



The Impacts of Body-Worn Cameras: An Examination of Police Specialty Unit Perceptions through Diffusion of Innovations

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Received: 19 October 2020 / Accepted: 9 June 2021
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Abstract

The present study analyzed data from 39 semi-structured interviews with specialized unit officers from one mid- and one small-sized police department in the United States. The data indicates that specialty unit officers perceived body-worn cameras in terms of the costs and consequences of the technology, which aligns with the diffusion of innovations paradigm. These officers had differential views of the costs of BWCs and the capabilities and uses of BWCs compared to patrol officers. These findings urge further investigation into the costs and consequences of body-worn cameras on specialty units, as well as an exploration into the impact of the technology's technical capabilities. If there are key differences between specialty units and patrol officers in perceptions of the cameras, policy regarding the technology may be best if it can address these differences in order to maximize the benefits of the technology.

Keywords Body-worn cameras · Specialized units · Police technology · Diffusion of innovations

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Introduction

While tensions between the police and marginalized communities have long existed in the United States, they exacerbated starting in 2014 with a succession of highly publicized events including the killings of Eric Garner in New York City and Michael Brown in Ferguson (Koen & Willis, 2017, 2020; White & Malm, 2020). This discord persists given the recent killing of George Floyd in Minneapolis, with protests and riots emphasizing the opposition between outraged citizens and the officers sworn to protect them (Hill et al., 2020). In the years following 2014, the killings of black men at the hands of the police sparked public debate about how the police behaved and used their coercive powers during citizen encounters (Koslicki, 2019; Lum et al., 2019). In response to growing public pressure for reform and financial support from the federal government, police organizations across the United States began to adopt body-worn cameras (BWCs) to increase transparency during police-citizen encounters (Koen & Willis, 2020; President's Task Force on 21st Century Policing, 2015; Smith, 2019). Proponents of the technology claim that BWCs could also reduce citizen complaints and use-of-force incidents in addition to improving evidence collection, training, reporting, and general accountability (Koen & Mathna, 2019; Lum et al., 2015; Miller et al., 2014; White, 2014). A small but growing body of literature has examined the extent to which BWCs live up to these claims as this technology has diffused across the United States and abroad (Adams & Mastracci, 2019; Ariel, 2016; Lum et al., 2019; Smith, 2019).

While research has focused on multiple outcomes such as organizational implementation of BWCs (e.g., Kyle & White, 2017; Koen et al., 2019; White et al., 2018a, b), officer safety (e.g., Ariel et al., 2016), and officer activity (e.g., Braga et al., 2018; Huff et al., 2018; Hughes et al., 2020; Lawrence & Peterson, 2020; Wallace et al., 2018), the primary foci have been citizen complaints and use of force (for summaries, see, Gaub & White, 2020; Lum et al., 2019; Malm, 2019; White et al., 2019a, b; White & Malm, 2020). Scholars have reached relative consensus related to citizen complaints, primarily finding decreases in complaints following the deployment of BWCs, but the findings are still largely mixed regarding police use of force.

One area of research that has gained increased attention is officer perceptions of BWCs. This is important because officer buy-in, during and after implementation, is essential to the effectiveness of BWCs in practice (Gaub et al., 2016). How a technology is used depends on how it is perceived (Lum et al., 2017; Manning, 2008). While existing research of police perceptions has found that officers generally have positive perceptions of the cameras, the vast majority center on the perceptions of patrol officers.¹ In other words, officers are treated as one monolithic group, but perceptions can vary substantially among working groups (Koen & Willis, 2020). Apart from a handful of studies (Fallik et al., 2020; Gaub et al., 2020b), little is known

¹ Some research has focused on the perceptions of command staff (Smykla et al., 2016), external stakeholders (Gaub et al., *in press*; Todak et al., 2018), or different relevant social groups within an agency (Koen & Willis, 2020); but the vast majority of perceptual studies have focused on patrol perceptions.

about how police specialty units (hereafter referred to as SUs) have come to make sense of BWCs and how these views have changed over time. Notably, Gaub et al. (2020b) argue that BWCs can have substantially different impacts on officers in SUs, which in turn affect their views of the technology. We use semi-structured interview data to juxtapose the very different experiences of SU officers' BWC experiences in two small- to medium-sized police agencies in the United States, contextualized within the diffusion of innovations framework (Ryan & Gross, 1943; Valente & Rogers, 1995; Wejnert, 2002).

Literature Review

Officer Perceptions of BWCs

More than 30 studies have addressed the study of officer attitudes about body-worn cameras (Gaub et al., 2020a), and most assess attitudes among the patrol division. Generally speaking, officers think positively about the technology, though some departments are notably negative about BWCs (e.g., Gaub et al., 2016 [Phoenix and Spokane]; Goetschel & Peha, 2017; Smykla et al., 2016). Most officers acknowledge the positive effects of BWCs on evidence collection, court outcomes, and police-community relations while viewing BWCs has having mixed effects on citizen behavior and negative effects on officer discretion and use of force (Gaub et al., 2020a).

