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Screen time and crime: The Crime Substitution Hypothesis revisited

The overall drop in crime has been described as the most important criminological phenomenon of modern times (McKnight, 2015). Street crime has roughly halved in Europe (including the UK), North America, and Australia since the early 1990s (Farrell, 2013). In a previous issue of *Education and Health*, we put forward the 'Crime Substitution Hypothesis' as one possible explanation (or at the very least a contributory factor) for the crime drop in Westernised industrialised countries over the past two decades (Griffiths & Sutton, 2013). More specifically, reflecting upon our own observations of young people's behaviour, and building upon the work of others who have speculated that Internet technology may help reduce crime (e.g., Katz, 2010; Sutton 2010; Zoss, 2010), we hypothesised more formally, incorporating Sutton's (2014) original modified crime opportunity hypothesis, that the reduction in youth crime may be because young people spend so much of their time looking at screens that they do not have the motivation, time, the periods of boredom, and/or opportunity, that young people once had, to perceive the crime opportunities that lead to their engagement in criminal behaviour. There are, of course, other reasons that help account for the crime drop including advanced policing techniques, more police on the streets, and better home and retail security (e.g., home alarm systems, closed circuit television, etc.).

However, we demonstrated in our previous article that entertainment technology use had increased greatly over the last two decades and that a significant proportion of a teenager's daily time is spent in front of various screen interfaces most notably videogames, mobile phones, and the Internet (e.g., social networking sites like *Facebook*). At the same time there has been a significant decrease in crime. Consequently, there appears to be inverse relationship between crime and screen time.

Crime opportunity model

Our hypothesis is based on the premise of the improved crime opportunity model (Sutton, 2014). This states that prior to committing a successfully completed (or failed attempted) crime, it requires the coming together of an offender, with the motivation and ability to act (for instance, to go out and steal things), as well as their perception of an available, suitable victim or target and their perception of the absence of someone or something capable of preventing the crime from happening. More specifically, this means that if substantial numbers of young people are inside and not on the streets, they are less likely to become either offenders (via perceiving crime opportunities), or victims of street crime (from being considered suitable targets). We contend that these small incremental changes in lifestyle can add up to significant dynamic shifts in society. As Professor Ken Pease (one of the UK's leading criminologists) recently noted:

> *"Frankly, there are more interesting things to do indoors now than going out and nicking things…As our lives move from meatspace [i.e., the physical world] to cyberspace, the opportunity for violent crime and acquisitive crime change and reduce in the aggregate, and that's what I think has happened" (cf. McKnight, 2015).*

Since publishing our article, various reports in both print and broadcast media have provided some credence to our hypothesis. For instance, earlier this year, the BBC's flagship science

programme *Horizon* featured an episode on the effects of video gaming, particularly in relation to violent video games and video game addiction. In one segment of the programme, Dr. Christopher Ferguson (Stetson University, US) noted that:

"When very popular violent videogames are released in society there is almost an immediate decline in youth violence in society…typically the way we think about this is in terms [of] Routine Activities Theory [which] suggests that if you take a group of individuals that are already highly prone to aggression [and] you give them something else to do, then by sheer fact that their time is occupied that takes them away from scenarios in which they are likely to engage in violence or aggression or bullying, or things like that".

A recent American study by Markey, Markey and French (2015) confirmed this assertion. Their study investigated the associations between violent crime (i.e., homicides and aggravated assaults), video game sales, Internet keyword searches for violent video game guides, and the release dates of popular violent video games (both annually and monthly). They found no evidence suggesting that the playing of violent videogames was positively related to real-world violence in the US. In fact, the results were mainly suggestive of a decrease in violent crime in response to violent video games. Obviously these studies show correlation not causation, but the results again suggest that one explanation might be the Crime Substitution Hypothesis.

