

Affordances for Drinking Alcohol: A Non-Participant Observation Study in Licensed Premises

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Abstract

Alcohol misuse is a pressing area of public health concern. This non-participant observational study investigated the functional characteristics of on-licensed premises where alcohol is consumed. Seven different licensed premises from South Central England were visited and observed for similar three hour periods on Saturday evenings. Observations within these ecological niches were grouped using a functional taxonomy of affordances and effectivities related to alcohol drinking. Affordances provided a theoretically grounded and useful concept for evaluating how individuals behave in drinking contexts, while identifying action opportunities for inhibiting and promoting consumption. Identified alcohol-related affordances were related to: alcohol access, regulations, furnishing, alternative opportunities for action, décor and lighting; drink and accessory availability, and action opportunities provided by others. This research has implications for understanding alcohol consumption in real-time, social environments, with direct implications for preventing excessive consumption within community alcohol outlets.

Keywords: Context, social, alcohol, applied, affordances.

1. Introduction

Alcohol misuse is one of the world's leading causes of poor health, disability and premature death and, in recent years, has become a public health concern ([P. Anderson, Møller, & Galea, 2012](#); [Faculty of Public Health, 2008](#); [Office for National Statistics, 2014](#); [World Health Organisation, 2014](#)). Excessive alcohol consumption not only impacts the wider public health, but localised violence, crime and public disorder related to the nightlife economy has a widespread impact on local communities ([P. Anderson, 2012](#); [Cabinet Office, 2003, 2004](#); [Health and Social Care Information Centre, 2013](#); [Room & Rossow, 2001](#)). The Licensing Act (2003) was put in place to protect communities from public nuisance, crime, disorder and to increase public safety. However, despite assuring community involvement in licensing decisions, a recent review suggests that the Act favours licensing professionals over local communities ([Foster, 2016](#)).

A number of social cognition models are used as a basis for research into drinking behaviour, with a view to preventing alcohol misuse. For example, approaches such as The Theory of Reasoned Action and Planned Behaviour ([Ajzen & Fishbein, 1980](#)) often consider intentions as a primary mediator of behaviour. Unfortunately, not only are many of these social cognition models relatively poor predictors of actual behaviour ([Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008](#); [Vlaev & Dolan, 2009](#); [Webb & Sheeran, 2006](#)), none of these models are theoretically coherent regarding the role played by complex environmental or ecological factors within night time economies ([K. M. Hill, Foxcroft, & Pilling, 2017](#); [K.M. Hill, Pilling, & Foxcroft, 2017](#)). As both the individual and the environment are equally involved in producing behaviour, researchers should take a more relational approach to understanding and preventing alcohol misuse.

Cavan's ([1966](#)) ethnography of bar behaviour was one of the first studies to explore the meaning of complex, social spaces where alcohol is consumed. Since then, research has associated various contextual features with increased or problematic alcohol consumption ([Homel & Clark, 1994](#); [Hughes et al., 2012](#); [Hughes et al., 2011](#); [Kilfoyle & Bellis, 1998](#); [Miller, Furr-Holden, Voas, & Bright, 2005](#); [Nusbaumer & Reiling, 2003](#); [Stockwell, Lang, & Rydon, 1993](#); [Stockwell et al., 1992](#)). For example, the geo-spatial distribution, concentration of alcohol establishments, serving practices and crowding have all been found to be important determinants of excessive consumption and alcohol-related harm ([Doherty & Roche, 2003](#); [Gruenewald, 2011](#); [Livingston, 2011](#); [Toomey et al., 2012](#); [Wagenaar, Toomey, & Lenk, 2005](#)). This has wider implications as alcohol outlets are often clustered in deprived areas, which further reduces already limited public facilities and services ([Shortt et al., 2015](#)). More research is required in this area, because existing evidence remains limited or contradictory regarding the influence of environmental determinants on alcoholic drinking behaviour ([P. Anderson & Baumberg, 2006](#); [P. Anderson, Chisholm, & Fuhr, 2009](#); [Hughes et al., 2011](#); [Mistral, Velleman, Templeton, & Mastache, 2006](#)).

Instead of describing behaviour as predominantly determined by cognitive mediators, in terms of the activation of mental scripts and schemas, Gibson's ecological theory ([1966](#), [1979](#)) suggests that our environments directly specify actions that can be carried out within them. Instead of activating a representation, this suggests that real-time, function-based information about an environment is readily available and held in place at the interdependence of an individual and their environment. Therefore, through perceiving and navigating the world, individuals are provided with this uniquely specifying and meaningful information about the behaviours that they are able to carry out ([Gibson, 1966](#); [Michaels & Carello, 1981](#)). This is because these action opportunities, otherwise known as *affordances*, are complemented by

effectivities, which are the capabilities of organisms to carry out certain behaviours when contexts have sufficient occurrent properties for the behaviour ([Turvey, Shaw, Reed, & Mace, 1981](#)).