Officers typically believe that BWCs have positive effects for evidence collection, especially in citizen complaints investigations (e.g., Gaub et al., 2016, 2020b; Mesa Police Department, 2013). They feel that footage could be instrumental in providing more accurate accounts of what occurred during incidents or citizen encounters (Gaub et al., 2020b; Koen & Willis, 2020; Koen et al., 2019). According to officers, the footage almost always shows that they were following policy and allows sergeants and Internal Affairs/Professional Standards to conclude internal investigations more rapidly, thereby reducing the stress associated with having an open investigation against them (Gaub et al., 2020b; Goodall, 2007; Koen & Willis, 2020; Koen et al., 2019). Studies have also found that officers felt that the quality of evidence had more broadly improved with the adoption of BWCs. For example, officers in the Phoenix (AZ) Police Department felt that BWC footage was particularly helpful in domestic violence cases where the victim was unwilling or hesitant to testify (Gaub et al., 2016; Katz et al., 2015). More recent research has found that officers take a more nuanced approach to this, finding that officers can feel as though the courts become overly-reliant upon footage at the expense of officers' individual credibility (e.g., Fallik et al., 2020; Gaub et al., 2020b; Koen & Willis, 2020). Yet, it is posited that this evidentiary value is the mechanism by which BWCs lead to better court outcomes; additional (and/or better) evidence from BWC footage can expedite the process, and officers acknowledge that benefit (Ellis et al., 2015; Gaub et al., 2016; Pelfrey & Keener, 2016, 2018; Smykla et al., 2016).

Initial research suggested the act of being recorded would lead to a "civilizing effect" on both officers and citizens; this was the suggested mechanism by which

citizen complaints and use of force decreased (e.g., Gaub et al., 2016; Jennings et al., 2014; Koen & Willis, 2020; Miller et al., 2014; Patterson & White, *in press*; White et al., 2017, 2018a). However, more recent research has found that officers tend to disagree with statements that BWCs make citizens more cooperative or respectful; rather, many officers now believe the technology has little to no impact on citizen behavior. This makes sense: Many people interacting with officers are frustrated, angry, mentally ill and in crisis, or under the influence of drugs and/or alcohol. An increasing number of studies also find that officers perceive BWCs to negatively affect officer behavior by creating a situation where officers are afraid to use necessary and justified force (Fallik et al., 2020; Gaub et al., 2020a). That said, several studies have also revealed that officers often become more positive about BWCs as they continue to use the technology (Ellis et al., 2015; Gaub et al., 2016; Jennings et al., 2014; Koen & Mathna, 2019; Koen et al., 2019; McLean et al., 2015; Toronto Police Service, 2016; White, et al., 2018a, b).

Police Specialty Units

Nearly seven decades of police research has taught us a great deal about the role and activities of patrol officers. The majority of their time is spent on activities pertaining to service or maintaining order, such as directing traffic or mediating interpersonal quarrels. Between 10 and 30% of their time (depending on the study) is spent fighting crime (Bayley, 1994; Greene & Klockars, 1991; Manning, 1978; Mastroski, 1983; Scott, 1981; Wilson, 1968). Since police are in a position to handle all sorts of social problems, these non-crime activities are an integral aspect of the police mandate, creating a nebulous mission of the patrol officer (Bittner, 1967; Manning, 1978; Westley, 1970). In other words, the mission and activities of a patrol officer are aligned with the idea that patrol officers are society's peacekeepers (White, 2010).

Conversely, specialized police units are created to fulfill a narrowly-defined purpose very different from patrol units. This specialization emerged in the early twentieth century as part of a larger reform movement to bureaucratize and professionalize policing (Kelling & Moore, 1988; White, 2007). Much of the research on SUs is at the department-level, assessing the organizational purpose for implementing a unit or assessing activity levels and roles in relation to patrol units (Clark et al., 2000; Hepworth & White, 2016; Katz, 2001; Katz et al., 2002; Lemmer et al., 2008; Liederbach et al., 2011; Menton, 2008; Sytsma & Piza, 2018; Williams & Westall, 2003; Willits & Nowacki, 2016). Generally, SUs are created to address critical new crime problems or in response to officer interest (Clark et al., 2000; Katz, 2001; Lemmer et al., 2008; Willits & Nowacki, 2016). Other SU research has focused on workload, primarily for investigators (Chaiken et al., 1976; Dabney et al., 2013; Liederbach et al., 2011). A small body of research has compared officer activity levels in specialty and patrol units (Hepworth & White, 2016; Menton, 2008; Sytsma & Piza, 2018) and officer use of force (Brandl et al., 2001; Gaub et al., *in press*; Williams & Westall, 2003).

Thus, the research demonstrates that the mission and purpose of SUs is largely driven by organizational and community needs. Recent research has also argued that “patrol-driven innovations, such as BWCs, may require a different approach when applied to [specialty units]” (Gaub et al., 2020b, p. 149; see also Fallik et al., 2020; Gaub et al., [in press](#)). As such, Gaub et al. (2020a) sets the stage for the current work by establishing a baseline of SU officer perceptions of BWCs; in turn, we extend this baseline by comparing the perceptions of two departments with very different experiences (and program outcome), while examining these perceptions through the lens of the diffusion of innovations paradigm.

