

LJ Sept Safety

Running head: Lighting and safety at night

Head: SAFE AS STREETS?

Standfirst: The tragic murders of Sarah Everard and sisters Bibaa Henry and Nicole Smallman have reignited longstanding debates around the relationship between street lighting and safety at night, especially for women. At the ILP's AGM, academics Dr Jemima Unwin and Professor Peter Raynham outlined their latest research in this area and discussed where the conversation within the lighting community may need to go next

By Dr Jemima Unwin and Professor Peter Raynham

Tolu, various figures and graphics attached, and marked in the body copy. You might also want some sort of hero image, open to suggestions but maybe, or similar:

<https://www.shutterstock.com/image-photo/blurred-image-people-walking-on-street-527192245>
<https://www.shutterstock.com/image-photo/blurred-image-people-walking-on-street-1710229237>
<https://www.shutterstock.com/image-photo/young-businesswoman-pressing-yellow-crosswalk-button-614963900>

Sarah Everard

<https://www.shutterstock.com/image-photo/cardiff-uk-march-22nd-2021-memorial-1941069574>
<https://www.shutterstock.com/image-photo/cardiff-uk-march-22nd-2021-memorial-1941069592>
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Possible display quote if helpful

'Seventy-seven people were invited to streets in Sheffield during the day and at night to rate safety on a six-point scale. The results showed that the lighting characteristics that appear to matter most were vertical illuminance and the length of dark patches in the environment.'

Start

Recent tragic murders, such as that of sisters Bibaa Henry and Nicole Smallman and Sarah Everard, have amplified calls for safer streets and for outdoor spaces to be designed more with the needs of women in mind.

Yet, for lighting professionals, a key part of this discussion is the fact it is not clear if different environmental conditions could have put the murderers off.

In this article, therefore, we make a tentative step towards answering this question by sharing findings of our research into this complex, difficult, and important field. This article is built from a presentation we gave to members at the ILP's virtual annual general meeting in June (and you can read more about the AGM from page 58 of this edition).

Our aim is to highlight nuances that need to be understood and addressed for research to tackle the issue of whether environmental features such as street lighting can help create safer streets.

The definition of terms is as important as ever. *Perceived* safety is different to *actual* safety from attack or any other form of injury. This perhaps the most complex part the story; the relationship

between actual safety and perceived safety, which in turns plays a role in determining if someone choses to use the streets at night.

SURVEY TO GAUGE SAFETY AT NIGHT

To illustrate the nature of the relationships involved we are using data from a survey that interviewed over 3,000 people. We found that about 6% had been the victim of a crime in the area, over 31% felt unsafe using the area at night and 40% chose not to use the area at night.

As we had a large sample responding to this survey, it was also possible to do some demographic analysis of people's responses. It should be pointed out, however, that surveys like this can have problems with reliability and repeatability; however the results, we feel, do give a guide to some factors associated with safety and perceived safety.

Figure 1. The image on the left shows a breakdown of the people who had been victims of crime in the area. The image on the right shows the fraction of the population who will not come to the area at night

Figure 1 above shows the percentages of people who have been victims of crime in the area (on the left) and who do not use the area (on the right). It can be seen that most victims of crime seem to be young and it is mostly men, whereas the people who do not use the area at night tend to be older.

Women are less likely come to the area at night than men. There are a number of possible explanations as to why fears about safety lead people to not use an area at night. These range from the potential harm that may come from being a victim of crime to a person's psychological outlook. There is also the issue that many of the venues that attract people at night are designed to attract young people. It is difficult to generalise in this area, as every person who chooses not to go out at night does so for their own set of reasons.

Another factor is the extent to which media reports affect how fearful we are. The below headline in the local paper (figure 2) could well have contributed to an increase in fear post lighting installation in the above study.

It doesn't matter whether the fears are well-founded or not, they are certain to affect perceived safety. The way publicity develops around particular horrific incidents is also a key factor in perceptions of safety.

THE MEDIA AND PERCEIVED SAFETY

The very brutal murders of Bibaa Henry and Nicole Smallman in a dark park created relatively little publicity and what publicity there was did not tie the crime to the darkness and thus had limited impact on the perception of safety at night.

However, the abduction and subsequent murder of Sarah Everard from a well-lit street attracted much more media attention and made many people across the UK think twice when walking outside after dark.

Thus, it is the way events are presented and perceived that determines how people feel about safety and not a detailed analysis of the actual risks. It could be argued that some level of worry about using the streets at night is useful, as precautions are sensible and we would not want well-lit streets to stop people from taking sensible precautions as precautions reduce and mitigate risks.

Figure 2. Headlines that may affect survey responses regardless of lighting.

That said, feeling safe, or reassured increases the chance that we go out and use our environment after dark and this has a knock-on positive effect on the physical and economic health of the nation.

As we walk and cycle outside, we exercise and spend more money in local shops. Therefore, even though 'perceived safety' or 'reassurance' should be differentiated from 'safety from crime or accident', it is still important as it affects our behaviour.

Our next two studies explored this by using interviews and surveys to get to grips with, firstly, the whole context of perceived safety, including but not limited to lighting. Then, secondly, we wanted to study perceptions in environments where lighting does matter; what is it about the lighting that seems to affect judgements of safety?

