Understanding Drinking Behaviour: Affordances and an Ecological Approach to Cognition

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ABSTRACT

Alcohol misuse is a public health concern. Many social cognition models explain drinking behaviour using a limited representational model of cognition. Gibson's Ecological approach does not require representation. Meaning exists at the interplay of brain, body and environment in terms of *affordances*.

Contemporary ideas about Ecological psychology and affordances could be used to understand how individual-environment relations extend and constrain opportunities for consuming alcohol.

This research programme comprised three studies:

i.   Affordances for Drinking Behaviour: A Non-Participant Observation Study in Licensed Premises.

A functional, affordance-based approach was used to identify the array of affordances, or action opportunities, observed to be relevant to alcohol consumption in seven UK licensed premises. This study illustrated the normative and functional qualities of these drinking environments for drinking behaviour from the perspective of an independent observer.

ii.   Individual Perceptions of Alcohol-Related Affordances: Photo-Elicitation Interviews and Phenomenology.

Twelve students viewed fifty photographs of a range of licensed premises, describing the function that occurrences had for their drinking

behaviour. Interpretative Phenomenological Analysis provided an insight into first-person drinking experiences, supporting the alcohol-related affordances identified by the first study and providing an insight into why these were taken up by participants.

iii.   Alcohol-Related Affordances and Group Subjectivities: A Q-Methodology Approach.

40 students participated in a Q-Methodology study which combined statements from the previous two studies. Four patterns of subjectivity were uncovered. Most participants were aware of alcohol-related affordances, but believed their drinking behaviour to be autonomous. Others were conscious of influences, but compliant to these effects. Some were unaware, acting unanimously with the group, while others were concerned with carrying out behaviour considerate for the context.

The findings of this research programme have implications for psychology and, as a global theory of behaviour, provide a more robust theoretical perspective on behavioural determinants for a range of health behaviours.

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CHAPTER 1

Alcohol Misuse and Theories of Behaviour

O ur tendency to focus only on what's going on in an animal's head, when we seek to understand how and why it behaves, means that we fail to notice the extent to which the…environment and the…body play a highly active role in shaping its behaviour.

(Barrett, 2011)

1. Introduction

This chapter will present the general epidemiological and medical literature on alcohol misuse, including drinking patterns amongst young adults. A review of dominant social cognition models argues that such theories are not only poor at explaining drinking behaviour but, by focusing solely on brain-based processes, unnecessarily create a mind-body dichotomy. An overview of empirical evidence of the effect of context on drinking behaviour will also be provided. This chapter will end with the suggestion that a more relational approach, which gives equal explanatory power to both individual and environmental factors, might be better suited to understanding drinking behaviour. The evidence presented here has been collated from recently published empirical studies, government reports and

through information obtained from email communication with the *Kettil Bruun Society for Social and Epidemiological Research on Alcohol*. A "snowball" approach was used to identify relevant papers that could contribute to the purpose of this chapter.

2. Alcohol Misuse is a Public Health Concern

Alcohol misuse is a priority area in public health and, in recent years, has grown as a problem (Anderson, Møller, & Galea, 2012; Faculty of Public Health, 2008; Office for National Statistics, 2014; World Health Organisation, 2014). Excessive alcohol consumption is one of the world's leading causes of poor health, disability and premature death and is responsible for 2.5 million deaths worldwide each year (Anderson et al., 2012; World Health Organisation, 2014). The European Union (EU) has the highest alcohol consumption in the world, but the United Kingdom (UK) has one of the highest levels of consumption in Europe (Anderson & Møller, 2012; Home Office, 2012). In the UK, liver disease is the leading alcohol-related cause of death and, while some causes of morbidity are going down, rates of liver disease are increasing (Office for National Statistics, 2011; The Academy of Medical Sciences, 2004). In 2012 alone, there were over 8,000 alcohol-related deaths in the United Kingdom, which has led some to refer to alcohol misuse as a public health crisis (Bellis & Hughes, 2011; Office for National Statistics, 2014; World Health Organisation, 2014).

Problematic alcohol consumption has substantial costs to the UK economy, with the NHS cost estimated at over £2.7 billion each year

(Cabinet Office, 2004; Department of Health, 2008). Excessive consumption is associated with injury and harm, not only towards drinkers, but also to others (Anderson et al., 2012). Alcohol-related hospital admissions continue to rise and have more than doubled in England in the last decade from 510,700 to 1,220,300 (Cabinet Office, 2004; Health and Social Care Information Centre, 2013). Although it is difficult associating consumption with crime levels, evidence suggests there is a strong link between alcohol and violence, with localised problems, injuries and public disorder an issue for many towns and cities involved in the night time economy (Cabinet Office, 2003; Room & Rossow, 2001). It is because of these costs and the risk to the wider public health that alcohol misuse is a pressing area of public health concern.

In 2012, men accounted for 65% of all alcohol-related deaths in the UK (Health and Social Care Information Centre, 2013). Middle aged men are most likely to die from the use of alcohol, but these mortality statistics are also rising for women (Health and Social Care Information Centre, 2013; Jones, Bellis, Dedman, Sumnall, & Tocque, 2009). Although there has been a small decline in the amount of alcohol consumed per week, those aged 16-24 years old are still the most likely to exceed recommended drinking limits (Health and Social Care Information Centre, 2013; Smith & Foxcroft, 2009). This is because they are most likely to engage in heavy episodic drinking, or 'binge drinking', which now accounts for over half of all alcohol consumed within the UK (Home Office, 2012; Office for National Statistics, 2011). Despite being most at risk from alcohol-related

illness, injury or death, young adults are often overlooked by approaches which aim to understand alcoholic drinking behaviour and reduce problematic consumption (Anderson, 2012).

3. Understanding Alcoholic Drinking Behaviour: Psychological Determinants

It is because of these issues that understanding alcoholic drinking behaviour has become an important topic of research. Psychological principles have underpinned dominant social cognition models which focus on understanding alcoholic drinking behaviour. This includes the Health Belief Model (Hochbaum, 1958; Rosenstock, 1966), Protection Motivation Theory (Rogers, 1975), Social Cognitive Theory (Ajzen, 2002; Bandura, 1977) The Theory of Reasoned Action and Planned Behaviour (Ajzen, 1985; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), The Prototype Willingness Model (Gerrard, Gibbons, Houlihan, Stock, & Pomery, 2008; Gibbons, Gerrard, Hart, & Russell, 1998; Gibbons, Gerrard, & Lane, 2003), The Reflective-Automatic Model (Vlaev & Dolan, 2009), The Model of Interpersonal Behaviour (Landis, Triandis, & Adamopoulos, 1978), The Stages of Change Model/ Transtheoretical Model (Prochaska & DiClemente, 1983) and The Theory of Triadic Influence (Flay & Petraitis, 1994). Each of these approaches view cognition to be the primary mediator of behaviour and focus on underlying belief structures, attitudes or intentions when understanding the factors involved in an individual's decision to perform certain behaviours.

3.2 The Health Belief Model and Protection Motivation Theory

The Health Belief Model (HBM) (Hochbaum, 1958; Rosenstock, 1966) was one of the first cognitive models to attempt to explain health behaviours. This suggests behaviour is determined by an individual's beliefs or attitudes about harms to their well-being and the outcomes of performing the behaviour. These beliefs are complemented by 'cues to action', or internal and external influences which cause an individual to carry out the behaviour. This includes an individual's perception of their perceived vulnerability and expected consequences, which is linked to their readiness to act. Individuals are thought to weigh up the costs and benefits of certain behaviours and their self-efficacy, or perceived ability to perform them. Individuals are believed to carry out health-protective behaviours if they believe health risks can be avoided; if they have positive expectations that performing the behaviour will avoid a health risk; and if they can do this successfully. The HBM was extended to include intention as a proximal, or immediate determinant of health behaviour under the Protection Motivation Theory (PMT) (Rogers, 1975) and self-efficacy, as a component of Social Cognitive Theory (Ajzen, 2002; Bandura, 1977). Both theories suggest that behavioural intentions mediate an individual's beliefs about their ability to perform a specific behaviour.

The HBM is still widely used in health promotion and some components of the model have been successful in explaining variance in health behaviours, in terms of an individual's attitudes or beliefs. However, a number of different methods have been used to test the model, which

makes it difficult to compare results between studies (Janz & Becker, 1984). Not only is the model poorly defined, but it remains unclear if beliefs are a cause or effect of behaviour (Armitage & Conner, 2000). Model efficacy is usually based on effect size or proportion of explained variance. A meta-analysis compiling a number of reviews has found the model to have weak predictive power, suggesting that each dimension of the model (perceived susceptibility, severity, benefits and costs) accounts for less than 10% of variance in actual health behaviour (Harrison, Mullen, & Green, 1992). Importantly, neither the HBM or PMT account for irrational behaviours, nor why individuals would continue to engage in risky alcohol consumption despite being aware of health risks.

3.3 The Theory of Reasoned Action and Planned Behaviour

The Theory of Reasoned Action and Theory of Planned Behaviour (TRAPB) is one of the most widely applied and cited behaviour theories. It is more clearly defined than the HBM and provides detailed formulae for conducting behaviour analyses. The TRAPB began as the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), which is based upon the assumption that volitional, or deliberate and planned human behaviour is directed by goals, or intentions. As there is a presumed relationship between intention and behaviour, intentions are viewed as immediate behaviour determinants. Behaviour is determined by a person's beliefs, or the brain-based information an individual holds about their world. These beliefs underlie attitudes or norms which influence

intentions and determine behaviour. Other factors do not directly affect behaviour unless they influence these beliefs.

The TRA suggests intentions are determined by the attitude an individual has about the behaviour and their evaluation of outcomes. For example, individuals hold favourable attitudes toward performing behaviours with positive outcomes. Social influences, including subjective norms, also influence behaviour. This is a person's perception of whether others want them to perform the behaviour. A person will intend to carry out the behaviour if they evaluate it positively and believe others want them to carry it out. The TRA was expanded to account for unanticipated factors beyond an individual's control, which disrupt the intention behaviour relation. Similar to the HBM and SCT, this additional Theory of Planned Behaviour (TPB) (Ajzen, 1985) suggests unforeseen events change a person's perceived behavioural control, or perceived ability to carry out specific behaviours. Together with attitudes and subjective norms, this moderates intentions and ultimately behaviour.