Diffusion of Innovations

The diffusion of innovations framework has been used hundreds of times since the first examination of farmers’ likelihood of adopting hybrid seed corn (Ryan & Gross, 1943). Wejnert (2002) integrated model defines diffusion of innovations as “the spread of abstract ideas and concepts, technical information, and actual practices within a social system, where the spread denotes flow or movement from a source to an adopter, typically via communication and influence” (p. 297; see also Rogers, 1995).

According to Wejnert’s (2002) model, the level of diffusion of an innovation, whether on a macro or micro-level, is determined by three factors: 1) The characteristics of an innovation, 2) the actors or innovators, and 3) the environment. The framework has been used in a myriad of policing contexts, including the spread of Special Weapons and Tactics (SWAT) teams (Klinger, 2003) and crime analysis units (Weisburd & Lum, 2005). It has also been used in the context of BWCs to explain the perceptions of external (non-police) stakeholders (Todak et al., 2018) and adoption of the technology across the United States (Nix et al., 2020); however, this framework has yet to be used to explain how individual police officers responded to BWCs. Given the purpose of this study, we intently focus on how SUs at two police agencies made sense of the characteristics of BWCs in an organizational setting.

Wejnert (2002) explains that there are two important characteristics of an innovation that individuals or collective actors consider: Their *consequences* and *costs*. Depending on the level of analysis, an innovation can be seen to either have public or private consequences. Those with public consequences usually lead to historical reforms or breakthroughs, impact the innovation’s adoption on external stakeholders, and usually involve collective actors (e.g., states and organizations). BWCs can be an innovation with both private and public consequences, depending on context. Considering them on a macro-level, the technology would be an innovation with public consequences that impacts the police industry, the criminal justice system, and the polity. On a micro-level (individual or organizational), BWCs have private consequences on those people who have adopted or have been mandated to use them. The current research paper highlights these micro-level consequences of the adoption of BWCs; this work, which focuses on SUs in two agencies, contributes to

the growing body of literature surrounding BWCs that can give context to both the macro- and micro-level consequences.

Whether direct or indirect, adopters may simultaneously consider the perceived costs vs. benefits of innovations during the adoption process (Wejnert, 2002). Direct costs involve potential financial risks adopters may encounter, which tend to be relatively clear and understood by adopters and can typically be addressed in the implementation strategy. Indirect costs, however, are less clear and more difficult to anticipate as they do not involve financial risk and might not be realized until after the implementation process had been initiated. If an innovation seems too risky (directly or indirectly), actors may be reluctant to incorporate it into existing structures and practices as planned or adopt it altogether (Wejnert, 2002). How the costs of innovations are perceived may differ depending on whether they are being analyzed on a macro or micro-level. For example, the police industry as a single entity may evaluate the direct and indirect costs of BWCs differently from individual officers or police departments.

In what follows, we focus on a micro-level analysis of the SU officers' perceptions of the characteristics of BWCs in two American police departments. Focusing specifically on SU officers permits us to gain a better understanding of their role in the diffusion process and how their perceptions of the technology may uniquely influence their willingness to innovate. We assess this by answering three primary research questions:

1. How did SU officers make sense of the consequences of body-worn cameras?
2. How did SU officers perceive the costs of body-worn cameras?
3. How did SU officers innovate with the technologies presented to them?

Data and Methods

The study includes two departments: Sunnyvale Police Department (SPD) and Pennybridge Police Department (PPD).² These agencies were selected for the study because they had already implemented and used BWCs for at least one year. Thus, the officers interviewed could provide more in-depth insight as to the deployment of BWCs and their day-to-day use, and reduces the likelihood that officers are merely responding to “growing pains” and overall adjustment to new technology (Koen et al., 2019). At the time of data collection, the two sites had been using BWCs for between 2.5 and 3.5 years. Both departments also had several SUs that regularly worked with BWCs and/or BWC footage.

The research team used purposive participant sampling, a common strategy in qualitative interviewing research designs (Krathwohl, 2009). This sampling strategy allows for research to focus on cases that are best suited and most relevant to the research question for in-depth study because of the rich experience and information that can be gleaned from those specific sources (Patton, 2015). Researchers sat down

² Agency names are pseudonyms.

Table 1 Special Unit Officers Across Sunnyvale PD and Pennybridge PD

Specialized Unit Type	Sunnyvale	Pennybridge	Total
Investigation	4	9	12
Investigations and SWAT	3	4	7
SWAT	1	4	5
Public Relations	1	1	2
K9 and SWAT	2	3	5
Internal Affairs	0	2	2
Community Policing	1	4	6
Total	12	27	39

with commanders from each agency to determine sampling frames using a list of all employees at each department. Going through the list, commanders were asked to identify SU officers who had regular experience and involvement with BWCs. Table 1 shows the number of officers and their assignments from each department.

BWCs were deployed to the patrol divisions in both agencies. Therefore, our samples include patrol officers with SU assignments as indicated in Table 1. Moreover, the introduction of BWCs to both agencies caused some SU officers who were not in patrol to also have daily interaction with BWCs **and/or** BWC footage (investigators and one public relations officer). For example, investigators would review BWC footage on a day-to-day basis as part of criminal investigations (since patrol officers with BWCs are typically first on scene), while some investigators at both departments (see Table 1) also had a SWAT assignment and were assigned and would wear BWCs within that context. We, therefore, solicited all officers at both departments who used or interacted with BWCs and/or BWCs footage on a regular basis who also had SU assignments to be a part of this study.