Gibson ([1966, 1979](#)) insisted that the affordance construct incorporates the social domain, but most affordance work focuses on simple perception-action relations involving single individuals ([Costall, 1995](#)). Separating affordances from the social is difficult, because organisms have been transformed by social influence over time and environments are full of products of human intervention ([Costall, 1995; Heft, 1989](#)). For example, when an individual speaks to another individual, that individual becomes part of that organism's perception-action system, by extending the body's opportunities for action in the same way that picking up a tool would ([Gaver, 1996](#)). This makes affordances unique, because they illustrate the functional nature of certain environments for action, but also because they are embedded in symbolic social systems and have meaning for individuals or groups ([Heft, 1988](#)).

Affordances are involved in dynamic, real-time social activities and contribute to the necessary conditions for certain social behaviours ([Heft, 2003](#)). Through direct contact with the world and those within it, individuals detect the conventional and normative function of objects in certain contexts and when these *canonical* affordances should be taken up ([Costall, 1995; Heft, 2003](#)). For example, objects may have many uses, but there are only a limited number of ways they can be used, based on their widely agreed use-meanings within the wider social and cultural context ([Costall, 2012](#)). The idea that behaviour is both constrained and extended by the physical and social environment provides an alternative starting point for understanding real-time behaviours occurring within these complex networks of individual-environment relations, otherwise known as *ecological niches* ([Gibson, 1979; Good, 2007](#)).

Affordances have been used to provide rich and meaningful function-based descriptions of children's play environments ([Heft, 1988](#)) and have been found to reveal predictable social action for activities such as chair rocking, walking, running and plank lifting ([M. L. Anderson, Richardson, & Chemero, 2012](#); [Marsh, Johnston, Richardson, & Schmidt, 2009](#); [Marsh, Richardson, Baron, & Schmidt, 2006](#); [Marsh, Richardson, & Schmidt, 2009](#)). Few studies have used affordances to provide rich, functional descriptions of more complex, real-world behaviours, but some conceptual work has suggested they can be applied to more complex contexts ([Rietveld & Kiverstein, 2014](#)). Therefore, the current study aimed to use the affordance construct to identify the functional characteristics of real-world environments where excessive alcohol consumption occurs, with a view to informing prevention approaches for these types of health-risk behaviours.

2. Method

A non-participant observation design was used to assess the functional characteristics of drinking environments in terms of their potential affordances for action. Seven licensed premises from four different counties in South Central England were visited for similar three hour periods on Saturday evenings, dependent on opening hours (e.g. 9pm-12pm, or 10pm-1am). The observational periods were designed to be long enough and at similar times to allow establishments to be compared. Premises included one countryside public house, one town public house, a wine bar, a sports bar, two nightclubs and a resort holding an adult only weekend. A broad range of different public drinking establishments were chosen for their contextual variability, ease of access and also to reflect the different types of drinking environments available within UK communities. This allowed the researcher to act as a cultural informant and compare observations within contrasting settings.

The investigator entered establishments with a chaperone and both walked straight to the bar upon entering. To ensure the researcher observed different types of drinking practices and behaviours, the investigator ordered a soft drink or water, while the chaperone ordered an alcoholic drink separately. Within each premise, the investigator assessed whether it was possible to record observational notes using either a notepad or a tablet device within the premise or in the restroom, as it was anticipated that this would minimise reactivity. For example, if patrons were influenced by the researcher's presence they may have inadvertently behaved differently, or responded to being observed. During each three hour observational period, the researcher systematically walked around aspects of the interior and exterior of each establishment to observe and make notes specifically about the apparent relationship between aspects of the environment and observed drinking behaviour.

An observational protocol was developed and used within the study, which allowed the researcher to spend equal amounts of time observing specific aspects of each establishment related to: general establishment and patron characteristics; external entrance-level affordances and behaviour; internal bar-level affordances and behaviour; internal environmental-level affordances and behaviour; promotional-level affordances and behaviour; and entertainment-level affordances and behaviour. By observing specific aspects of a broad range of premises and continuing to collect data until no new data arose, the researcher was able to collect data and contrast the layout of affordances in different settings until a saturation point had been reached. This ensured that the investigator did not attend to individuals, nor specific features of these environments based on their own pre-conceptions. Instead, the researcher took time to obtain a complete, overall impression of the real-time individual-environment transactions which appeared to constrain or extend drinking opportunities in each context.