The TRAPB has better predictive power than the HBM: intention-behaviour correlations often exceed .70 (Ajzen & Fishbein, 1980; Armitage & Conner, 2001; Taylor et al., 2006). However, the model typically explains less than 27% of the proportion of variance in health behaviour and 39% of the variance in intention (Armitage & Conner, 2000, 2001). Although these are medium effect sizes, this means that a large amount of variance is not accounted for by the theory and is due to unknown factors. A

comprehensive meta-analysis of the evidence found that many supporting studies rely on correlational evidence and linear regression analyses are used to determine the strength of intention-behaviour correlations (Webb & Sheeran, 2006). This correlational nature of the evidence limits researchers' ability to determine whether intentions have a sufficient causal impact on behaviour alone, or if other influences are also necessarily involved. Due to the limited supporting evidence from experimental studies and difficulty in deciding what determined behaviour, some have suggested the theory should be dismissed entirely (Sniehotta, Presseau, & Araújo-Soares, 2014). Additionally, much like the HBM, the model also suggests humans behave rationally, taking into account all available information when considering whether to carry out certain behaviours. However, in terms of risky behaviours, such as alcohol misuse, individuals might be aware of health risks and still conduct the behaviour. Likewise, individuals could be impaired from weighing up implications due to intoxication, or might not intend to engage in alcohol misuse, but are influenced to by external factors.

3.4 The Prototype Willingness Model

The Prototype Willingness Model (PWM) (Gerrard et al., 2008; Gibbons et al., 1998; Gibbons et al., 2003) focuses on the social nature and irrationality of health-risk behaviours performed by adolescents. For example, these individuals may not intend to engage in risky behaviours but may find themselves in risk conducive contexts where the opportunity to perform maladaptive behaviours is presented to them. Unlike the TRAPB, the PWM is a dual process model which suggests two decision making

routes, intentional and unintentional, are involved in an individual's decision to perform health-related behaviour. Similar to the TRA, the reasoned action route, suggests an individual's willingness to take up health-protective behaviours is determined by intentions. An individual's attitudes, including their perceived vulnerability, norms, and the behaviour of peers influences them to carry out risky behaviours. Alcoholic drinking behaviour is often conducted in public, social environments. Therefore, the second social reaction route focuses on unintended health risk behaviours performed in social contexts, which have less deliberate decision making. This behaviour is influenced by cognitive representations, or risk prototypes, which are the brain-based images an individual holds of those who engage in the behaviour (e.g. those who drink alcohol are cool). It is thought that the more favourable the prototype, the more willing an individual is perform the behaviour. However, despite being more suited to understanding maladaptive behaviours conducted in social settings, such as alcohol misuse, few studies have used the PWM to successfully change behaviour (Todd & Mullan, 2011).

3.5 The Reflective-Automatic Model and the Model of Interpersonal Behaviour

The Reflective-Automatic Model (RAM) is similar to the PWM, as it also suggests that different systems process two routes to behaviour. The conscious, reflective route changes brain-based cognitions and the automatic route responds to contextual change through salience, norms, affect and priming (Vlaev & Dolan, 2009). Similar to the PWM, the RAM aims to

explain how contextual influences could influence behaviour, such as alcohol misuse. However, the model is generally poorly defined, it is unclear how distinct these two routes are, and how certain behaviours can occur (van der Linden, 2013). The Model of Interpersonal Behaviour (MIB) (Landis et al., 1978) also suggests intentions are immediate antecedents of behaviour, much like the HBM, PMT and TRAPB. However, the model also suggests habits and, similar to the PWM and RAM, situational conditions mediate behaviour. Research supports the idea that frequently performed behaviours require less intentional control, as they are based on environmental cues (Webb & Sheeran, 2006). This could explain how frequent drinking behaviour might be mediated by context. However, instead of focusing on the potentially distinct relationship that habits have with behaviour, the MIB merely views habits as one of many behaviour determinants and maintains that intentions are an important predecessor of behaviour.

3.6 The Stages of Change Model

The Stages of Change Model (SOCM) was initially referred to as the Transtheoretical model (TTM) (Prochaska & DiClemente, 1983). The SOCM describes five distinct stages that individuals transition through when carrying out health behaviours. Individuals go from pre-contemplation to contemplating changing their behaviour; preparing themselves and their world to make the behaviour change, taking action and then maintaining the behaviour. Unlike the HBM, PMT, TRAPB and MIB, intentions are not an explicit component of the SOCM, but it has been suggested that these are

implicitly related to model stages (Webb & Sheeran, 2006). For example, the SOCM involves self-efficacy and a person's evaluation of the costs and benefits associated with changing their behaviour. This model has helped practitioners to understand the issues faced by individuals at each stage of behaviour change and has informed interventions for a wide range of health risk behaviours, including alcohol misuse and alcohol addiction. However, the SOCM remains focused on cognitive or brain-based processes, with environmental and social factors yet to be incorporated into the model.

3.7 The Theory of Triadic Influence

The Theory of Triadic Influence (TTI) (Flay & Petraitis, 1994) was proposed as a single, united theory of direct and indirect health behaviour which attempts to combine a number of influences of behaviour from many different theories. This includes intrapersonal influences that affect self-efficacy; inter-personal, or social influences which affect normative beliefs about certain behaviours; and cultural-environmental influences which affect attitudes toward specific behaviours. For each route there are ultimate or underlying; distal or pre-disposed; and proximate or immediate behavioural causes. The TTI accounts for both novel and habitual behaviours, including feedback which alters future behaviour from experience. The model suggests there are a number of complex determinants for any health-related behaviour and provides testable hypotheses for each component. However, it maintains that behaviour is mediated through intention and, as the model is very complex, it is difficult to determine the predictive power of the model as a whole.

4. Social Cognition Models rely on a Representational Model of Cognition

Psychological determinants appear to have some impact on drinking behaviour, but many of these models appear to be lacking. This is surprising given that many are dominant approaches for understanding behaviour. Not only is it difficult to investigate hidden brain-based processes, but moderating these psychological attributes does not always lead to behaviour change. This is particularly an issue when attempting to understand alcoholic drinking behaviour, as the supposed intention-behaviour gap is more prominent for health risk behaviours (Webb & Sheeran, 2006). Even with successful interventions, it remains unclear whether it was the cognitive attribute itself that actually resulted in the changed behaviour (Michie & Abraham, 2004). As supporting research does not currently address the issue of causality directly, it does not rule out the fact that other factors could cause behaviour.

An overview of these social cognitive models is provided in Table 2. It appears that these are based on the prevailing representational view of cognition, whereby individuals are believed to hold internal representations of the world. Each model implies that internal mental processing is the primary mediator of external behaviour. Therefore, cognitive attributes including beliefs, attitudes and intentions are taken to be precursors of behaviour. In Western society, observable behaviour tends to be explained in terms of hidden beliefs (Barrett, 2011). However, by explaining behaviour solely in terms of brain functioning, individuals are depicted as

isolated cognitive beings. Some of these models do incorporate external factors, but these are not thought to directly influence behaviour. Instead, environmental influences are thought to moderate internal cognitive attributes which, in turn, influence behaviour.

Table 1. *Social Cognitive Models of Behaviour*

Social Cognition Model	Focus	Representational Model of Cognition?
The Health Belief Model (HBM) (Hochbaum, 1958; Rosenstock, 1966)	Attitudes and beliefs about performing behaviours, modified by perceived susceptibility, severity, benefits, barriers, cues to action and self-efficacy.	✔
Protection Motivation Theory (PMT) (Rogers, 1975)	Cognitive processes mediate behaviour change. Intention depends on perceived severity, vulnerability, response efficacy and self-efficacy.	✔
Social Cognitive Theory (SCT) (Ajzen, 2002;	Relationship between environment and individual includes cognitive or mental representations of social	✔

Bandura, 1977)	and physical situation, expectations, expectancies, self-control, self-efficacy, emotional coping responses, observational learning and reinforcements.
The Theory of Reasoned Action and Planned Behaviour (TRAPB) (Ajzen, 1985; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975)	Intentions guide behaviour, modified by beliefs, attitudes, norms and perceived behavioural control. ✔
The Prototype Willingness Model (PWM) (Gerrard et al., 2008; Gibbons et al., 1998; Gibbons et al., 2003)	Behaviour willingness and behaviour intentions, antecedents of risk behaviour, modified by attitudes and norms, intentions, previous behaviour, and cognitive-based risk prototypes. ✔
The Reflective Automatic Model	Contextual change as an alternative route to behaviour ✔

(RAM) (Vlaev & Dolan, 2009)	change, reflective system changes cognitions, automatic system modified by salience, norms, affect, and priming.	
The Model of Interpersonal Behaviour (MIB) (Landis et al., 1978)	Intentions, habits and facilitating conditions guide behaviour, mediated by attitude, social factors and affect.	✓
The Stages of Change Model (SOCM)/ Transtheoretical Model (TTM) (Prochaska & DiClemente, 1983)	Intentional behaviour change, stages of change include pre-contemplation, contemplation, preparation, action and maintenance.	✓
The Theory of Triadic Influence (TTI) (Flay & Petraitis, 1994)	Decisions, intentions and experiences impact behaviour; ultimate, distal and proximal levels of causation; personal, social and environmental streams of influence; feed into behavioural control, beliefs and attitudes.	✓

5. Understanding Alcoholic Drinking Behaviour: Environmental Determinants

Alcohol misuse is a complex behaviour which takes place in complex environments. Instead of being explained in terms of psychological complexity, it is possible that drinking behaviour could be determined by environmental complexity. A large amount of empirical evidence has explored the influence of context on drinking behaviour. Cavan's (1966) ethnography of bar behaviour was one of the first studies to highlight the importance of context, by providing detailed observations of different types of licensed premises and the meaning of these complex, social spaces for patrons. This influenced researchers to provide rich, qualitative descriptions of what were largely unstudied environments (Ossenburg, 1969; Room, 1981). Participant observation continues to be the main method used today to investigate these environments, with many studies focusing on alcohol-related harms such as aggression, violence, and drug use, as well as drinking behaviour (e.g. Bellis et al., 2010; Doherty & Roche, 2003; Graham, Bernards, Osgood, & Wells, 2006; Hauritz, Homel, McIlwain, Burrows, & Townsley, 1998; Homel & Clark, 1994; Leather & Lawrence, 1995; Livingston, 2011; Wahl, Kriston, & Berner, 2010). Importantly, research has suggested that environmental features of different types of licensed premises; outlet density and opening hours; pricing; regulations; health messages and product advertising could actually determine drinking behaviour.