Sunnyvale Police Department (SPD)

The Sunnyvale Police Department is a small, municipal police agency located in the mid-Atlantic United States. SPD serves a population of approximately 25,000 people and employs fewer than 100 sworn officers. The SPD's community population consists of a majority Black population (50%), 20% White, 15% Hispanic and 10% Asian, and one-tenth of residents live below the poverty line (U.S. Census Bureau, 2010). SPD experienced 17% more violent crimes but 12% fewer property crimes than other comparable city jurisdictions in the state (Federal Bureau of Investigation, 2016). The chief and interviewed officers considered their department to be one of the more progressive departments in the area, being more willing to try new policing strategies or technologies to improve their work. Moreover, to garner buy-in from groups outside of the command staff, SPD commanders strategically used a collaborative implementation process, including officers from across the department (e.g., patrol, supervision, and 2 SUs) and others from outside the department (e.g., ACLU).

The present study utilizes 12 interviews obtained from Sunnyvale specialized units in the summer of 2015, when 75% of patrol officers had been using the Axon Flex head-mounted BWC for 2.5 years. Moreover, SPD used the Axon cloud-based storage system, Evidence.com. SPD policy specified that footage would be retained for 181 days before being purged, unless it had been tagged with an open case number.

Pennybridge Police Department

The Pennybridge Police Department is a mid-sized municipal department located in the Midwestern United States and employs fewer than 300 sworn officers. The city population is approximately 120,000 people. In 2017, Pennybridge residents were 80% White, 12% black, 3% Hispanic, and 1% Asian, with 22% of the population living below the poverty line (U.S. Census Bureau, 2010). The city experienced 6% more violent crime and 31% more property crime than similar jurisdictions in the state (Federal Bureau of Investigation, 2016).

PPD had used ProCop (pseudonym) BWCs for four years prior to data collection. Unlike SPD, PPD stored their footage in-house, using a local server operated by Dell Power Vault with server-based software, ViewSafe (pseudonym). Pseudonyms for the manufacturer and products are used in the case of PPD because of the unique and well-documented history between the two parties. PPD retained footage for 3 years prior to deleting it (despite state law only requiring them to keep it for 181 days), unless it was tagged to an open case number. Like SPD, PPD can be described as progressive and open to testing new technologies to improve their work, however, patrol officers, SUs, and outside groups were not included in the implementation process. At PPD, a total of 149 officers were equipped with BWCs at the time of observation in 2018.

Design

This study uses data from 39 semi-structured interviews (see Table 1) that were conducted in the summer of 2015 (SPD) and summer of 2018 (PPD). Semi-structured interviews allow researchers to ensure that similar areas of interest are explored with each participant to permit comparisons, while simultaneously allowing flexibility to probe after interesting responses (Bernard, 2000; Patton, 1987). Interviews were conducted at each agency, with the officers meeting researchers in conference rooms at the police department. They lasted approximately 40 min and were recorded, transcribed, and deidentified prior to being uploaded to the qualitative data analysis software program Dedoose. Interviews were analyzed inductively as the researchers worked through the raw data and determined themes and concepts based upon their own interpretations. This approach made it possible to condense rich and extensive data into consumable summaries, demonstrate links between the research question and the subsequent findings, as well as reveal the underlying structure of the processes or experiences relevant to the study (Thomas, 2006). In the present study, the researchers found themes that were consistent among both agencies and others that

contrasted or differed between the two departments. This strategy is consistent with trends in other research utilizing inductive coding to analyze qualitative interview data (Ryan & Bernard, 2003; Thomas, 2006); however, we acknowledge that the specific manifestation of these strategies can differ based on the specific needs of the project (Weber, 1990).

Findings

Results from our interviews describe how SU officers within SPD and PPD perceived the consequences and costs of BWCs since their implementation, consistent with the diffusion of innovations framework. We found that while some experiences of SUs were like those described in the patrol perceptions literature, there were also important differences.

Consequences

Wejnert (2002) explains that innovations can have both private and public consequences depending on the type of actor. In the case of BWCs, they can have both private and public consequences depending on how they are being examined (macro- or micro-level). The adoption of BWCs by police agencies across the United States (collective actors) and their impacts on social movements, policy, and public discourse would be an example of public consequences. Private consequences, in contrast, involve perceived consequences important to individual actors and their immediate social and structural conditions (Wejnert, 2002). As this research examined the perceptions of individual SU officers at PPD and SPD, we describe how these officers made sense of the private consequences of BWCs.

Like the extant literature, most SU officers at the two agencies expressed that the implementation of BWCs would impact internal accountability in two distinct ways (Gaub et al., 2016; Pickering, 2020) as the technology would bring more transparency to what occurred during citizen encounters. Nine (of 12) SPD officers, and 25 of 27 PPD officers reported that BWCs made it possible for supervisors and administrators to conduct “witch hunts” and use footage to catch officers committing minor policy infractions, as described by this Investigator from PPD:

As soon as I heard of it, I knew they were gonna use them to bust us for every little thing man. Because as long as I've been on, I'm considered old-school because you know? “We're set in our ways.” Right away, I thought the worst. I thought it's just a way to oversee what we're doing.