Immediately after leaving each establishment, the investigator produced both a form and function based map of the establishment, based on sketches made during the observational period. Observational notes were collated on a coding sheet and extended to form an initial, detailed ethnographic report. This allowed the researcher to summarise the observational data for a number of establishments and compare different features within them. Once these were completed, the researcher identified a sub-set of canonical affordances that were observed to have an impact on drinking behaviour, by removing any non-consumption related observations.

Consumption-related affordances were then thematically categorised using Heft's (1988) framework for classifying and coding environmental observations of affordances in terms of function. This meant that occurrences from each establishment were collated and those which shared the same affordance, or opportunity for action, were grouped together. For example, lighting, alcohol advertising, promotions and décor were occurrences which were grouped together because they were all *view-able*. For consistency, the terminology and language used in the analysis purposely reflected that specified in previous research by Turvey et al. (1981). As in this earlier work, affordances were always linked to *effectivities* when they were coded. This meant that the capabilities of patrons to carry out certain behaviours, given the availability of certain environmental occurrences, were also categorised. This allowed the researcher to construct a functional taxonomy of alcohol-related affordances relevant to each observed context.

Electronic copies of the observational protocol, data, reports and analysis; as well as the visual maps have been stored in Figshare, a secure public repository, for up to 10 years after publication: (<https://doi.org/10.6084/m9.figshare.5777646.v1>). Whilst this information has been anonymised, due to the in-depth, qualitative and sensitive nature of the research, including

the identification and illustration of specific properties of alcogenic environments, these materials are not publicly accessible.

This research went through a comprehensive ethical process which considered all legal and related aspects of non-participant observational research. The current study was approved by Oxford Brookes University Research Ethics Committee (REC No: 120602).

3. Results

Tables 1 and 2 set out a functional taxonomy of licensed premises and affordances coded as relevant to promoting and inhibiting consumption, respectively. Within these tables, the affordance is listed first, followed by the effectivity and then the occurrence. These are not mutually exclusive, as an occurrence can have multiple affordances and effectivities, but only those relevant to alcohol consumption have been coded and included.

[Insert Table 1 here]

[Insert Table 2 here]

Access-ability:

Premises in close proximity to one another with longer opening hours, limited queues, large service counters with many serving staff and few waiting patrons afforded access to alcohol. Premises in town centre venues provided easier access, but crowds of patrons congregating outside these venues appeared to contribute to anti-social issues and impeded street access for other members of the public. The opportunity to effect drinking was impaired when intoxicated patrons were prevented entry, or when long queues, drinks or payment restrictions prevented alcohol access. For example, many patrons were observed to purchase more drinks than

required to meet minimum spend limits for card payments, conditions to sit in a booth or to avoid queuing again.

Most premises were designed to direct the flow of customers to the bar area immediately upon entry. Accessible bars had no physical barriers, few waiting patrons and a functional, ergonomic design allowing patrons to be served quickly. The resort and nightclubs had higher numbers of exterior security staff, poor bar access and more apparent antisocial behaviour (e.g. shouting or fighting patrons). As these were open later, many patrons appeared to have engaged in pre-drinking behaviour at other premises or at home. Some regulations also appeared to increase drinking rates, as patrons were observed to finish drinks quickly before entering outside smoking areas or dance floors which prohibited drinks.

Communicate-ability/ Listen-to-ability

The existence of other patrons extended the individual-environment relationship, by providing individuals with opportunities to partake in drinking games, consume shared drinks, or join in on drinking 'rounds'. Other individuals appeared to both embody normative behaviour in these environments and reinforce the drinking behaviour of others. Communicating with others also influenced what individuals purchased and consumed. For example, through upselling or drinks recommendations from peers. However, communicating could only be effected when there were no loud entertainment features which prevented individuals from picking up spoken information. Premises with loud music were busier, possibly more popular and led patrons to communicate using other non-verbal forms of communication, such as hand gestures. When communication was restrained in this way, patrons may have replaced communicating with consuming alcohol and subsequently drank more.

The verbal behaviour of bar staff also appeared to extend the individual-environment relationship, by restricting the availability of action opportunities that could be taken up. *Upselling techniques* were used by bar staff in most establishments and included communicating alcoholic drinks recommendations, increased measures, or multiple drinks for a discounted price. Patrons often took up these action opportunities, particularly if they were unsure of what to order. Some members of staff responded negatively to the researcher's request for a soft drink, for example by stating "would you like some vodka with that?", or a "proper drink?" Some recommended alcoholic beverages that were cheaper than soft drinks, or appeared to take their time to fulfil water requests, by serving other customers before leaving the main bar area to retrieve a glass of water. Some safe bar practices were observed in one premise, as the bar staff complimented the researcher's soft drink order and refused to serve other patrons large quantities or multiples of high alcohol content drinks in one serving.

