paradigm, where decisions are

133 undertaken in highly pressurised, complex and unpredictable circumstances, where time is a

134 key determinant (Klein, 2008). For officers, such environments also include the added

135 complexity of involving multiple individuals. Decision making processes in such a dynamic

136 and continually changing environment requires the integration of perceptual skills and the

137 considerations of situational factors (Richards, Collins & Mascarhenas, 2016). The design and

138 development of training environments therefore needs to include the development of cue driven

139 perceptual skills relating to the real world context in which the officers may find themselves.

140 Developing the perceptual cues of officers in isolation to the situation could result in the

141 incorrect decision being made when training is transferred to real world settings.

142 Research from several domains, sport being one, has enhanced our understanding of decision

143 making processes in highly pressurised situations (Starkes & Ericson, 2003; Williams, 2009;

144 cf. Bar-Eli, Plessner, & Raab, 2011; Richards, Collins, & Mascarenhas, 2012). Richards et al

145 (2016) proposed two interconnected models within one framework which addresses the

146 development of decision making skills in highly dynamic and pressurised environments.

147 Although originally designed for the development of decision making skills in elite sport the

148 framework is being explored in the context of developing decision making skills in police

149 recruits on the Isle of Man. Model 1 in the empirically tested framework (see Richards et al,

150 2016 for review) outlines how important information relevant to real world contexts can be

151 pedagogically layered. This first model integrates the individual's knowledge, situational

152 factors and the context of the setting in which the individual is making the decision. The second

part of the framework illustrates how integrating reflective (slow deliberation) training environments within scenario based settings (Richards et al, 2012) can result in the facilitation of accelerated decision making skills, through the process of layering the information. There has been a considerable body of research illustrating that slow deliberate learning which occurs in an experiential scenario based video environment can accelerate the decision making skills in highly pressurised naturalistic field settings (Richards et al, 2009; 2012; Merola & Richards, 2010; Bates & Richards, 2011 and Richards, Penrose & Turner, 2015). The slow deliberate video based learning environment empowers individuals to construct specific mental models in the context of their own performance. Within the mechanism advocated here, the beginner or less experienced recruit can learn from and have access to the mental model of the more experienced officer as they both watch footage of a situation together.

Through the observation of video recorded from BWV officers (individual officers or a specialist team of officers) it is proposed that officers can engage in deliberate, structured discussions. Such engagement empowers the officers (individually or collectively as a team) to identify key features and important aspects of the clip, which results in the formulation of individual or shared mental models (Richards et al, 2012; Richards et al, 2016). Westbrook (2006) highlighted that mental models are only valuable to the individuals who construct them; indicating that everyone is required to construct their own mental model. Focused discussion between individuals can therefore make mental models accessible resulting in more effective engagement when similar situations arise in the future (cf. Mascarenhas, Collins, Mortimer, & Morris, 2005). The connection between the empowered slow deliberate learning environment and the applied real world context (where decision are made in real life situations) is evident in the model through an interacting pair of feed-forward and feedback mechanisms (Richards et al, 2016). Feedback discussion features aspects of what was completed well; whereas feedforward discussions focus on what needs to be incorporated into future actions if a similar situation arises.

179 The authors of this paper therefore proposed that footage captured from BWV could be

180 integrated within the decision framework proposed by Richards et al (2016) enabling training

181 officers to apply specific police decision making models (THRIVE and NDM) to enhance the

182 decision making skills of officers when on patrol.

183

184 **Developing a video based learning environment to facilitate Decision Making Skills in**

185 **Police Officers**

186 Effective teaching should enable students to assimilate new knowledge into existing cognitive

187 structures (Andrews & Roberts, 2003). Simulated or immersive learning environments enable

188 students to do so through active participation. Such simulated immersive learning environments

189 are being used in a range of associated professional disciplines such as medical and nurse

190 education to enable students to observe, rehearse and practice in an approximation of the real

191 world. Through immersion in scenario based learning encounters, students are enabled to draw

192 on all of their senses to facilitate decision-making in real time (Roberts & Roberts, 2014).

193 Typically simulation features active participation by the learner followed by structured de-

194 briefing with an expert or skilled facilitator where meaning and sense making can be achieved.