Views that BWCs could be a potential “gotcha mechanism” (Fallik et al., 2020; Gaub et al., 2020b; Koen & Willis, 2020) concentrated among investigators and SWAT officers at both agencies. At the same time, however, officers in SUs admitted that BWCs could also serve as a protection tool against frivolous or false complaints,

a view that has been well documented in the existing perceptual literature (Gaub et al., 2016, 2020b; Pelfrey & Keener, 2018; Pickering, 2020).

I do not believe that our administration wants to see anybody get in trouble, okay? I just want to make that clear. I don't think they want to see anything bad happen to anybody, it's a protection thing. It's a protection for them, for the department. [Community Officer, Sunnyvale PD]

There seemed to be slightly more consensus among SPD officers (11/12) than PPD officers (19/27) of BWCs being a protection tool; however, these officers generally acknowledged the duality of the innovation within the context of internal accountability.

Similarly, policy in both jurisdictions required that BWC footage, when available, be submitted as evidence in criminal court proceedings. Therefore, echoing extant perceptions literature (Gaub et al., 2020a; White & Malm, 2020), SU officers from the two departments had much to say about the evidentiary value of BWCs. Half of SPD officers and a substantial majority (23 of 27) of PPD officers expressed the helpfulness of BWC footage in pressing charges, gaining convictions, and accelerating court proceedings. Resonating particularly with SWAT and investigators, BWC footage was perceived to be especially effective when it complemented other forms of evidence and usually left a strong impression on members of the courtroom work group and juries (when applicable). They found BWC footage particularly instrumental in domestic violence, assault, DUI, or multiple offense incident cases. To them, BWC footage added context that would normally be difficult to convey in written reports or ascertain from witnesses. This echoes much of the empirical research on the utility of BWCs in court outcomes among these types of offenses (Gaub et al., *in press*; Morrow et al., 2016; Owens et al., 2014; White et al., *in press*).

It's one thing to write in an affidavit, you know. Things like "the victim was bleeding from a gash on her forehead." But it is another thing when you see her face on that video. All you see is her eyes and teeth and the rest of her face is covered in blood. The apartment looks like a bomb went off in it. You see the look of terror on her 5-year-old son's face. It just has a different effect on everyone. You can sense it in the courtroom, it really sinks in. [Investigations and SWAT Officer, Pennybridge PD]

However, not all SU officers were as sanguine about BWCs in this regard. Those from PPD predominantly felt court officials and juries were becoming too reliant on BWC footage, turning the technology into a "crutch" instead of using it as a "tool." These officers (PPD, 15; SPD, 4) felt that because the footage is presumed to be "objective" and "irrefutable," courtroom members were reluctant to believe an officer's testimony in the absence of video and would be more dismissive of traditional evidentiary sources.

Our prosecutor's office is at the point now where unless there's body cam footage of major events that officers were either around or involved in or whatever that they won't even prosecute. I feel like it's a trend. I mean the way I look at it, the cameras, it's a tool. It's just like any other tool. I don't think they need

to hang their hat on video. You need other things as well. [Investigator, Pennybridge, PD]

With more consensus among PPD SU officers—particularly investigators and SWAT officers—they were frustrated that, prior to the adoption of BWCs, courtroom decision-makers managed to press charges and convict guilty defendants with the same evidence they now deem inferior to BWC footage.

While SU officers from both agencies believed the adoption of BWCs would have important consequences on officer safety, they differed significantly in how they viewed them. Sunnyvale officers saw BWCs as a tool for safety *enhancement*. For example, they felt they could rely on BWCs capture the details needed to later for their reports, permitting the officers to focus more of their attention on handling the encounter, thereby increasing safety (see Gaub et al., 2020a). The SPD SWAT officers particularly felt BWCs were useful during high-intensity situations when they could be used in innovative ways.

I have actually connected a spare camera to an extendable selfie stick that I carry with me for some situations, after trying it out in training once. I never thought I would say this, but I carry a selfie stick with me. I'll give you an example from a couple months ago. This dude barricaded himself in his house. We wanted to get around the house to get to the patio door, but we weren't sure where the dude was. So, I pulled out the selfie stick with the already AXON attached to it, while [another officer] had the app open on a phone and could get a live picture of what is around the corner. So, we knew what to expect. It makes you feel confident and safe in those situations. [K9 and SWAT Officer, Sunnyvale PD]

Conversely, most Pennybridge officers (20) instead viewed BWCs as safety *hazards*. They were concerned about second-guessing themselves during high-stress situations despite their potential to protect officers from unfounded complaints. According to a PPD SWAT officer, "Officers are more concerned with ending-up on YouTube than the morgue." In other words, officers were too concerned that their decisions might be judged or ridiculed by others that they decided to use force at levels lower than policy permits, which was interpreted as a safety concern.