Consume-ability

Food availability could promote consumption by attracting patrons into premises and increasing the time spent within them. However, alcohol consumption rates appeared slower when patrons consumed food, particularly when cutlery had to be utilised with both hands. Unlike alcohol, food was often available for a limited time only, which provided restricted opportunities for effecting eating. Patrons could also only consume food when tables were available, unoccupied and were large enough to place food and drink condiments. Where food was purchased was also important, as when table service was unavailable and food had to be purchased at the bar, patrons were observed to purchase drinks with their meal.

Grasp-ability and Put-on-ability

Patrons sought out putting opportunities in furnished premises, particularly when taking up other action opportunities, such as dancing or playing games, but always ensured close proximity to beverages when doing so. Within unfurnished *vertical drinking establishments*, patrons were forced to stand, grasp drinks and discarded containers were often found on the floor. When putting could not be effected, patrons may have finished drinks quickly and have engaged in more frequent sipping behaviour. Cheap alcohol availability, particularly in nightclubs, meant patrons often purchased multiple drinks at once. However, individuals purchasing multiples of drinks were observed to consume some of these drinks very quickly, possibly due to the difficulty of grasping many drinks at once.

Compared to non-alcoholic beverages, alcoholic beverages tended to be served in novel and attractive containers, which may have made patrons more inclined to grasp them. In many premises, there were also limited opportunities to grasp smaller drinks measures, often due to limited container availability. In some premises, the researcher observed half pints being served in pint glasses which, in some cases, led patrons to change their drink type, or increase the size of their drink. Few premises had a wide range of small, medium or large drinks containers or measures.

Play-ability

In unfurnished *vertical drinking establishments*, there appeared to be limited alternative opportunities for action, so drinking appeared to be an end in itself. These premises also tended to be smoky, unkempt and hot, with many patrons in close proximity to one another. In contrast, consuming alcohol was not the sole action opportunity in premises with other opportunities for action. For example, patrons could only effect playing games when hands were unoccupied.

When putting could not be effected on tables or drinks holders, patrons appeared to finish drinks quickly to play, or played games with one hand. While some patrons were observed to use their change from buying drinks to spend on games, playing was coded as generally inhibiting consumption, by providing another action opportunity.

Sit-on-ability

Figures 1 and 2 provide examples of the visual maps from two contrasting licensed premises; a town public house and a nightclub. Furnished premises, as seen in Figure 1, had available seating and tables which, when unoccupied, afforded sitting. In so-called *vertical drinking establishments*, as seen in Figure 2, furniture was limited and often occupied. These environments did not support the canonical affordance provided by seating which allowed individuals to sit down. Patrons who had no opportunity to sit were observed to stand and drink. When opportunities for action were limited in this way, patrons had to find new uses for familiar objects. For example, individuals were observed to act on non-canonical affordances by seeking out alternative flat surfaces of a certain size to sit, lean or stand upon, which included sitting on the floor, staircases and even the bar area.

[Insert Figure 1 here]

[Insert Figure 2 here]

View-ability/ Purchase-ability

Although televised entertainment features might have attracted patrons into premises, drinking rates slowed when viewing these, as drinks were often put down. In contrast, alcohol-related images were always view-able, particularly around well-lit bar areas. Many establishments had a large number of high alcohol content drinks only on display, with limited or no soft drinks.

This may have influenced drinks choices, as many patrons ordered what they could view. Point-of-sale promotions appeared to influence patron behaviour and reinforce excessive alcohol consumption as a normative behaviour. For example, patrons often ordered items from colourful posters, which included content such as “Xtreme; glamorous; 2-4-1; great value” and young, attractive models. Additionally, promotions for multiple alcoholic drinks, or high alcohol content pitchers and fishbowls were rarely advertised as sharing drinks. While pictures of alcohol might not directly constitute affordances for action themselves, they could further promote the opportunity to take up these types alcohol-related affordances and increase alcohol consumption more generally. Alcohol warning labels were often smaller and present next to permanently displayed alcohol promoting material and exposure to these alcohol images was extremely prevalent in all premises. These may have also been present during the daytime because, in some premises, cocktail menus were situated next to children’s food menus which remained on tables during the evening.