195 The process of sense making facilitates the officer moving beyond the identification and

196 comprehension of environmental cues which are being discussed and the trainee officer is

197 encouraged to *frame* or comprehend the cue in relation to the situation. Sense making therefore

198 would facilitate the trainee officer establishing connections and associations between

199 environmental cues. Such an empowered, slow deliberate process of sense making results in

200 the development of the individual's own mental model or internalised plan (Richards et al,

201 2012; 2012), which in turn can be used to inform and shape actions in future situations (Bates

202 & Richards, 2011).

203 Whilst active participation in a learning environment is important; there is a growing

204 recognition that individuals can also learn vicariously through the experiences of others; being

205 able to listen to experts as they discuss a new topic, enables students to learn through such

206 active discussion (Roberts, 2010). (Although it is recognised that this is often dependent on the

207 skills of the teacher in facilitating learning.) Utilising BWV footage captured either through

208 everyday work or through judiciously selected and recreated simulated scenarios ensures that

209 the stimulus for learning is rooted in the real world of policing, where the knowledge on which

210 professionals draw is broad, deep and multi-faceted; moreover, the problems which

211 professionals face are not straightforward, rather they are complex and messy (Schon, 1987).

212 We postulate that as the experienced officer and the beginner watch the BWV footage together

213 they can focus their discussion on the environmental and embodied cues (data points) that the

214 expert experienced officer has identified to frame (or contextualise) the situation. As the

215 discussion unfolds, the beginner is given access to the mental model of the experienced officer

216 as their craft knowledge is shared. This craft knowledge can then be used to inform future action

217 of the novice officer, when they are confronted with a similar real world situation.

218 It is proposed that the integration of BWV footage into learning environments combined with

219 engagement in structured conversations (empowered slow deliberate learning) between expert

220 or experienced officer and less experienced, or those at the beginning of their police careers

221 could accelerate decision making skills. We believe there is a potential that real world police

222 decision making can be accelerated and enhanced through such approaches. Furthermore, the

223 initial work being undertaken in this field of inquiry warrants closer attention.

224 **Conclusion and moving to the next step**
225 In conclusion, BWV footage could be integrated into simulated training environments which

226 are specifically designed to accelerate the decision making skills of police officers. The

227 integration of structured discussions between expert or experienced officers and those at the

228 beginning of their careers facilitates a slow deliberate empowered learning environment that

229 creates the opportunity for officers to explore highly pressurised situations but in a controlled

230 and risk free setting. The structuring of the video based learning environment would empower

231 the officers to develop effective mental models of decision making which relate to a specific

232 policing context (e.g. drunk and disorderly). Integrating BWV into a simulated and/or

233 immersive learning environment facilitates officers being able to identify and prioritise

234 environmental cues and contextualise (frame) this visual information in context of the real life

235 situations which they may find themselves.

236 The challenge for policing practitioners and researchers is therefore to integrate emerging

237 technology into specifically designed and constructed training environments which are free

238 from harm, maximise and accelerate decision making skills in officers but which are

239 economically viable. There is potential to use a range of emerging technologies in conjunction

240 with BWV footage to create such a learning context. Eye tracking technology would generate

241 an understanding of the search patterns or ability to 'read the scene' of expert officers when

242 they are attending an incident (scenarios created in a training context). Such information could

243 be useful in providing a framework for understanding how expert officers think. The use of

244 BWV could also be integrated with single user digital technology platforms such as Oculus Rift

245 (a head mounted display, that exposes its wearer to a bespoke interactive 360-degree immersive

246 environment, deployed using virtual reality) providing the benefits of learning in a harm free

247 environment; and which enable the learner to repeatedly encounter training situations in order

248 to refine their response. Finally, the construction of immersive learning environments, such as

249 3D virtual domes (an enclosed 360 degree interactive environment where a range of

250 environments can be projected using conventional game development techniques to produce

251 3D digital content) (Roberts & Roberts, 2014) could be used to facilitate the development and

252 collaboration of team decision making skills between officers, as multiple individuals can

253 engage in scenario based training collectively in risk free training context.

254 It is hoped that this paper may open discussion as to how BWV can be integrated with video

255 based /immersive learning environments; whereby empowering officers to engage in slow

256 deliberate learning processes can accelerate the development and acceleration of decision

257 making skills which are transferable to real life situations.

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