5.2 Premise Type

Certain environmental and contextual features of different types of licensed premises have been found to influence drinking behaviour. For example, crowding, dim lighting, small singular bars, excessive heat, lack of free water, loud volumes, low levels of cleanliness and unattractive décor have all been associated with increased alcohol consumption (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, Somerford, & Lang, 1992). Premise entertainment, including televised features, music and games, have been found to attract patrons into premises, increase the time spent within them and subsequently increase alcohol consumption (Homel & Clark, 1994; Hughes et al., 2012). However, some research suggests *vertical drinking establishments*, which are unfurnished and have limited action opportunities, are also directly linked to increased and excessive alcohol consumption (Mistral, Velleman, Templeton, & Mastache, 2006).

It has been suggested that moderating the features of licensed premises could reduce consumption and related harms (Hauritz et al., 1998; Homel, Carvolth, Hauritz, McIlwain, & Teague, 2004; Hughes et al., 2012). Some research suggests that lower levels of intoxication have been found in premises without entertainment features (Graham et al., 2006; Homel & Clark, 1994; Hughes et al., 2011) and in establishments providing free snacks, or serving full meals (Gordon, Harris, Mackintosh, & Moodie, 2011; Hauritz et al., 1998; Homel & Clark, 1994; Hughes et al., 2012; Hughes et

al., 2011). This could be due to the effects of eating reducing alcohol intoxication, the act of eating replacing drinking alcohol, or due to the types of patrons attracted to establishments serving food. However, waiting for food to be served could also increase the length of time a patron stays in a premise, leading them to drink more (Graham et al., 2006).

Different types of premises have different features. On-premises, such as public houses, are open throughout the day and attract patrons with entertainment and food (Snow & Anderson, 1987; Stockwell et al., 1992). Bars and nightclubs are open at night, but for longer, accommodating large numbers of patrons (Kilfoyle & Bellis, 1998; Miller et al., 2005; Stockwell et al., 1992). Events often involve inexperienced servers or individuals serving themselves and over-pouring measures (Clapp, Holmes, Reed, Shillington, & Freisthler, 2007; Faculty of Public Health, 2008). Additionally, research suggests that the physical characteristics of public spaces, including parks are insufficient for young people to carry out activities other than alcoholic drinking behaviour (Townshend, 2013; Townshend & Roberts, 2013). Recently, there has been an increase in the amount of alcohol purchased at off-licensed premises, including supermarkets and liquor stores. This coincides with a growing trend of *pre-loading* among young people, whereby large quantities of alcohol are consumed before visiting premises (Bellis et al., 2010; Wahl et al., 2010). This is important for understanding drinking behaviour as it suggests patrons are already intoxicated before entering establishments (Clapp et al.,

2009). Patrons might purchase fewer drinks after pre-loading, but the total amount of alcohol consumed may be higher (Wahl et al., 2010).

5.3 Outlet Density and Opening Hours

Some research suggests that a high concentration of on and off licensed premises is associated with increased alcohol consumption and related harms (Livingston, 2011; Toomey et al., 2012). This is partly due to 'pub-hopping', or the trend of moving from one establishment to another (Doherty & Roche, 2003; Gruenewald, 2011). Some research suggests consumption is reduced when alcohol outlet density is reduced (Wagenaar, Toomey, & Lenk, 2005), but a lack of evidence makes it difficult to determine causality, or whether alcohol outlet density is even related to consumption (World Health Organisation, 2009). Internationally, access to alcohol has been improved by extended trading hours for on and off licensed premises. However, instead of reducing alcohol-related problems, research suggests each hour extension leads to a significant increase in alcohol-related harm and assaults (Rossow & Norström, 2008). More research is required to examine the impacts of specific or reduced sales times on drinking behaviour (World Health Organisation, 2009).

5.4 Pricing

There is inconclusive evidence about the effects of introducing alcohol taxation on drinking behaviour (Anderson & Baumberg, 2006), but making alcohol more expensive seems to reduce both consumption

(Anderson, Chisholm, & Fuhr, 2009) and alcohol-related harm (Chaloupka, Grossman, & Saffer, 2002). Conversely, when other factors are controlled, research suggests that reducing the price of alcohol increases consumption (Gallet, 2007; Wagenaar et al., 2005). However, this has been found to have a greater impact on young people, more frequent and heavier drinkers (Anderson & Baumberg, 2006; Anderson et al., 2009). Additionally, an increase in on-premise pricing is thought to be responsible for the increase in off-premise purchasing, so it is unclear whether these alcohol pricing measures simply result in the problem being dispersed elsewhere (Bellis et al., 2010; Wahl et al., 2010).

The UK government had hoped to reduce harmful consumption by restricting the availability to cheap alcohol in both on and off licensed premises (Department of Health, 2010). However, minimum pricing proposals on units of alcohol and consultations regarding alcohol multi-buy discounts are yet to be implemented (Home Office, 2012). Alcohol affordability is measured based on a person's ability to buy and consume alcohol, which is subject to a person's income and alcohol pricing. In recent years, alcohol has not only become increasingly more affordable in relation to disposable income, but the quantity of alcohol on sale in the UK in the last fifty years has doubled (Health and Social Care Information Centre, 2013; HM Revenue and Customs, 2013). This is because income has risen, whereas the price of alcohol has either stayed the same or fallen in absolute terms.

5.5 Regulations

Evidence suggests that reducing or regulating the minimum drinking age for consuming and purchasing alcohol both within on and off premises reduces consumption and alcohol-related harm, with long term effects (Gruenewald, 2011; World Health Organisation, 2009). However, there is much variation in this, as age laws can range from 16-21 between countries (Anderson & Baumberg, 2006). For example, in the UK, the minimum drinking age is 18, but serving staff are required to ask for identification if a patron appears to be under 21. However, regulations are often not enforced and young people generally find it easy to buy alcohol (Anderson & Baumberg, 2006; Wagenaar et al., 2005; World Health Organisation, 2009).

Premises with permissive serving staff often have higher levels of consumption and alcohol-related problems (Clapp et al., 2009; Graham et al., 2006; Hauritz et al., 1998; Homel & Clark, 1994; Hughes et al., 2011). Despite being illegal, bar staff continue to serve excessive amounts of alcohol to intoxicated patrons, often in a single serving (Clapp et al., 2009; Stockwell et al., 1993). Server fines have been incorporated to increase server responsibility, but prosecutions are rare (Bellis & Hughes, 2011; Graham et al., 2006; Hughes et al., 2012; Stockwell, 2001; Stockwell et al., 1993; Wagenaar et al., 2005). Due to a rise in pre-loading, it may be difficult to enforce regulations when patrons entering licensed premises are already intoxicated. Premises may also have little sense of a duty of care for their patrons and may prefer to serve them than avoid a sale (Homel & Clark, 1994). Staff training has been found to reduce sales to intoxicated

patrons (Saltz, 2011; Stockwell, 2001). However, most effects are temporary and training varies considerably between premises (Ker & Chinnock, 2008; Toomey et al., 2008). More research is required to explore the effects of training on drinking behaviour in different types of drinking establishments.

5.6 Health Messages

It is thought that health messaging on posters or product labels reduces alcoholic drinking behaviour, by increasing the awareness of recommended guidelines and the harms associated with excessive consumption. However, while these types of messages increase public awareness and opinions of the message promoter, they do not seem to affect intentions to binge drink (Babor et al., 2010; Christie et al., 2001). Research suggests that costly 'Drink Responsibly' campaigns have little effect on drinking behaviour and alcohol-related harms (Bellis & Hughes, 2011; Hughes et al., 2012; Miller, 2011). Additionally, alcohol health messages are often viewed as ambiguous and could actually have the opposite effect on behaviour (Smith, Atkin, & Roznowski, 2006). One possible reason for this is that responsible drinking messages have similar content to alcohol advertising and the message might become misinterpreted. While graphic health warnings on tobacco products have been found to reduce smoking behaviour (Borland et al., 2009), alcohol labelling only has short-term effects on reducing alcoholic drinking behaviour (Anderson & Baumberg, 2006; Wilkinson & Room, 2009).

5.7 Marketing

Alcohol companies rely on marketing to sell their products, but alcohol advertising and branding, particularly at the point-of-sale, has been found to increase alcoholic drinking behaviour and related harms (Anderson et al., 2009; Babor et al., 2010; de Bruijn, 2012; Gordon et al., 2011; Wagenaar et al., 2005). Many premises display more health-risk alcohol adverts, such as discounts or free alcoholic drinks, than health protective adverts, such as free food, non-alcoholic drinks or transport (Jones & Lynch, 2007). However, promoting non-alcoholic drinks might also adversely increase the consumption of alcoholic drinks (Hughes et al., 2012; Smith et al., 2006). This could be because non-alcohol drinks promotions endorse drinking more generally, or because these displays promote non-alcoholic mixers that are often consumed with alcohol. This could also promote energy drinks which are used as stimulants to keep patrons drinking alcohol for longer periods of time. More research is required to assess the impact of alcohol marketing on drinking behaviour (Anderson & Baumberg, 2006; de Bruijn, 2012; Gallet, 2007).