4. Discussion

This non-participant observation study identified alcohol-related affordances related to: alcohol access, regulations, furnishing, alternative opportunities for action, décor and lighting; drink and accessory availability, and action opportunities provided by others. Many of these identified features have been associated with increased, problematic consumption and alcohol-related harm within previous research (e.g. [Doherty & Roche, 2003](#); [Gruenewald, 2011](#); [Homel & Clark, 1994](#); [Hughes et al., 2012](#); [Hughes et al., 2011](#); [Kilfoyle & Bellis, 1998](#); [Livingston, 2011](#); [Miller et al., 2005](#); [Nusbaumer & Reiling, 2003](#); [Stockwell et al., 1993](#); [Stockwell et al., 1992](#); [Toomey et al., 2012](#); [Wagenaar et al., 2005](#)). These findings further support the idea that contextual features may largely determine alcohol consumption, which could help address

some of the limitations of dominant social cognition models which focus solely on cognitive determinants of behaviour when looking to prevent alcohol misuse (e.g. [Gerrard et al., 2008](#); [Vlaev & Dolan, 2009](#); [Webb & Sheeran, 2006](#)).

Taking an ecological approach (e.g. [Gibson, 1966, 1979](#); [Turvey et al., 1981](#)) allowed the researcher to develop meaningful functional descriptions of drinking environments from observations of affordances and effectivities within contrasting settings. This theoretically-based approach helped to emphasise the features of these environments in relation to those using it, instead of independent of those using it ([Costall, 1995](#); [Heft, 1989, 2003](#)). Affordances were coded from descriptions of occurrences and behaviour, as has been done in previous research within children's play environments (e.g. [Heft, 1988](#)). This confirmed, albeit indirectly, that certain occurrences may have led to the taking up of certain types of behaviours. It also helped to explain how individual drinking behaviour may be influenced by the presence of others. For example, once an individual becomes embedded within the network of relations within their social environment, new affordances may manifest, which provides individuals with opportunities for action that were previously not available to them individually ([Gaver, 1996](#); [Heft, 2003](#)). The concept of canonical affordances illustrated which actions were and were not taken up, as well as the drinking norms which were embodied by patrons and shaped the behaviour of others sharing these social spaces ([Costall, 2012](#)).

This approach further suggests that behaviour is not predominantly determined by cognitive mediators, in terms of the activation of cognitive scripts and expectancies. By unifying perception, action and cognition and favouring a more related and unified, action-oriented approach ([Clark, 2013](#); [Kiverstein & Rietveld, 2012](#); [Rietveld, 2008](#)), looking at behaviour at the inter-dependency of individuals and their environments situates cognitive mediators

traditionally associated with alcoholic drinking behaviour within this dynamic relationship. As research in this area increases, further theoretical work will be required to consider what this means for existing work in this area and our understanding of the relationship between perception, action and cognition.

Relating observed occurrences to behaviour and determining the usefulness of the affordance approach remains difficult within complex real-time environments, because many factors cannot be controlled. While many challenges remain, the affordance construct provides a useful framework to understand complex ecological niches ([Rietveld & Kiverstein, 2014](#)). Although positioned outside of participant-environment transactions, within this research, the researcher remained a valid contextual informant and was able to use their perceptions and experiences to record and interpret their observations. This subjective perspective underpinned the recording and interpretation of observed affordances, but may have been subject to confirmatory biases. Having a structured observational protocol and continuing to observe until no new data arose minimised this risk, but in the future, a number of different assessors could be used to observe alcohol-related affordances, which would provide an inter-rater reliability estimate on the observational categories. Due to limited resources and ethics committee restrictions, premises were not observed at different phases of an evening. It was also thought that repeated visits may have drawn attention to the researcher and might have altered patron behaviour.

While the methods used in this study are highly replicable, the findings are interpretive, as is the nature of qualitative research. Therefore, the current findings may have limited generalisability because they focus on a select number of drinking contexts in South Central England. However, these findings will directly inform our future research, which looks to investigate drinkers' own accounts of affordances within their drinking environments.

Identified features from this study could also inform recommendations for the prevention of risky alcohol consumption, violence, crime and public disorder within local communities. For example, limiting or regulating the number of vertical drinking establishments in one geographical area; introducing a standing to seating ratio; incorporating drinks holders and safe shelving to put drinks down safely; and restricting the number of high content alcoholic drinks per customer are some of the ways that could prevent heavier or riskier alcohol consumption. Additionally, stocking sufficient numbers of smaller drinks containers; monitoring point-of-sale advertisements; prohibiting access for intoxicated individuals; removing minimum spend limits for booths or card payments; introducing water dispensing machines; monitoring the number of patrons queuing at the bar or outside; as well as restricting alcohol on the dance floor and by the bar might also constrain opportunities for consumption.