It's causing hesitation to do the job... when it's necessary for force to be used, you don't want to hesitate, get yourself hurt, get your partner hurt. If you're worried about what that camera's going to see, or you're worried about what that camera didn't see, you're going to hesitate. [Investigations and SWAT Officer 2, Pennybridge PD]

Pennybridge SU officers also raised concern over the flashing red light that would indicate a BWC was turned on. All PPD officers—particularly SWAT officers—indicated the light would potentially reveal an officer's location when they need to be subtle or hidden, especially at night. Additionally, 16 Pennybridge officers explained that the record button on their ProCop units would get stuck and require an extra second or two to ensure the camera turned on, which diverts their attention from the situation at hand. Sunnyvale officers did not share these concerns.

Costs and Benefits

Wejnert (2002) argues that social entities also consider the overall cost (vs. benefit) of innovations, either direct (financial) or indirect (non-financial). While none of the officers in the current study were involved in the implementation decision-making at SPD and PPD, they had very little to share regarding the direct costs of BWCs with the exception of a handful of passing remarks about how BWC spending impinged on annual raises. Instead, they weighed the indirect costs of their time against the benefit they would derive from using BWCs beyond what policy mandated—with SPD officers being more open to innovate than their PPD counterparts.

For example, all seven SPD investigators (including those who also have SWAT roles) used BWC footage to find or follow-up on leads and explained that BWC footage was the first form of evidence they sought out when a new case opened. They felt the footage often provided a pristine look at the crime scene as first responders arrived, which led to leads normally unavailable to them when they previously would rely almost entirely on the recollection of the responding officer(s) or bystanders.

Say a person was found dead in their home under suspicious circumstances. The very first person that's going to be there is a patrol officer with a body camera, more than likely. They're walking into a fresh crime scene; everything that's on their video camera is going to be helpful for the investigator because the investigator isn't going to get there until an hour maybe even more after the scene was originally walked through. Things like that are always very helpful because you're able to piece together where everything was and what was going on and even the position of the body or maybe a door was opened. The original officer came in, didn't note that in their report. Not saying that that normally happens but people make mistakes. [Investigator, Sunnyvale PD]

BWCs would sometimes capture details that those present at the scene either did not perceive or failed to remember. Additionally, BWC footage could also confirm the extent to which the crime scene was contaminated by first and secondary responders. Unlike SPD, many PPD investigators explained that they would only view BWC footage for investigative purposes reactively and would instead rely on traditional sources of leads (e.g., reports, witness statements, crime scene photos), though they acknowledged the potential of BWC footage being used in such a way.

While SPD brass began formally incorporating BWC footage into in-service, field, and remedial training, SPD SU officers (especially those in SWAT) took it upon themselves to use BWCs for training beyond the official scope. One example was to use the footage for what they deemed “self-training,” where officers would review footage of high-intensity situations and evaluate their own performance.

When you are in that situation where the adrenaline is pumping, you go into autopilot mode. Everything is muscle memory. More often than not, that is a good thing. With the cameras, I can sit down after the situation, when I am safe, without any tunnel vision and watch myself and my fellow officers to see

where I did good and where I can develop my training. Where can I improve? It is great because I can see my own person, but then I can look at my buddy's video to see what it looked like from a different angle. [K9 and SWAT Officer, Sunnyvale PD]

SPD K9 officers made similar claims, saying they reviewed footage to get a second view during stops where they may have diverted their attention away from subtle behavioral indicators in their K9s. Moreover, SPD SWAT officers began using BWCs to record "point-of-view maps," where, with an establishment's cooperation, SWAT officers don their head-mounted Axons and walk through the building, recording its layout. Video files subsequently would be saved indefinitely in a folder on Evidence.com and periodically reviewed for training purposes.

We've even gone as far as to record first-person, point-of-view maps of places like banks and jewelry stores... We have also started focusing on potential mass shooting targets. A few weeks ago, we did the AMC and the Harris Teeter. If it ever comes to it, it just gives us an extra edge to know what we are jumping into. That extra bit of intelligence. [Investigator and SWAT, Sunnyvale PD].

The maps assist them in navigating the building to effectively target suspects, safeguard innocent bystanders, and ensure their own safety in such an event. In contrast, PPD SU officers recognized the potential for BWCs to aid in training (especially SWAT officers); however, they were disinclined to proactively seek out footage.

The reluctance of PPD officers to use BWCs in ways beyond those specifically mandated in the BWC policy was seemingly rooted in the technical deficiencies of the ViewSafe system. As a result, officers wanted to spend as little time as possible with the technology.

It's [really] slow. I would be more open to it, but it is just so damn frustrating... You click on a video file and it's just the spinning wheel thing and you're sitting there with your fingers crossed hoping the whole thing won't come crashing down. God forbid you have to skip through the video, if you even get it to play. If you try to skip through, you'll get that spinning wheel again and sometimes it will just restart. Well some of the videos we deal with are 2 hours long. Do you know how disheartening it is when you have watched 45 minutes of a video and you have to restart it? I get it, body cams can be a great source of evidence, don't get me wrong, and sometimes it's come through for me, but I am not going to sit there trying to reinvent the wheel, when I can barely get the damn video to play. [Investigator, Pennybridge PD]

Within PPD, only 5 officers were confident about the functionality of ViewSafe and the on-premises server, as most officers were dispirited by its sluggishness and proclivity to malfunction. Thus, while they recognized the *potential* benefits of innovatively using BWCs for training purposes and investigations,

these benefits did not outweigh the time constraints and frustration they found with their BWC program. As a comparison, SPD officers (11 of 12) explained that while there were rare instances of slow speeds, Evidence.com was simple and straightforward to navigate.