Many establishments use visual drinks promotions, which advertise price reductions, free drinks, and day or time-specific discounts to increase sales. These are often unregulated and encourage patrons to consume excessive amounts of alcohol in a short space of time (Bellis & Hughes, 2011; Christie et al., 2001; Gordon et al., 2011; Homel & Clark, 1994; Wilkinson & Room, 2009). Research suggests that younger patrons are often more influenced by drinks promotions because they tend to have lower

incomes (Gallet, 2007). Although promotions in both on and off-premise establishments have been found to be associated with increased binge drinking rates (Kuo, Wechsler, Greenberg, & Lee, 2003), there is limited available evidence to determine whether promotions directly influence drinking behaviour.

6. Environmental Features Influence Alcohol Consumption

A large amount of empirical evidence has focused on the relationship between environmental characteristics and drinking behaviour. An overview of this research is provided in Table 2. Drinking behaviour does appear to be influenced by context, but more research is required, as much evidence is inconclusive. Future research should investigate the effects of an array of environmental features within different types of drinking establishments (Hughes et al., 2011). These features should be combined into a single study which also focuses on different types of drinking behaviour. This would allow researchers to better understand which features promote or inhibit alcoholic and non-alcoholic beverage consumption in certain types of premises.

As has been discussed previously, when taking a representational view of cognition, these environmental features are considered to be characterised within the brain as representations; thus environmental features are viewed as being cognitively mediated and therefore can only have an indirect effect on behaviour. However, behaviour is not determined

by individuals in isolation, as they cannot be separated from the environments in which they exist. Likewise, behaviour cannot be solely shaped by the environment, because it takes an individual to pick up this information and act upon it. Taking this view, it should not be construed that the environmental determinants listed here are distinct from the psychological determinants previously outlined, as both are involved in producing behaviour. Instead, researchers should consider how the brain, body and environment work together and how behaviour might emerge from these mutual relations.

Table 2. *Contextual Influences on Drinking Behaviour*

Feature	Evidence
Premise Type	Inconclusive: Different types of premises have different features (Bellis et al., 2010; Clapp et al., 2007; Clapp et al., 2009; Faculty of Public Health, 2008; Kilfoyle & Bellis, 1998; Miller et al., 2005; Snow & Anderson, 1987; Stockwell et al., 1992; Wahl et al., 2010). Certain features have been found to influence drinking behaviour (Homel & Clark, 1994; Hughes et al., 2012; Hughes et al., 2011; Kilfoyle & Bellis, 1998; Miller et al., 2005; Nusbaumer & Reiling, 2003; Stockwell et al., 1993; Stockwell et al., 1992), but evidence is contradictory

	(Mistral et al., 2006). Evidence suggests moderating these features reduces consumption (Graham et al., 2006; Hauritz et al., 1998; Homel et al., 2004; Homel & Clark, 1994; Hughes et al., 2012; Hughes et al., 2011), but more research is required in a range of modern establishments (Hughes et al., 2011).
Outlet Density and Opening Hours	Inconclusive: Some research suggests a high concentration of alcohol outlets increases drinking behaviour (Doherty & Roche, 2003; Gruenewald, 2011; Livingston, 2011; Toomey et al., 2012; Wagenaar et al., 2005). Although some evidence suggests increased opening hours increases consumption (Rossow & Norström, 2008), a lack of evidence makes it difficult to determine if opening hours are related to consumption (World Health Organisation, 2009).
Pricing	Inconclusive (Anderson & Baumberg, 2006): Some evidence suggests that increased pricing reduces drinking behaviour (Anderson et al., 2009; Chaloupka et al., 2002; Gallet, 2007; Wagenaar et al., 2005), but only for certain population groups (Anderson & Baumberg, 2006; Anderson et al., 2009). An increase in on-premise pricing might be responsible for off-premise purchasing (Bellis et al.,

	2010; Wahl et al., 2010). Minimum pricing regulations have not been implemented (Department of Health, 2010; Home Office, 2012). Not only has alcohol become more affordable, but the amount on sale has also increased (Health and Social Care Information Centre, 2013; HM Revenue and Customs, 2013).
Regulations	Inconclusive: Minimum age regulations appear to be effective at reducing alcoholic drinking behaviour with long term effects (Gruenewald, 2011; World Health Organisation, 2009), but there is variation among countries (Anderson & Baumberg, 2006). Regulations are often not enforced (Anderson & Baumberg, 2006; Wagenaar et al., 2005; World Health Organisation, 2009), which has been linked to permissive staff (Clapp et al., 2009; Graham et al., 2006; Hauritz et al., 1998; Homel & Clark, 1994; Hughes et al., 2011). Staff training only has short term effects on consumption and the training received varies between establishments, with servers rarely being prosecuted (Bellis & Hughes, 2011; Clapp et al., 2009; Graham et al., 2006; Homel & Clark, 1994; Hughes et al., 2012; Ker & Chinnock, 2008; Saltz,

	2011; Stockwell, 2001; Stockwell et al., 1993; Toomey et al., 2008; Wagenaar et al., 2005).
Health messages	Inconclusive: Health messages tend to have little effect on consumption, are costly (Babor et al., 2010; Bellis & Hughes, 2011; Christie et al., 2001; Hughes et al., 2012; Miller, 2011) and could increase drinking behaviour (Smith et al., 2006). Alcohol labelling has been successful for smoking (Borland et al., 2009), but not for alcohol consumption (Anderson & Baumberg, 2006; Wilkinson & Room, 2009).
Marketing	Inconclusive: Evidence suggests alcohol marketing increases consumption (Anderson et al., 2009; Babor et al., 2010; de Bruijn, 2012; Gordon et al., 2011; Wagenaar et al., 2005) and there is a need for regulation (Jones & Lynch, 2007). However, promoting soft drinks might increase alcoholic drinking behaviour (Hughes et al., 2012; Smith et al., 2006), as this endorses drinking more generally, or promotes mixers and/ or energy drinks. More research is required in this area (Anderson & Baumberg, 2006; de Bruijn, 2012; Gallet, 2007).

7. Conclusion

There is overwhelming scientific evidence that excessive alcohol consumption is harmful to long-term health (Anderson et al., 2012; Faculty of Public Health, 2008; Office for National Statistics, 2014; World Health Organisation, 2014). Dominant social cognition theories focus on explaining drinking behaviour in terms of brain-based, psychological determinants. However, not only are many of these models limited, but the next chapter will show how they separate internal and external processes by creating a mind-body dualism. A large body of research has suggested that environmental factors can also influence drinking behaviour, but much evidence is inconclusive. Instead, researchers should take a more relational approach which investigates how the brain, body and environment shape behaviour (Barrett, 2011). Chapter 2 will present an approach which combines these factors into one mutually related system. This has implications for the study of behaviour, including alcohol-related drinking behaviours, that are carried out in certain contexts.

CHAPTER 2

The Ecological Approach and Affordances

A ffordance…refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment.

(Gibson, 1979a)

1. Introduction

Chapter 1 explained how a number of current approaches for understanding drinking behaviour are lacking. It suggested that, instead, the focus should be on mutual individual-environment relations. The current chapter will suggest that many of these approaches also rely upon a limited representational model of cognition, which maintains an internal-external dualism. As an alternative conceptual position, Gibson's Ecological approach overcomes many of these issues, because it does not require representation. This is because the organism is in direct contact with the world and perceives it directly, rather than mediating what is perceived through representations. Affordances, or opportunities for action, are a key component of the Ecological theory and illustrate the complementary, mutual relationship between an individual and their environment. A focus will be on how affordances have been conceptualised, operationalised and

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reformulated to explore social behaviour. A consistent, working definition of the Ecological approach and affordances will be provided, based upon important refinements that have been made to the theory.

2. Fundamental Problems have been Identified with Representationalism

Theories of perception and action have been interchangeably referred to as inferential (Chemero, 2003a), representational (Costall, 1984) and information-processing (McArthur & Baron, 1983), but share the same underlying assumptions. Typically, the brain is believed to receive perceptual input from receptors within the eye that are sensitive to light stimulation. This perceptual input is then cognitively mediated through brain-based, internal representations of the outside world. After being processed through this representational heuristic, individuals perceive the world and can behave in response to this information (Chemero, 2009). Mental representations have to exist because psychology assumes that the senses provide organisms with an impoverished description of the world (Bickhard & Terveen, 1995). As what is perceived is rich and detailed, some kind of internal mediation must be involved to turn this input into what is perceived (Michaels & Carello, 1981). Chapter 1 explained how many approaches for understanding drinking behaviour are based on this representational model of cognition. Therefore, they rely on the premise that external behaviour is determined by internal brain-based processes, such as experiences, attitudes and intentions, and imply that external influences

change behaviour only indirectly through moderating cognitively held beliefs and images.

Internal mental representations are used by psychologists to describe a number of complex processes, including perceiving and behaving within the world. However, a number of fundamental problems have been ascribed to representationalism (e.g. Bickhard & Terveen, 1995; Chemero, 2009; Costall & Still, 1991; Harnad, 1990; Janlert, 1987; Michaels & Carello, 1981; Pecher & Zwaan, 2005; Reed, 1991; Shaw, 2003). Representationalism relies on internal knowledge being evoked in order for an organism to make sense of what is perceived. Therefore, instead of directly perceiving the world, sensory input is thought to be mediated by representations or other internal cognitive cues. However, it remains unclear what representations consist of, because the term is used interchangeably to describe internal entities which carry representational content, as well as internal brain-based patterns of activity (Chemero, 2009). It is also uncertain how this representational content is carried, how representations derived from past experiences correspond to what is perceived and how they inform the system of what they represent (Bickhard & Terveen, 1995). Additionally, if representations do not exist when there is no content to be carried, it is unclear where they emerge from when they are needed and how they come to have meaning. Therefore, the notion of representationalism is circular and self-fulfilling, as it creates hypotheses that can only be answered using representations and it is impossible to attribute representations to anything else (Harnad, 1990).