Furthermore, ensuring other opportunities for action are available than drinking; introducing table service; training staff to use sales techniques responsibly and to be impartial to patrons' orders ensures that the presence of others do not promote consumption opportunities. It is recommended that local authorities engage with the 2003 Licensing Act, as well as some of these recommendations, in order to focus on health objectives and create safer, sustainable night time economies. These recommendations not only have implications for addressing alcohol-related issues at the community-level, by informing local policy and regulations, but could potentially be transferable to other types of alcohol outlets, such as off-sales premises within local or more deprived communities.

5. Conclusion

In conclusion, the ecological approach provides a theoretically grounded and useful concept for understanding the network of action opportunities embedded within drinking environments,

which can be taken up and embodied by individuals within them. Utilising a function-based taxonomy also allows researchers to identify and categorise the canonical affordances of these social spaces, whilst providing direct implications for preventing maladaptive alcohol consumption within local communities. Drinking behaviour appears to be extended or restricted by an individual's relationship with their immediate environment and the actions available to them, which further highlights the importance of considering these relations. This is also important due to the apparent lack of alternative opportunities for action in drinking environments, which support a very narrow range of actions related to selling alcohol. Future work could potentially use affordances and effectivities to understand primary action opportunities and the functional significance of other health risk contexts, in order to reveal predictable and preventable social action.

References

- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Anderson, M. L., Richardson, M. J., & Chemero, A. (2012). Eroding the boundaries of cognition: implications of embodiment. *Topics in Cognitive Science*, 4(4), 717-730. doi: 10.1111/j.1756-8765.2012.01211.x
- Anderson, P. (2012). The Impact of alcohol on health. In P. Anderson, L. Møller, & G. Galea (Eds.), *Alcohol in the European Union consumption, harm and policy approaches* (pp. 5-9). Copenhagen, Denmark: WHO Europe.
- Anderson, P., & Baumberg, B. (2006). *Alcohol in Europe, A public health perspective: A report for the European Commission*. London: Institute of Alcohol Studies.
- Anderson, P., Chisholm, D., & Fuhr, D. C. (2009). Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol. *Lancet*, 373, 2234–2246.
- Anderson, P., Møller, L., & Galea, G. (2012). *Alcohol in the European Union: Consumption, harm and policy approaches*. Copenhagen, Denmark: WHO Europe.
- Cabinet Office. (2003). *Alcohol misuse: how much does it cost?* London: Prime Minister's Strategy Unit.
- Cabinet Office. (2004). *Alcohol harm reduction strategy for England*. London: Prime Minister's Strategy Unit.
- Cavan, S. (1966). *Liquor license: An ethnography of a bar*. Chicago: Aldine.
- Clark, A. (2013). Whatever next? Predictive brains, situated agents, and the future of cognitive science. *Behavioural and Brain Sciences*, 36, 181-253. doi: 10.1017/S0140525X12000477.

- Costall, A. (1995). Socializing affordances. *Theory and Psychology*, 5, 467-481. doi: 10.1177/0959354395054001.
- Costall, A. (2012). Canonical affordances in context. *Avant*, 3(2), 85-93.
- Doherty, S. J., & Roche, A. M. (2003). *Alcohol and licensed premises: best practice in policing. A monograph for police and policy makers*. Payneham, SA: Australasian Centre for Policing Research,.
- Faculty of Public Health. (2008). Alcohol and public health position statement. Retrieved 02/11/2016, from http://www.fph.org.uk/uploads/ps_alcohol.pdf
- Foster, J. (2016). The Licensing Act (2003): its uses and abuses 10 years on. Retrieved 02/07/2016, from <http://www.ias.org.uk/What-we-do/IAS-reports/Licensing-Act-2003-Its-uses-and-abuses-10-years-on-Documents.aspx>
- Gaver, W. W. (1996). Affordances for interaction: the social is material for design. *Ecological Psychology*, 8(2), 111-129. doi: 10.1207/s15326969eco0802_2.
- Gerrard, M., Gibbons, F. X., Houlihan, A. E., Stock, M. L., & Pomery, E. A. (2008). A dual-process approach to health risk decision making: The prototype willingness model. *Developmental Review*, 28, 29-61. doi: 10.1016/j.dr.2007.10.001.
- Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston: Houghton Mifflin.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston: Houghton Mifflin.
- Good, J. M. M. (2007). The affordances for Social Psychology of the ecological approach to social knowing. *Theory & Psychology*, 17(2), 265-295. doi: 10.1177/0959354307075046
- Gruenewald, P. J. (2011). Regulating availability: How access to alcohol affects drinking and problems in youth and adults. *Alcohol Research and Health*, 34(2), 248-256.