Discussion and Conclusion

Using semi-structured interview data from 39 specialty unit officers in two police departments, we find that both SPD and PPD officers framed their perceptions about BWCs in terms of the costs and consequences of the technology, in keeping with the diffusion of innovations paradigm. We find two themes related to our primary research questions that have important implications for the future diffusion of BWCs, especially among police SUs. First, the viewpoints of SU officers in both departments related to the *consequences* of BWCs largely mirror the perceptions of patrol officers, while their perceptions of the *costs* of BWCs were, by and large, quite different from patrol. Second, how SU officers perceived the technical capabilities of BWCs was important to how they used them beyond policy mandates. We will discuss each of these in turn.

As noted previously, the vast majority of the literature pertaining to officer perceptions of BWCs is focused on patrol officers (Gaub et al., 2020a; Lum et al., 2019; White & Malm, 2020). This is unsurprising, as most BWC programs are deployed among the patrol division. Our study finds the perceptions of SU officers are very similar to those of patrol officers in reference to the consequences of BWCs. For example, SU officers had much to share about the evidentiary value of BWCs, their utility in internal investigations (e.g., complaint investigations) and criminal cases, and the perceived impact on officer safety—all of which are common themes in the patrol-dominated perceptions literature (Lum et al., 2019; see also Gaub et al., 2016; Jennings et al., 2014; Pelfrey & Keener, 2018).

Yet, in terms of how they perceived the indirect costs associated with BWCs, our sample largely thought about how the technology could contribute to their work beyond the requirements of policy, especially with regard to investigations and training. The idea that SU and patrol officers differentially perceive the costs and benefits of BWCs is consistent with the limited findings of other studies on BWC use in SUs (e.g., Fallik et al., 2020; Gaub et al., 2020b). In contrast to patrol officers, officers assigned to SUs tend to have more specific work objectives (e.g., investigating a robbery or extracting apprehending a person barricaded in a house); therefore, it is unsurprising that SUs would think about BWCs in ways beyond patrol functions. This difference in perception, however, has important implications for how BWCs are deployed and mandated within SUs. We echo the call of Gaub et al. (2020b) that departments must carefully consider how BWCs will be used by SUs. This would, ideally, be done prior to full-scale implementation, during a testing or pilot phase. Departments should include SU officers—especially those who would be using BWCs in settings or situations that are not the norm, such as school resource officers, SWAT officers, and officers using alternative patrol methods (e.g., bike or mounted)—in these testing phases

to ensure that their ideas and concerns are heard and accounted for *before* widespread use becomes mandatory. Understanding how different groups within an organization view technology such as BWCs can help inspire roll-out strategies that lead to desirable implementation processes and outcomes (Lum et al., 2017).

Prior research has indicated most officers contend it is a result of increased tensions between the police and their communities, with a direct correlation drawn to the events in Ferguson (Fallik et al., 2020; Gaub et al., 2020b), though other research has found no increase in measures of officer safety such as death or assault post-Ferguson, refuting the so-called “Ferguson effect” (Campbell et al., 2018; Maguire et al., 2017; White, 2020). Our findings indicate that written policy is an essential component of effective BWC deployment among SUs. Both departments’ BWC policies exhaustively discussed the use of BWCs among patrol officers, but neither had specific sections devoted to nuances or allowances for specialty units. Notwithstanding the mandates that all citizen encounters be recorded and that each officer submit BWC footage to the courts when relevant to criminal cases, the lion’s share of policy mandates targeted use and regulation by patrol officers and supervisors.

Similarly, SPD SUs were able to put to use the potential they saw in BWCs to train because the policy (or lack thereof) and the technology allowed them to do so. This was not the case at PPD. While there was no strict policy on how BWC footage would be used for training, the technology did not allow them to do so. Because of the technical difficulties of the BWC storage system at PPD, that department’s SU officers faced an obstacle that likely dissuaded them from innovating and maximizing the training potential of the camera footage. Consequently, the written policies provided ample opportunity for SUs to use BWCs beyond what policy specified. Whereas PPD took advantage of this opportunity to be creative, SPD resisted this temptation due to technological frustration. As such, we suggest that police agencies in the process of implementation or that have already implemented BWCs consider the extent to which their digital infrastructure would allow them to be creative, including the incorporation of BWCs into training practices. It is important that agencies take account of the technical capabilities of the BWC they implemented or plan to implement before creating any formal training structures within the context of this technology.