When taking a representational view of cognition, the cause of behaviour is taken back to be explained solely in terms of cognitive processes which are contained within the brain (Chemero, 2009; Gibson, 1966; Norman, 1988; Triandis, 1980). However, researchers are then subject to the 'Psychologist's Fallacy', whereby a researcher conflates their own standpoint with that of the subject they are researching (James, 1890; Michaels & Carello, 1981). In terms of representationalism, this means that researchers remain concerned with modelling and explaining mental phenomena, instead of questioning whether representations actually exist (Bickhard & Terveen, 1995). Although it is thought that representations connect internal processes to the outside world, they actually reinforce an individual-environment dualism, by isolating and separating organisms from their environments. This forces researchers to justify how internal processes determine external behaviour (Bickhard & Terveen, 1995; Chemero, 2009; Costall, 2004; Harnad, 1990; Michaels & Carello, 1981; Pecher & Zwaan, 2005; Reed, 1991; Shaw, 2003). Many of the dominant approaches for understanding drinking behaviour are also lacking in terms of these fundamental issues that have been ascribed to representationalism, however, these approaches are not alone. Although psychology has largely moved beyond nativist ways of thinking, a number of long-standing theories and models in psychology assume these principles to be true, but do not devote the time to discuss exactly how it is that individuals perceive, understand and act upon the world using representations (Chemero, 2009).

3. An Ecological Approach does not Require Representation

Gibson's Ecological theory (1979a) provides a challenging alternative position to conventional theories of perception. Instead of explaining perception in terms of brain functioning, the explanation lies with the sensory systems themselves. From aircraft landing experience, Gibson realised that when there is a moving point of observation, there are fixed and alternating properties of the environment within the optical array. For example, in forward motion the point the pilot is moving towards appears to be fixed and unchanging (i.e. invariant), whereas the rest of the environment appears to rapidly move away from that point (i.e. variant). Gibson suggested that this is because perceivers are immersed in an optic array through direct contact with their environment (Gibson, Olum, & Rosenblatt, 1955). This arrangement of ambient light is created by light reflecting off of the surfaces of objects in the world and flows around the individual and point of observation. The eye is sensitive to these light patterns, picking them up as individuals navigate their environments. Energy arrays hold information about the world, such as the gradient properties of environmental surfaces and available action potentials (Gibson, 1966). These Ecological properties of a particular environmental object are uniquely specified for a perceiver through invariant light patterns. Natural laws are the conditions that hold these light patterns in place. Gibson called the study of the interaction between light and objects in the world *Ecological Optics* (Gibson, 1979a).

One way to understand the value of the Ecological theory is to contrast it with conventional theories of perception. Instead of focusing on static stimulus displays, the Ecological approach is concerned with the transforming optic array, including the invariant properties that are detected as an organism navigates their environment. Organisms are not passive receivers who automatically respond to perceptual stimuli, but are active explorers of the world who navigate their complex environments to pick up information. As perceptual input is direct and stimulus rich, only a portion of this information is required for perception (Gibson, 1979a). The Ecological theory also has important implications for cognition, as it eliminates the requirement for additional cognitive constructs, such as inferring or deducting meaning from mediated representations (Bickhard & Terveen, 1995; Michaels & Carello, 1981). More importantly, Gibson's Ecological approach rejects the seeming mind-body dualism implied by traditional representational theories of cognition, because it does not limit the process of perception to an organism's brain.

4. An Ecological Approach Requires A Commitment to Realism

Modern psychology takes a form of indirect realism, or rationalism, as representations are thought to connect the perception of a physical object to the psychological depiction of it within the brain. This prevents realism and maintains mind-body and body-environment dualism, as perceivers have to make inferences about what is perceived (Chemero, 2009; Costall, 2011; Heidegger, 1927; Shaw, Turvey, & Mace, 1982). In contrast, direct realists believe perception to be direct and without representation or

mediation. Those taking this view identify themselves as empiricists and believe knowledge about the world is perceived through the senses. As organisms perceive the real, unmediated objects in the world, the Ecological approach is often associated with direct realism (Chemero, 2003b; Costall, 2001; Gibson, 1979a; Reed, 1991; Shaw, 2003; Shaw et al., 1982). However, Gibson (1966) also suggested that reflected light patterns change from where an individual is positioned, as each person has a unique relation or specification to a perceived object. This could be construed as a form of idealism, whereby a focus is on how objects are mentally constructed. Nevertheless, as perceivers are provided with real, direct and unmediated facts about the world, the Ecological approach is wholly incompatible with idealism (Chemero, 2003a; Heft, 2003).

Heft (1989) uses Dewey's (1896) reflex arc paper to illustrate how meaning is neither passively received from the external world in realist terms, nor constructed by the mind in idealist terms. In his original paper, Dewey provides an alternative explanation for why individuals automatically pull their hand away after touching a hot object. Psychologists tend to suggest this reflex action occurs because passive organisms produce responses to environmental stimuli once they receive external stimulation. Dewey believed that this explanation reinforces a mind-body dualism and that, instead of being unidirectional and fixed, behaviour emerges from continuous, action-orientated individual-environment relationships. Heft (1989) agrees, explaining how an intrigued child might reach out to an appealing flame, but may not repeat the behaviour if they are burnt. For

Heft, this illustrates how meaning is neither contained in the object nor the individual, but bound within ongoing, reciprocal exchanges between an organism and their environment. Therefore, while the Ecological approach requires some commitment to realism, it needs to account for the relation between an individual and their environment (Chemero, 2003b; Costall, 2004; James, 1890; Shaw et al., 1982).

5. Affordances Illustrate Individual-Environment Mutuality

When taking the Ecological perspective, perception and action are inseparable, because the ambient optic array directly provides perceptually capable organisms with meaningful, functional information of perceived environmental objects (Gibson, 1966; Good, 2007). These affordances uniquely specify available potentials for a perceiver (Gibson, 1966; 1979b; Michaels & Carello, 1981). Gibson used the term *econiche* to refer to aspects of an environment that have significance for a perceiver (Gibson, 1979a). For example, for an adult of a certain height with flexible limbs, a sturdy, flat surface of a certain size will afford sitting. In other words, the right resources within the right environments will offer the right organism opportunities to produce certain types of behaviour (Barrett, 2011). Affordances can therefore illustrate the mutual relationship between an individual and their environment and, through perceiving them, organisms can produce a range of complex behaviours. Without the affordance construct, perception would require higher order processes to explain how action is inferred from perceived light structures.

Affordances are one of the most important parts of the Ecological theory, but are in need of defining, as they remain one of the most controversial and debated components (Chemero, 2003a; Heft, 1989; Mace, 1977; Reed, 1996; Stoffregen, 2000; Turvey, 1992). This is partly due to Gibson's inconsistent and often opaque writing style. For example, initially, Gibson defined affordances as resources which provide suitably equipped perceivers with information about their environment (Gibson, 1979a). This definition becomes less clear when Gibson describes an affordance as "…equally a fact of the environment and a fact of behaviour. [An affordance] is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer" (Gibson, 1979a p.129). A review by Chemero (2003a) suggests that further attempts at providing a coherent definition of affordances have also been inconsistent. Many agree that affordances involve both an individual and their environment and have consequences for behaviour (Heft, 1989; Michaels, 2000; Reed, 1996; Stoffregen, 2000; Turvey, 1992). However, inconsistency arises when attempts are made to explain what parts of the environment and which properties of the organism it is that affordances relate to (Chemero, 2003a).

It has been suggested that affordances are environmentally-based resources, or properties of objects that control an organism's behaviour (e.g. Reed, 1996). Taking this view, affordances exist before they are perceived and are responsible, through natural selection, for the refinement of perceptual systems which allow organisms to exploit object properties (Chemero, 2003a; Reed, 1996). Others have disagreed and, instead, have

suggested that affordances are dispositions of individuals and environmental objects that manifest in certain conditions (e.g. Michaels, 2000; Turvey, 1992; Turvey, Shaw, Reed, & Mace, 1981). While dispositions always exist, an affordance is only present when these properties complement one another in certain conditions. Therefore, they cannot place selective pressure on organisms. Taking the dispositional view, it has been suggested that properties of the environment complement an individual's abilities or *effectivities* (Greeno, 1994; Turvey et al., 1981). For example, research on road-crossing affordances has looked at the relation between walking ability and the distance to be crossed (Oudejans, Michaels, van Dort, & Frissen, 1996). Others have suggested that the environment complements an individual's body scale (e.g. Heft, 1988). For example, research has quantified affordances for stair climbing in terms of body scale and step height (Cesari, Formenti, & Olivato, 2003; Warren, 1984).

Chemero (2003a; 2006) disagrees that affordances are dispositional properties of environments and organisms. Instead, Chemero argues how affordances are relations between the abilities of organisms and the features of a situation. For example, Chemero argues that, if affordances were dispositions, two individuals directly viewing the same object would view the exact same information at the same time. For Chemero, this cannot be the case, as what is perceived is unique to an observer. This issue of *two minds* perceiving the same object was initially raised by James (1912) and has since been outlined by Heft (2001). Chemero also suggests that effectivities cannot be the same as abilities, because abilities can inhibit

organisms from carrying out certain actions. Chemero uses the example of a flat surface affording climbing and a healthy, capable individual failing to climb it. This is incomprehensible when taking the dispositional view, as affordances should always manifest whenever properties of the environment and effectivities complement each other. Instead, Chemero suggests that abilities are the functional properties of animals which are subject to their development and evolutionary history. Chemero explains how these are changeable, as a change in either the environment or ability can change the affordance. For example, spilling a glass of water means the glass no longer affords drinking. Additionally, a staircase will no longer afford climbing when motor ability degrades in old age.

Chemero's contributions have been valuable in portraying affordances as inherently relational, but it remains unclear how affordances could be studied if they were relations and were neither properties of the individual nor the environment. Additionally, perception is always unique, because an individual picks up different light structures based on their position in the world and has unique experiences of acting upon different affordances. Various opportunities for action are available for any environmental object, but these are always limited, because it is not physically possible for an individual to act upon all available affordances. More importantly, a recent paper by Chemero and Turvey (2007) has suggested that the relational and dispositional perspectives of affordances are actually very similar. For example, both perspectives view affordances as emergent relational properties of ongoing, mutual and complementary

animal-environment systems, which are incompatible with computational models or language. Both perspectives also suggest that behaviour manifests when conditions related to the environmental context and abilities of an organisms are met.