- Health and Social Care Information Centre. (2013). Statistics on alcohol: England - lifestyle statistics. Retrieved 02/04/2014, from <http://www.hscic.gov.uk/catalogue/PUB14184/alc-eng-2014-rep.pdf>
- Heft, H. (1988). Affordances of children's environments: A functional approach to environmental description. *Children's Environments Quarterly*, 5(3), 29-37.
- Heft, H. (1989). Affordances and the body: An intentional analysis of Gibson's ecological approach to visual perception. *Journal for the Theory of Social Behavior*, 19, 1-30. doi: DOI: 10.1111/j.1468-5914.1989.tb00133.x.
- Heft, H. (2003). Affordances, dynamic experience and the challenge of reification. *Ecological Psychology*, 15, 149-180. doi: 10.1207/S15326969ECO1502_4.
- Hill, K. M., Foxcroft, D. R., & Pilling, M. (2017). "Everything is telling you to drink": understanding the functional significance of alcogenic environments for young adult drinkers. *Addiction Research & Theory*, 1-8. doi: 10.1080/16066359.2017.1395022
- Hill, K. M., Pilling, M., & Foxcroft, D. R. (2017). Alcohol-related affordances and group subjectivities: A Q-Methodology study. *Drugs: Education, prevention and Policy*, 1-10. doi: 10.1080/09687637.2017.1284762
- Homel, R., & Clark, J. (1994). The prediction and prevention of violence in pubs and clubs. In R. Clark (Ed.), *Crime Prevention Studies* (Vol. 3, pp. 1-46). New York: Willow Tree Press.
- Hughes, K., Quigg, Z., Bellis, M. A., Calafat, A., van Hasselt, N., Kosir, M., . . . Juan, M. (2012). Drunk and disorganised: relationships between bar characteristics and customer intoxication in European drinking environments. *International Journal of Environmental Research in Public Health*, 9, 4068-4082. doi: 10.3390/ijerph9114068
- Hughes, K., Quigg, Z., Eckley, L., Bellis, M., Jones, L., Calafat, A., . . . van Hasselt, N. (2011). Environmental factors in drinking venues and alcohol-related harm: the evidence base for European intervention. *Addiction*, 106, 37-46. doi: 10.1111/j.1360-0443.2010.03316.x.

- Kilfoyle, M., & Bellis, M. A. (1998). The health of the clubbing nation. In M. Kilfoyle & M. A. Bellis (Eds.), *Club Health*. Liverpool: Molyneux associates.
- Kiverstein, J., & Rietveld, E. (2012). Dealing with Context through Action-Oriented Predictive Processing. *Frontiers in Psychology*, 3, 421. doi: 10.3389/fpsyg.2012.00421
- Livingston, M. (2011). Alcohol outlet density and harm: comparing the impacts on violence and chronic harms. *Drug and Alcohol Review*, 30(5), 515-523.
- Marsh, K. L., Johnston, L., Richardson, M. J., & Schmidt, R. C. (2009). Toward a radically embodied, embedded social psychology. *European Journal of Social Psychology*, 39(7), 1217-1225. doi: 10.1002/ejsp.666
- Marsh, K. L., Richardson, M. J., Baron, R. M., & Schmidt, R. C. (2006). Contrasting approaches to perceiving and acting with others. *Ecological Psychology*, 18, 1-37.
- Marsh, K. L., Richardson, M. J., & Schmidt, R. C. (2009). Social connection through joint action and interpersonal coordination. *Topics in Cognitive Science*, 1(2), 320-339. doi: 10.1111/j.1756-8765.2009.01022.x
- Michaels, C. F., & Carello, C. (1981). *Direct perception*. Englewood Cliffs, N. J.: Prentice-Hall.
- Miller, B. A., Furr-Holden, D. C., Voas, R. B., & Bright, K. (2005). Emerging adults' substance use and risky behaviors in club settings. *Journal of Drug Issues*, 35(2), 357-378.
- Mistral, W., Velleman, R., Templeton, L., & Mastache, C. (2006). Local action to prevent alcohol problems: Is the UK Community Alcohol Prevention Programme the best solution? *International Journal of Drug Policy*, 17(4), 278-284.
- Nusbaumer, M. R., & Reiling, D. M. (2003). Where problems and policy intersect: Servers, problem encounters and targeted policy. *Drugs: Education, prevention and Policy*, 10(21).