The Canadian magazine *Maclean's* also had an in-depth feature on the issue (i.e., 'The real reason crime is falling so fast: How social media obsession, smartphone addiction, and even violent video games are, surprisingly, making us safer'). In that article, McKight reported that:

"Since 1991, both violent and non-violent Criminal Code offences have been falling. [In July 2015], Statistics Canada released figures showing that crime rates continued their decades-long decline. Last year, the overall crime rate, as measured by the number of incidents reported to police per 100,000 people, hit a low not seen since 1969. Most of the focus is on the top line number. But it's only when the statistics are broken down by age group that the most powerful and dramatic underlying trend becomes apparent: Canada is fast becoming a safer place, largely because huge numbers of those aged 18 to 24, the slice of the population historically responsible for the largest share of crimes in the country, are staying on the right side of the law… Over the five-year period between 2009 and 2013, the latest year for which numbers are available, charges laid for robbery, motor vehicle theft, aggravated assault and breaking and entering among those aged 18 to 24 dropped by between 23 and 31 per cent, while the charges stemming from the most serious crime, homicide, were down 29 per cent".

We are the first to admit that the hypothesis is speculative and correlational and it requires much empirical research to confirm, but it has good face validity (i.e., it rings true). There is now a lot of scientific evidence that many teenagers and young adults have an almost habitual need to engage in online screen-based activities (Billieux, Maurage, Lopez-Fernandez, Kuss & Griffiths, 2015; Griffiths, 2014; Kuss, Griffiths, Karila & Billieux, 2014).

Leisure time and crime

The bottom line is if young people are so engaged in social media or online gaming, they cannot physically do two activities at one time. If there are millions in a particular country playing online, particularly during their leisure time, this is a time they cannot possibly be engaged in crime also. Given this, the hypothesis may have implications for other behaviours beyond street crime. The rising prevalence rates of habitual and excessive technology use also appear to correlate with a drop in other undesirable behaviours such as smoking, gambling, drug use, risky sex (and fewer pregnancies), and violent crime.

A study by Klick, MacDonald and Stratmann (2012) examined the correlational relationship between mobile phone use and crime deterrence in the USA. They used the available mobile phone data to show that there was a strongly negative association between mobile phone use and violent crimes (but as with the study by Markey et al. [2015] could not demonstrate causation).

They suggested that the growth of mobile phone technology may have contributed to the general crime drop, specifically reducing the incidence of rapes and assaults. Their reasoning was that bystanders with mobile phones can easily record criminal attacks as they are taking place and are therefore a deterrent for such crime taking place in the first place. Correlational research is relatively easy and inexpensive to do given that doing any longitudinal research is extremely expensive. For example, here are three hypothetical longitudinal studies that could be carried out to test the hypothesis that increased technology use inhibits crime:

Study 1: One study would be to carry out a natural experiment and compare the subsequent criminal behaviour of two groups leaving young offenders' institutions. One group could be

provided with access to all the latest video games, cable television, and mobile devices, etc. and be compared them with a group given no extra technology access (i.e., a matched control group design). If the crime substitution hypothesis is true, we would expect the young offenders given, and taking up, the most access to technology, and those in the control group who obtained similar levels on their own, to commit the least crime.

Study 2: Given that a number of studies have identified childhood predictors at school that are associated with later delinquent crime (Farrington & Coid, 2004), a second prospective study could examine whether or not screen-time is a significant explanatory variable for future offending by following a large child cohort over time. If the Crime Substitution Hypothesis is true, we would expect that increased screen time would be a predictor of non-offending future behaviour.

Study 3: Perhaps the simplest study would be a longitudinal survey study examining technology use and criminal behaviour of a child and adolescent cohort over time. If the Crime Substitution Hypothesis is true, we would expect increased screen time to be inversely correlated with criminal behaviour.

Any parent or teacher will have observed first-hand the social and behavioural changes that have taken place among the most digitally connected generation ever. While there is a wealth of research highlighting both the positives and negatives of technological advance (e.g., Griffiths & Kuss, 2015; Griffiths, Kuss & Ortiz de Gortari, 2013), there has been relatively little research examining the potentially positive effects that screen time engagement may have on criminal behaviour in youth. This is clearly an area of criminology research that is in its infancy, but in years to come, it may show that our technologically dependent culture is keeping us safer than we first imagined.

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