Affordances have also attracted a large amount of interest due to Norman's (1988) book, one which provides a user-centred approach to designing everyday objects. Norman suggests that appropriate design involves minimising the expectation and execution of behaving with objects, in order to clearly specify their function. The book provides examples of poorly designed objects and solutions for adapting these using affordances. Although affordances are rightly described as important for behaviour, Norman's approach remains explicitly design-centred by focusing on adapting environmental properties for ease of use. Viewing affordances as environmentally-based in this way maintains the individual-environment dualism that Gibson was trying to overcome. More importantly, Norman disagrees with Gibson and suggests that perceived affordances are cognitively based within the brain, whereas real affordances exist in the physical world, outside of the brain. This definition of affordances goes against the very principles of the Ecological theory that Gibson espoused. For Gibson, there is no distinction between internal and external processes, because affordances are the mutual relation between individuals and their world. To address these conflicting definitions of affordances, a concise, working definition will be provided at the end of this chapter.

6. Affordances can be Used to Understand Social Behaviour

Most affordance research has focused on simple perception-action relations with single individuals. For example, catching a fly ball (Oudejans, Michaels, Bakker, & Dolné, 1996), crossing the road (Oudejans, Michaels, van Dort, et al., 1996) and climbing stairs (Cesari et al., 2003; Warren, 1984). Although Gibson had an interest in the social, the original Ecological theory of affordances did not incorporate the social nature of human behaviour (Costall, 1995). However, an individual's world is also a social world full of other individuals (Barrett, 2011; Good, 2007). Psychologists recognised the importance of affordances for social behaviours following an influential discussion paper by McArthur and Baron (1983). This paper presented Gibson's Ecological framework as an alternative to social perception research at the time, which tended to focus on perceptual errors and processes of inference. The authors suggested that the Ecological approach allows researchers to explore the adaptive function of social perception and that affordances could be used to explore events involving other individuals. For example, the authors suggested that social affordances can be influenced by properties of other individuals, including their appearance, voice or movement. Although affordances were defined as environmentally-based properties, this paper showed that Gibson's Ecological approach is a viable method to help researchers understand the social world.

A number of interesting conceptual papers have since attempted to explain the social and cultural implications of Gibson's work. Heft (1989) has discussed how affordances illustrate the functional meaning that an environment has for an individual, including how this knowledge is socially and culturally derived from experience. Heft uses Gibson's (1979a) example of how a mailbox affords mailing a letter to illustrate this point. Heft (1989) explains that, despite the appearance of a mailbox changing between countries, most individuals know that the function of a mailbox is to post mail, because a mailbox affords *posting*. For Heft, this specific knowledge about object usage is learnt through observation, instruction, or through obtaining knowledge about culturally-specific, social convention. Good (2007) explains how these types of objects are cultural, man-made *artefacts,* or products of human manipulation that are more prominent for the members of the culture that the object is from. Although this term is frequently used by Ecological researchers, Gibson (1979a) believed that making a distinction between natural and man-made objects creates another problematic dualism. Importantly, knowledge about these objects is inter-subjective, as it is shared among others and formed through the interactions had with other individuals within the world (Good, 2007). In Ecological terms, this knowledge is situated. Therefore, it does not reside within the brain, or manifest through representations, but is enacted by the body and maintained by the world.

As this knowledge about the world is formed from experience, it can help to explain why certain affordances are taken up (Michaels & Carello,

1981). It has been suggested that organisms are generally more likely to act based on *canonical* affordances in an environment (Costall, 1995). These are the direct, conventional and normative opportunities for action within certain contexts. For example, a student in a lecture theatre might sit on an unoccupied, front-facing chair because it affords sitting and, from experience, they know that students are required to sit in a front-facing position in order to view the lecturer. Other action potentials are available, as the student could stand on the chair by acting on more indirect, non-canonical affordances. These tend to involve indirect perception, as they are not immediately acted upon and are often taken out of the perceptual flow for further inspection. For example, a chair may be large enough and flat enough to stand upon, but experiences and observations have led to the knowledge that chairs are meant to be sat upon instead. If no seats are available, the affordance to sit becomes restricted. However, this does not mean the student will take up another inappropriate opportunity to sit, for instance on the lectern. This is due to social norms and because properties of the lectern would not support the action. Instead, the student might consider other action possibilities, such as sitting on the floor or standing.

A paper by Gaver (1996) has described how the presence of another individual extends opportunities for action, in the same way that objects in the environment do. Richardson, Marsh and Baron (2005) have since explored this idea, using a series of goal-directed tasks which required cooperation for successful completion. Even though participants could have cooperated on all of the tasks, most only cooperated when environmental

features or their own capabilities dictated it. For example, in a plank-moving task, participants only cooperated when the planks were too long or heavy to carry alone. This supported Gibson's theory and led the authors to define affordances as relations between individuals and environments. Importantly, the authors concluded from a number of studies that other individuals extend perception-action capabilities and that using affordances to investigate these relations could reveal predictable social action (Marsh, Johnston, Richardson, & Schmidt, 2009; Marsh, Richardson, Baron, & Schmidt, 2006; Marsh, Richardson, & Schmidt, 2009). Although some research is starting to explore the link between affordances and social behaviour (e.g. Marsh, Richardson, et al., 2009; Townshend, 2013; Townshend & Roberts, 2013), no research has yet considered the usefulness of these ideas for preventing maladaptive alcoholic drinking behaviour in licensed premises.

7. Critique of the Ecological Theory has led to its Refinement

As an alternative conceptual position to theories of representation, the Ecological theory threatens to undermine a number of underlying principles that psychology rests upon, with the potential to change the scientific study of behaviour. However, these ideas have not yet received much attention in psychology. This may be due to issues with defining the affordance construct, incorporating the social nature of behaviour into the theory, or due to Gibson's often challenging and opaque writing style. For example, instead of describing key concepts of the theory as mutually connected and relational, Gibson often spoke of information, affordances

and the environment as being external to organisms (Chemero, 2003b; Costall, 1995; Costall & Still, 1989; Gibson, 1960; Reed, 1993). In addition to this, incorporating the Ecological theory and affordances into a research paradigm is challenging. As will be discussed in Chapter 3, the approach requires researchers to undertake a great deal of conceptual and methodological re-tooling. Aside from these issues, the radical nature of the Ecological theory has attracted a great deal of criticism. However, it will now be argued that much of this criticism is unwarranted, or has actually led to the theory being successfully refined.

Many individuals who critique the Ecological theory appear to not be aware that, while Gibson posed the Ecological theory as an alternative to conventional approaches to perception and cognition at the time, much time has been devoted to reviewing and discussing the potential shortcomings of the theory. For example, the theory is often critiqued in terms of perceptual errors, as it is unclear how an organism can directly misperceive properties that an object does not have (Fodor & Pylyshyn, 1981), but Gibson also discussed these issues at length. These are an issue for the theory, but have been explained in Ecological terms (e.g. Michaels & Carello, 1981). More importantly, as the underlying principles of the representational and Ecological approaches are different, they can only be compared in terms of these underlying principles. This is because they ask entirely different questions which provide entirely different answers (Michaels & Carello, 1981). Unfortunately, many researchers continue to try to fit the Ecological approach into a representational model of cognition (e.g. Vera & Simon,

1993). Others dismiss the theory entirely, as they are simply unable to accept that perception could ever be direct, unmediated and without the formation of representations (e.g. Ullman, 1980).

A paper by Fodor and Pylyshyn (1981) remains one of the most cited critiques of the Ecological theory. This paper suggests the Ecological theory is not radical or too different from the traditional representational, information-processing approach, which they call the Establishment theory. The paper spends much time explaining how the Ecological theory contributes little because it conflates theories of perception and cognition. However, it fails to mention how the Ecological approach re-defines both these processes by suggesting they belong to the same, unmediated system. Fodor and Pylyshyn's arguments are circular, as they critique the Ecological theory from the Establishment perspective. For example, Gibson is criticised for not explaining the link between information pick up and perception, or providing an alternative for mediation. However, for Gibson, high-quality information pick up is a single process of perception and does not require mediation. Fodor and Pylyshyn's weak grasp of Gibson's theory is illustrated by their suggestion that researchers should create experiments to hold the world constant and change available patterns of light, and vice versa. However, this is impossible because any change in the environment would instantaneously change the pattern of light available in the energy array.

The main critique that Fodor and Pylyshyn (1981) had with the Ecological theory was with what is perceived. The authors maintained that, even if organisms directly detect information from the world, they still perceive only a part of the available information in the optic array and have to infer what the rest of the pattern looks like. Additionally, Fodor and Pylyshyn questioned whether perceived information fully specifies action potentials for an individual. Instead of perceiving affordances, Fodor and Pylyshyn suggested that the perceptual system simply perceives the form of something. For example, a shoe is perceived simply because it has shoe-like properties. This prompted a detailed response by Turvey, Shaw, Reed and Mace (1981), which became one of the most important clarifications and refinements of the Ecological theory. Turvey and colleagues (1981) maintained Gibson's (1979a) notion that, as there is such an excess of rich information available to be perceived, only a portion of this is needed for perception. Turvey and colleagues suggest that, as organisms seek out self-referent and appropriate action potentials, and because detecting these light patterns is the equivalent to detecting the exact property in the world, perception is direct, fully specifying, unmediated and accurate. Therefore, only relevant light patterns are picked up, based upon natural laws, which are the physical conditions required for an affordance.