To this point, agencies should consider including guidelines specifically outlining how SUs should or may interact with BWCs and/or footage. While some SPD specialty unit officers took the initiative to incorporate BWCs into their daily activity, not all did. Without formal structures providing some directions for how SUs may use BWCs, police agencies may open themselves up to potential risks and missed opportunities. For example, permitting officers (or the unit as a whole) to decide which business establishment warrants the creation of a point-of-view map could create the perception of preferential service. Moreover, while all SPD investigators have reviewed BWC footage as part of investigations, no official guidance on this issue was provided. Such directives could help agencies more consistently leverage this technology to reach desired outcomes. This implication comes with an important caveat in that police leadership must be careful to work *with* SUs in generating such policies. Forcing SUs to do tasks with a technically inferior technology (like

with PPD), could potentially diminish buy-in, leading to negative implementation outcomes such as project abandonment, misuse, or abuse (Orlikowski & Gash, 1994). Similarly, SUs likely have their own ideas about how they should use BWCs, for reasons that may not be immediately apparent to command staff. Just as the overall BWC policy should be developed using a collaborative process (White et al., 2018a, b), so too should any addendum or sub-policy related to SU use of BWCs.

The divergent outcome as to how PPD and SPD SU officers responded to the introduction of BWCs is largely due to differences in the technical capabilities of their systems. This is understandable since police officers tend to judge new technology primarily based on its effect on the efficiency of their day-to-day work (Koper et al., 2014; Lum et al., 2017). SU officers in both PPD and SPD recognized similar potential for BWCs to benefit investigations or training practices. However, the technical inefficiencies of the BWC program at PPD became a significant source of frustration for them. At SPD, on the other hand, SU officers had positive views of their BWC program, finding Evidence.com and the Axon device to be straightforward and technically sufficient. As such, SPD SU officers were free to explore and experiment with the technology to make certain aspects of their work more efficient that went beyond what policy required of them.

With more than 50 BWC systems on the market, there is substantial variability in terms of quality and technical capability (Koen & Willis, 2017; White, 2014). Choosing the right product will increase the likelihood it is used according to policy, bolster officer buy-in, and enhance its ability to achieve other desired outcomes such as transparency and accountability. If a technology is too rigid, slow, or often malfunctions, it could discourage users from seeing it as a tool that could benefit them (Orlikowski & Gash, 1994; Gaub et al., 2016; Koen & Willis, 2020). This, in turn, can dissuade officers from using the technology as directed, which can have profound implications on larger agency objectives. For example, if officers elect not to use their BWCs because of technical issues, they will not be on (and recording) when they need them, like during a critical incident or an encounter that results in a citizen complaint. These situations, especially if they appear on the evening news or become viral on social media, can then have enormous implications on citizen views of police, including perceptions of police legitimacy (Chavis, 2016; Graham et al., 2019; Kerrison et al., 2018). Selecting the cheapest option may not always be the best when considering the totality of the direct and indirect costs of BWCs.

Our study also provides several avenues for future study. First, the effect of written policy on various BWC-related outcomes, including officer perceptions, remains a virtually unstudied domain (Lum et al., 2019). This is a significant oversight, as officer beliefs about BWCs are likely colored by their department's policy. While the Bureau of Justice Assistance has developed a number of tools to guide policy development, they are based largely on anecdotal trial and error and general understanding of best practice. The findings of our study demonstrate that the lack of a dedicated policy for specialty units can have diverging effects, further supporting the need for research on this topic. Second, quantitative assessments of the impact of unit assignment on BWC perceptions are needed. The handful of existing studies on SUs are all qualitative, thus a quantitative counterpart would provide sorely needed context, as such an analysis would permit the comparison of officers assigned to SUs

and patrol. Quantitative studies at a larger level—moving away from single-agency case studies—would be particularly useful (Malm, 2019). Finally, future research should focus on the impact of technical capabilities of BWCs, especially within the context of the patrol/SU comparison. For example, idiosyncrasies between brands or models could differentially impact an officer's ability to do their job depending on their unit assignment. Additionally, the technological capacities and limitations of BWCs as a holistic technology can also impact units differently. These nuances should be explored.

As with all research, our study has some limitations. First, our findings must be considered within the context of the study's qualitative design. Like all qualitative research, the value of our findings is not in the statistical power and generalizability of quantitative research; rather, our study contributes rich context to the existing perceptions literature and illuminates important avenues for future research. Additionally, while no case study can represent all police agencies, both Sunnyvale and Pennybridge represent relatively "average" departments, particularly among agencies implementing BWCs. Both agencies were large enough to have a multi-layered bureaucratic structure, several special units, and civilian employees (Reaves, 2015). Moreover, Storm (2017) found that smaller agencies such as Sunnyvale and Pennybridge are more likely to deploy BWCs compared to larger ones. Another limitation is the unequal size of the comparison groups: Specifically, we interviewed twice as many officers at PPD as at SPD. However, this is understandable given the sizes of the two police departments. Furthermore, the officers in this study may have been affected by social desirability (Fisher, 1993; Krumpal, 2013), reporting only perceptions that they thought were socially acceptable or hesitating to be fully honest if they had a perception that they believed to reflect poorly on them as a police officer.

In sum, we find that the perceptions of BWCs among specialty unit officers have similarities and differences when compared with those of patrol. These differences are particularly noteworthy when placed within the diffusion of innovations framework, and help to explain the willingness of specialty unit officers to broaden their use of BWCs and innovate—or not.

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Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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