- Office for National Statistics. (2014). Alcohol-related deaths in the United Kingdom, registered in 2012. Retrieved 21/09/2015, from http://www.ons.gov.uk/ons/dcp171778_353201.pdf
- Rietveld, E. (2008). Situated normativity: The normative aspect of embodied cognition in unreflective action. *Mind*, 117(468), 973-1001. doi: 10.1093/mind/fzn050
- Rietveld, E., & Kiverstein, J. (2014). A rich landscape of affordances. *Ecological Psychology*, 26, 325-352. doi: 10.1080/10407413.2014.958035
- Room, R., & Rossow, I. (2001). The share of violence attributable to drinking. *Journal of Substance Use*(6), 218-228.
- Shortt, N., Tisch, C., Pearce, J., Mitchell, R., Richardson, E., Hill, S., & Collin, J. (2015). A cross-sectional analysis of the relationship between tobacco and alcohol outlet density and neighbourhood deprivation. *BMC Public Health*, 15(1014). doi: <http://dx.doi.org/10.1186/s12889-015-2321-1>
- Stockwell, T., Lang, E., & Rydon, P. (1993). High risk drinking settings: the association of serving and promotional practices with harmful drinking. *Addiction*, 88, 1519-1526.
- Stockwell, T., Rydon, P., Gianatti, S., Jenkins, E., Ovenden, C., & Syed, D. (1992). Levels of drunkenness of customers leaving licensed premises in Perth, Western Australia: a Comparison of high and low 'risk' premises'. *British Journal of Addiction*, 87, 873-881.
- Toomey, T. L., Erickson, D. J., Carlin, B. P., Lenk, K. M., Quick, H. S., Jones, A. M., & Harwood, E. M. (2012). The association between density of alcohol establishments and violent crime within urban neighbourhoods. *Alcoholism: Clinical and Experimental Research*, 36(8), 1468-1473.
- Turvey, M. T., Shaw, R. E., Reed, E. S., & Mace, W. M. (1981). Ecological laws of perceiving and acting: In reply to Fodor and Pylyshyn. *Cognition*, 9, 237-304.

- Vlaev, I., & Dolan, P. (2009). From changing cognitions to changing the context: a dual-route model of behaviour change: Imperial College Business School.
- Wagenaar, A. C., Toomey, T. L., & Lenk, K. M. (2005). Environmental influences on young adult drinking. *Alcohol Research and Health*, 28(4), 230-235.
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioural intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132, 249-268.
- World Health Organisation. (2014). Alcohol factsheet. Retrieved 02/03/2016, from <http://www.who.int/mediacentre/factsheets/fs349/en/>

Table 1: A Functional Taxonomy of Licensed Premises: Affordances Promoting Consumption.

Affordance	Effectivity	Occurrence
Access-able thing	Accessing-thing	Central location, increased opening hours, easy premise and bar access, payment regulations
Consume-able thing	Consumer-thing	Alcohol availability only
Communicate-with-able thing	Communicator-thing	Interacting with bar staff and patrons
<i>Purchase-able thing</i>	<i>Purchaser-thing</i>	
<i>Consume-able thing</i>	<i>Consumer-thing</i>	
Grasp-able thing	Grasper-thing	Limited furniture and small alcoholic drinks containers, novel containers
<i>Prevents putting-on</i>		
Listen-to-able thing	Listener-thing	Loud entertainment features
<i>Prevents communicating</i>		
Stand-on-able thing	Standing-thing	Limited seating availability
<i>Prevents sitting-on</i>		
View-able thing	Viewer-thing	Lighting features, alcohol advertising, promotions and décor
<i>Purchase-able thing</i>	<i>Purchaser- thing</i>	
<i>Consume-able thing</i>	<i>Consumer-thing</i>	

Table 2: A Functional Taxonomy of Licensed Premises: Affordances Inhibiting Consumption.

Affordance	Effectivity	Occurrence
Access-able thing	Accessing-thing	Queues, security and enforced regulations.
Sit-on-able thing	Sitter-thing	Available seating
Put-on-able thing	Putter-thing	Available tables and ledges
Grasp-able thing	Grasper-thing	Drink container availability
Consume-able thing	Consumer-thing	Food service, snacks, soft drink availability
Play-able thing	Player-thing	Games machines, pool tables
View-able thing.	Viewer-thing	Television Features, alcohol warnings, regulation notices
Communicate-with-able thing	Communicator-thing	Staff complimenting soft drinks
<i>Purchase-able thing</i>	<i>Purchaser-thing</i>	choices and utilising safe bar
<i>Drink-able thing</i>	<i>Drinker-thing</i>	practices