Turvey and colleagues' contribution made the Ecological theory testable, by suggesting perceived Ecological information is constrained. Therefore, affordances only manifest when organisms possess effectivities, or the physical ability, to undertake the behaviour and the environment

supports the behaviour. Taking this view, an aspect of the environment *(for example, a hole)*, only affords a possibility for action *(climbing-into)* for an organism, if certain properties of the environment are complemented by the individual *(size of the organism and hole, climbing ability)*. Within each individual-environment relationship there are a varied, but limited number of action possibilities that can be carried out. This is because an organism can only effect a certain activity *(climbing-into)* in relation to an environmental situation *(a hole),* if properties of the individual are complemented by properties of the environment *(size of the organism and hole, climbing ability)*. Turvey and colleagues explain how Fodor and Pylyshyn actually conflate affordances, or action potentials, with occurrences, or action actualities. For example, a shoe can be an occurrence, but it has a variety of available affordances that can be carried out.

Turvey and colleagues' contributions have been valuable, but have been criticised for portraying perception as infallible and obeying fully specifying natural laws. As has been discussed, Chemero (2003a; 2006) has described how this is not always the case, as conventions can be violated if what is perceived is contradictory, or if organisms mistake objects with similar optical patterns. Chemero provides the example of a milk carton which contains beer and how a moth might confuse a light bulb with a natural light source. In these cases, reflected light patterns still provide information about the environment, even if they are later deemed to be incorrect. Gibson (1979a) has also explained how picking up incorrect information in the ambient light still leads to action, but might mean

inappropriate actions are taken up. Chemero (2003a) goes on to explain how perceived information might not always be fully specifying and correct, but as perception occurs over time as an individual navigates their environment, an individual can take corrective action using another of the body's complex sensorimotor systems. Therefore, the initial affordance can later be taken up when it becomes available.

8. A Contemporary Definition of the Ecological Approach and Affordances

Chapter 1 explained how many approaches for understanding risky alcohol consumption are based upon a representational model of cognition. The current chapter has outlined some of the fundamental problems that have been associated with representationalism. Gibson's Ecological approach has been presented as an alternative conceptual position which does not require representation. A main component of this theory, the affordance construct, illustrates individual-environment mutuality, but requires a contemporary, concise definition. Although some research has used affordances to understand simple social behaviours, to the author's knowledge no affordance work has been completed on complex, maladaptive behaviours. This chapter has argued that the Ecological approach has gained insufficient attention in mainstream psychology, possibly due to these conceptual and methodological issues. However, much criticism of the Ecological theory has been unwarranted, or has led to the theory being refined.

The final section of this chapter will focus on providing a concise and contemporary working definition of the Ecological approach and affordances that relates both to Gibson's (1966, 1979a) initial theories and to important reformulations of this approach (e.g. Chemero, 2003a; Heft, 1989, 2003; Marsh, Johnston, et al., 2009; Turvey et al., 1981). The author of this chapter maintains that individuals are immersed within meaningful, rich environments and have dynamic bodies with adaptive, coordinated systems and capabilities. Focusing on the brain in isolation overlooks the mutual relationship between an organism's body and their environment, when both are completely relevant in the study of complex behaviour. Therefore, many of the approaches for understanding drinking behaviour identified in Chapter 1 might be ineffective because they only look at one part of this complex relationship, or maintain a dichotomy between individuals and their environments. Instead, a focus should be on individual-environment relations within a direct, unmediated system and behaviour should be explained in terms of affordances and effectivities, without referring to representations.

Affordances are inherently relational action potentials which are directly perceived by individuals as they navigate their world. They only manifest when features of the environment support the action and an organism is capable of taking up this opportunity to act. Affordances do not cause behaviours, but can extend or restrain it, providing opportunities for action through an individual's relationship with environmental objects and other people. Affordances are not fixed, as changes in events change the

layout of affordances in the organism-environment system. Affordances are also influenced by an individual's development, in terms of the maturation of skills, physical growth enabling new actions to be performed, or through impaired performance due to loss of function with ageing or injury (Heft, 1989). Affordances are also subject to individual differences, based on their specific capabilities, body structure or experiences. For example, certain organisms might be more susceptible to certain action potentials, or may deliberately seek out specific types of affordances in certain contexts.

Organisms are aware of their capabilities and their positioning within the environment (Chemero, 2003a). They can use this knowledge to actively seek out or improve the quality of information available to them. As individual-environment relations are mutual, it is possible that behaviour could even guide perception. For example, if an object in the visual field is unclear, the visual system can coordinate with the motor system in order to walk towards the object, for further clarification. This means that organisms can manipulate their environments to offer them the right type of action potentials, or adapt their behaviour to ensure these opportunities for action are available (Good, 2007; Heft, 1988, 1989). These ideas are reflected in the so-called *radical embodied, embedded* approach to cognition proposed by Marsh and colleagues (2009). This illustrates how an embodied brain is embedded into a social and physical world, with affordances that can be taken up. As the brain, body and environment are part of one coordinated system, instead of directing behaviour, the brain could support the functioning of the body. For example, it could assist with the positioning of

complex, multi-modal sensory and motor systems as they pick up a range of information about the world (Marsh, Johnston, et al., 2009; van Dijk, Kerkhofs, van Rooij, & Haselager, 2008).

The Ecological approach combines the psychological and physical. Although this approach views representations as irrelevant or non-existent, it does not deny internal processes. Instead, cognition, knowledge, and other processes defined as 'cognitive' because, in representational terms, they take place inside the skin, become situated. This means they exist at the relation of an individual to their world, as they are enacted by the body and held in place by an individual's physical and social environment. As the meaning of perceptual information is integrated within mutual organism-environment relations, perceptions and conceptions of the world are one and the same. Therefore, cognition can be redefined as something which emerges and is held in place by organism-environment relations, not representations. Specification replaces representation, as information about the real world is perceived in relation to a perceiver. Remembering does not involve linking to a representation of a previous experiences, but of directly knowing of past experiences and behaviour patterns themselves (Shaw et al., 1982). These ideas will be discussed further in Chapter 8.

This does not mean that behaviour cannot be goal directed. There is an excess of information in the world to be picked up and objects have a range of available action potentials. Which information is made redundant

and which affordance is taken up depends on the individual-environment relation, convention and the goals of the perceiver. It is important that Ecological researchers focus on available affordances taken up by individuals with certain effectivities in specific contexts; the shared, inter-subjective knowledge held by groups of individuals about the world; and the situated attitudes, intentions, beliefs and knowledge that individuals develop from behaving within the world.

9. Conclusion

This chapter has outlined the Ecological approach and its relational ontology of affordances. This approach suggests that perception is direct, unmediated and does not require representation. Instead of guiding behaviour, the brain is thought to facilitate the functioning of a number of multi-modal sensory and motor systems which pick up information as an individual navigates their environment. These ideas could be used to better understand behaviour, which is thought to emerge from mutual, unmediated, individual-environment systems. This is because, when explaining behaviour, the Ecological approach gives equal explanatory power to both individual and environmental factors. The next chapter will focus on the conceptual and methodological challenges associated with using these ideas to specifically understand drinking behaviour.

CHAPTER 3

Methodology and Challenges

S uccessful application of the Ecological approach to cognition requires a thorough reworking of some of our central concepts.

(Good, 2007)

1. Introduction

Chapter 1 explained how many dominant approaches for understanding drinking behaviour are limited and that a more relational approach is required, which combines individual and environmental factors. Chapter 2 presented Gibson's Ecological theory as an alternative to limited theories of representation, which focuses on how behaviour emerges from an individual's mutual relationship with their environment. Although this approach addresses a number of prevailing psychological dualisms, it provides Ecological researchers with many conceptual and methodological challenges when they attempt to use these ideas to understand behaviour. An overview of these issues will be presented and recommendations for the language and methods used in such research will also be provided. This chapter will end by outlining a programme of research which combines contemporary ideas about Ecological psychology and affordances in order

to understand drinking behaviour carried out by young adults in a range of drinking environments.

2. Creating Boundaries Between Internal External Processes

The essence of the relationship between the brain and the world has long been of interest to psychologists and philosophers. It is important to be aware of early ideas about these relations, in order to understand how the Ecological theory has developed from these principles. Early theories about the brain were influenced by Descartes' proposal that the immaterial mind controls the material body (Barrett, 2011; Bickhard & Terveen, 1995; Costall, 2001; Gibson, 1960; Heidegger, 1927; Merleau-Ponty, 1945; Michaels & Carello, 1981). Instead of using these notions to understand the interaction between the body and the brain, the idea of dualism became dominant in debates about understanding psychological functioning, which separated the psychological from the physical. By the time Psychology was emerging, it aimed to distance itself from the physical sciences which focused on the external, observable physical world, in order to become a scientific discipline in its own right (Barrett, 2011; Costall, 2001, 2004; Dewey & Bentley, 1949; James, 1890). Not only did this create a distinction between supposed internal and external processes, but it forced the skin to become an arbitrary boundary between the two. For example, psychologists tended to explain behaviour which occurs outside of the skin in terms of processes that are contained within the skin (Barrett, 2011).

Helmholtz is often credited for being one of the founding figures of Psychology (Barrett, 2011). Helmholtz's Constructivist idea of perception suggested that the retinal image was impoverished and provided inadequate information for perception (Michaels & Carello, 1981). Taking this view, individuals rely on the reconstruction of otherwise meaningless sensations inside the brain to understand what is perceived in the world. Wundt, Helmholtz's student, was a Structuralist who focused on breaking down the unobservable, internal, subjective mental workings of the brain using the introspection technique (Costall, 2004; James, 1890). Although Gestalt psychologists were interested in whole patterns and not component parts, they maintained that rich environmental information was lacking from the retinal image and that meaning was recreated and constructed by innate processes within the brain (Gibson, 1960, 1978; Michaels & Carello, 1981). This led to the development of the Functionalist school of thought, which was concerned with the holistic function of events and argued that consciousness could not be broken down into individual elements (Costall, 1984, 2004). Both James (1890, 1912) and his students, including Dewey (1896) and Holt (1915), were pragmatists who rejected the idea that the purpose of mental processing was to represent reality. Instead, mental processes were thought to be related to predicting and acting within the world.