It may sound too obvious, however the most simple tried-and-tested method of finding out what matters to people is to let them talk and listen. The aim of the first study was to do just this by interviewing people in a way that avoided putting words into their mouths.

For example, if you ask participants whether 'street lighting makes them feel safer', they will usually answer 'yes'. This is possibly because of 'socially desirable responding', which refers to our tendency to want to help researchers by saying what we think they want to hear.

Perhaps might also respond in a certain way because they'd like their local authority to spend more money on street lighting in an area. At the same time as answering 'yes', local street lighting changes often go completely unnoticed and lighting conditions may rarely deter us from walking to the local pub, for example.

REASONS FOR REASSURANCE

Our study invited people to take photographs of streets on which they were happy to walk alone at night, and also those which they avoided and then attend a short interview to talk about the places they had photographed.

Examples of the photographs can be seen in Figure 3. Interview transcripts revealed that for only one place out of 212 was lighting the only factor influencing people's choices.

The most common reasons (for 92 % of participants) given for participant's reassurance were combinations of (1) access to people who would help them if they got into trouble; (2) presence of street lighting; (3) spatial features such as wide and open streets with a good view ahead and (4) familiarity with the area.

In reassuring areas, 64% of people combined lighting with other factors. Participants (76%) avoided streets due to combinations of (1) the presence of people who could pose a threat; (2) lack of access to help; (3) not enough lighting and (4) spatial features such as narrow alleys and blocked views. 62% of people combined lighting with other factors in areas which were avoided.

What this the interview study demonstrated was that lighting *did* matter to people, alongside many interlocking factors, particularly 'guardianship'. This means the role of informal surveillance or 'Eyes on the Street', a term coined by Jane Jacobs as a means of expressing the role of strangers as safety assets on the streets after dark [1].

Figure 3. This shows examples of photographs provided by participants in our study

Having established that lighting matters to people's route-taking choices and their reassurance on streets at night, then what is it about the lighting that is important?

It is really difficult to answer this question by comparing different environments with so many extraneous variables at play. Peter Boyce and his team made a really good attempt by using a ‘day minus night’ (D-N) safety rating [2]. In this, the night safety rating is deducted from the day safety rating to give a value that helps us understand the impact of lighting conditions on a street.

If there’s no change in D-N safety rating, then the change in lighting conditions has no effect on perceived safety. If the number is positive, the street is seen to be safer in the day than at night. The higher this value, the likely higher contribution of lighting to the change in perception.

The D-N safety rating can then be plotted against various lighting metrics in search of correlations. Whilst correlation does not of course mean causation, the patterns revealed by this process can indicate what lighting characteristics might be important.

IMPORTANCE OF VERTICAL ILLUMINANCE

Using this method, 77 people were invited to streets in Sheffield during the day and at night to rate safety on a six-point scale. Plans of the streets can be found in figure 4. The results showed that the lighting characteristics that appear to matter most were vertical illuminance and the length of dark patches in the environment.

Vertical illuminance is important in the environment, as objects of interest are invariably vertical, be that buildings that define our spatial envelope and present options for escape and refuge or other people, who we are keen to scope out and gauge, especially in terms of perceived threat or safety.

The length of dark patches also seemed to matter, as the D-N safety rating was highest on streets with dark patches of less than 1 lux for more than 10 metres. It is, of course, speculation but this could be linked to our primordial fear of what could be hiding in the dark.

In essence, it is not what we see but what we *can’t* see, and therefore imagine could be lurking there. This ties into the ideas of a researcher called Mark Warr who suggested that the world turns into ‘lurk lines’ after dark [3]. These “lurk lines” turned out to be horrifying reality for Bibaa, Nicole and Sarah.

Figure 4. This shows examples of the streets used in our study

CONCLUSION

Precise formulas for lighting for safety and perceived safety are futile when good lighting design is highly context dependent.

Following lighting guides and standards is a safe bet but will not necessarily create a design that creates a feeling of safety.

It is therefore always a good idea to consider a lighting design in terms of the way it meet a user’s needs in terms of providing light for movement, orientation comfort and reassurance.

The work described in this article provides pointers – no more than that – towards what could be worth exploring further.

However, if you would like any more information or would even like to collaborate with future research, then please do feel free to get in touch by email, to: jemima.unwin@ucl.ac.uk and p.raynham@ucl.ac.uk

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Panel

WHAT SOME STUDY PARTICIPANTS SAID

‘It’s dark; there is never anybody around there; it has steep steps which are old and dangerous’ (referring to Baker’s Hill, Hackney, east London)

‘Wide road, has bus routes, better class’ (referring to Crimicar Lane, Sheffield)

References

[1] Jacobs J (1961). ‘The Death and Life of Great American Cities’. London, Jonathan Cape.

[2] Boyce P R, Eklund N H, Hamilton B J, and Bruno L D (2000). ‘Perceptions of safety at night in different lighting conditions’. *Lighting Research & Technology*, 2000; 32; pp.79-91.

[3] Warr M (1985). ‘Fear of Rape Among Urban Women’. *Social Problems* 32: pp.238-250; Warr M (1990). ‘Dangerous Situations: Social Context and Fear of Victimisation’. *Social Forces* 68: pp.891-907.

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