The Functionalist approach did much to replace existing notions of passive perceivers relying on cognitive processing to make sense of what is perceived. Functionalists focused on goal directed behaviour as it emerges

from the dynamic interactions between active social agents and their shared, social worlds (Chemero, 2003a; Costall, 2001). Experiences were understood in terms of the knowledge, language and meaning shared between situated individuals, not through shared representations (Costall, 1984, 2004). This focus on experience was further emphasised by phenomenologists who viewed perceptual experience as the source of all knowledge and intentionality as situated within the world (Heidegger, 1927; Husserl, 1970; Merleau-Ponty, 1945). Phenomenologists studied individuals, not as passive subjects perceiving a world of objects, but as active explorers immersed in their worlds. Around this time, Darwinian thinking also depicted organisms as actively adapting their characteristics to environmental changes to ensure their chance of survival (Costall, 2001, 2004). Each of these approaches emphasised the importance of the body for producing goal directed behaviour, perceptual experience, and the mutuality between individuals and their world.

In an attempt to take Psychology back to the rigour of the physical sciences, Behaviourism rose to dominance, which eclipsed most of this progress (Costall, 2004). Behaviourists focused on understanding behaviour in terms of observable responses or behavioural outcomes made by the mechanistic body to external, environmental stimuli (Barrett, 2011; Costall, 2001). Although behaviourists believed the environment determines behaviour, some principles of individual-environment mutuality remained. For example, many behaviourists, such as Skinner, sought to understand behaviour in terms of reciprocity, functionality and by directly observing the

actions of others (Costall, 2004). Cognitive psychology was later formed partly in response to Behaviourism, in order account for the physiological underpinnings of behaviour and the link between stimulus and response. This once again enabled researchers to make inferences about how the brain governs external behaviour (Chemero, 2009; Harnad, 1990). For example, cognitivism focuses on studying mental processes to understand behaviour, while studying behaviour in order to understand underlying mental processes (Costall, 2006). Additionally, cognitive neuroscience is concerned with how internal memory structures, such as patterns of neural firing, are related to perception and action in the world.

Despite insisting dualisms no longer exist and purporting to be revolutionary, some aspects of modern cognitive neuroscience are arguably very similar to behaviourism. For example, behaviour observations are often interpreted in terms of unobservable internal processes and the mechanistic input-output and hypothetico-deductive methods have been maintained (Costall, 2006). Importantly, despite changes to the field, representationalism dominates current psychological theory (Costall, 2011; Good, 2007). This implicitly maintains both mind-body and body-world dualism, forcing researchers to try to understand how objects in the physical, external world could exist within the non-physical, internal mind (Barrett, 2011; Bickhard & Terveen, 1995; Costall, 2001; Gibson, 1960; Hegelund, 2005; Heidegger, 1927; Merleau-Ponty, 1945; Michaels & Carello, 1981)

3. Setting the Subjective and Objective Apart

This internal-external boundary has also set the objective and the subjective apart. For example, much of psychology continues to research subjective mental phenomena as something which is distinguished from the objective world (Costall, 2004). This arguably creates a distinction between what a thing is, in the physical sense, and what a thing means, in the mental sense (Shaw et al., 1982). Therefore, meaning is denied objective validity, treated as unreal, contained within the head and isolated from the world (Dewey, 1929). This also leads to a division being made between different types of methodologies. For example, objectivity is frequently associated with the Positivist reliability and validity of the physical sciences, or quantitative research (Barrett, 2011; Dewey & Bentley, 1949; James, 1890). Subjectivity is often associated with qualitative research, but many qualitative researchers aim to make the subjective more objective by attempting to detach themselves from the research process (Hegelund, 2005; Holt, 1915). For example, phenomenological reduction is assumed valuable in qualitative research. This involves researchers bracketing all of their existing knowledge, theory and beliefs related to the phenomenon of study, in order to focus on the lived experience of their participants.

In psychological research, an objective reality can never be interpreted separately from a subjective experience, because researchers are absorbed in their own subjectivity and cannot fully detach from their existing knowledge (Chemero, 2009; Costall, 2012; Gregory, 1989). Not only is full objectivity unattainable, but it may actually be detrimental for a

researcher to separate themselves from the research process in this way, as it is this subjectivity which aids data interpretation (Hegelund, 2005). For Hegelund (2005), the epistemological differences between qualitative and quantitative research mean they generate different kinds of knowledge. Therefore, instead of aiming to be objective at the cost of hindering subjectivity, researchers should be aware of these issues and acknowledge their theoretical position. This includes avoiding subjective-objective dualism if it impedes the topic of study. Psychologists studying human behaviour need to be aware that they are not separate from their environments, but are an important part of their research observations.

A number of early thinkers believed that setting the subjective and the objective in opposition was problematic and that an emphasis should instead be placed on the relation between the two (Dewey, 1929; Holt, 1915; James, 1912). One reason why the world cannot be conceptualised as being objective is because objects within it have meaning for individuals. However, this goes beyond internally based meaning or preference and includes the functional significance that the world has for behaviour (Dewey, 1930; Heft, 1989). For Dewey (1941), the terms objective and subjective are poorly defined and should be replaced with neutral terms. Instead, Dewey suggested what is traditionally viewed as objective or physical should instead be viewed as the conditions associated with the possibility for an experience, whereas subjectivity should be replaced with an individual's direct experience of an object in time and space. Although this maintains the objective-subjective dichotomy, it suggests certain

conditions are required for certain behaviours and that this flow of information from an object in the world is directly picked up by individuals. Importantly, this suggests that it is experience which enables researchers to talk about the subjective and objective at once, without resorting to any dualism (Dewey, 1941; Holt, 1915; James, 1912; Merleau-Ponty, 1945).

4. The Ecological Approach Addresses a Number of Dualisms

Gibson was highly critical of idealism and subjectivism, which was common within the prevailing Gestalt psychology at the time (Shaw, 2003). Gibson was also influenced by those who theorised about situated perception-action relations, organism-environment mutuality and the functional, situated nature of knowledge (e.g. Dewey, 1896; Heidegger, 1927; Holt, 1915; Husserl, 1970; James, 1912; Mead, 1938; Merleau-Ponty, 1945). The Ecological approach suggests that behaviour emerges from a mutual, unmediated individual-environment system (Gibson, 1979a). By connecting the body and world into a relational construct with action possibilities, Gibson's approach avoided the use of representations and broke down existing dualisms between the psychological-physical, internal-external, material-immaterial, mind-body, body-world and subjective-objective (Costall, 2001). The challenge for researchers is to re-define each of these in Ecological terms and to reconsider how conventional psychological concepts would work when taking this approach. It is not enough to accept that perception is direct, that there are mutual individual-environment relations, and that affordances can be used to study behaviour (Good, 2007).

A number of the philosophers and phenomenologists who influenced Gibson suggested that meaning is not internal, subjective and hidden, but situated within and accessible at the relation of an individual to their world (Dewey, 1941; Holt, 1915; James, 1912; Merleau-Ponty, 1945). Although affordances are real, Gibson was clear that they are neither internal, subjective entities which reside in the mind, nor objective entities which exist solely in the external, physical world (Costall, 2012; Gibson, 1966; Mace, 1977). By defining affordances as relational, Gibson was able to make a radical departure from existing theories of value and meaning which dominated mainstream psychology at the time. These notions have prevailed today, as the real, physical world is thought to exist independently of a person's thinking about it. Therefore, objectivity is often based upon how well research findings can describe the world. In Ecological terms, an individual's physical and psychological worlds are not distinct. It is because of this that subjectivity can be defined as not as something which is understood in terms of shared, hidden mental representations, but something which is accessible within the flow of information between individuals and their environments. Therefore, it is created, maintained and could be accessed through the mutual relationship that individuals have with their world (Costall, 2012).

5. Language Must Reflect Mutual Individual-Environment Relations

Gibson's theory changes the level of focus for psychology and allows researchers to re-consider many commonly held views. New ways of thinking often do not correspond to changes to long-standing methods or,

more importantly, terminology (Dewey & Bentley, 1949). Therefore, a difficulty for researchers is using appropriate descriptions for these relations, as existing terms are incompatible with the Ecological approach. For example, it is common in psychology to describe individual-environment relationships as disconnected and fixed. Instead, Ecological researchers must use terms which reflect a mutually inseparable and dynamic relationship between a fully embodied brain and an embedded body. These relations are ongoing, continuous, reciprocal and completely incompatible with any type of dualism (Gibson, 1979a). For example, information is traditionally thought to be contained within the mind and mediated by mental processes. In the Ecological sense, information must be described as being available in the environment, so that it can be picked up by perceivers (Heft, 1997). In Ecological terms, individuals are active as they navigate their environments to pick up information in order to behave. This is different to how traditional approaches use the term to describe individuals actively engaging in mental activity to manipulate and transform sensory input.

A single theoretical language is required which reflects the key principles of Gibson's Ecological approach, as well as how this research is carried out. This is challenging, because the language typically used by researchers maintains the problematic dualisms that have been outlined in this chapter. For example, a name often describes the form or physical characteristics of an object, but not the meaning or function that the object has for an individual in a certain environment. However, it is hard to adapt

language when it has already been set (Dewey & Bentley, 1949; Hegelund, 2005). Instead, Dewey and Bentley (1949) have suggested that the language used in scientific research should reconnect organisms with their environment, place an emphasis on entire processes, not component parts, and reflect the functional significance of objects in the world. Therefore, when describing individual-environment relations, the term *interaction* is inappropriate. This is because the term is often used in physical science to illustrate how elements in a relationship can be broken down into fixed, independent parts. Instead, a better word to describe the complete, ongoing process of connected things and events in the world is *transaction*. The name transaction is used to address stages of action, or the functional significance of objects, without implying the elements of this relationship are independent or can be broken down.

The affordance terminology also provides researchers with a mutual, function-based language which aims to overcome a number of dichotomies within scientific knowledge and replace existing dualistic language (Dewey & Bentley, 1949). This allows researchers to conceptualise the objective and subjective as mutually entwined, while focusing on the transactions that an individual has with function-rich Ecological objects in their world and with other individuals. Using effectivities alongside affordances also ensures descriptions of individuals are given with reference to their environment, and that descriptions of the environment are given in reference to an individual (Shaw et al., 1982). Employing this language addresses naming issues and helps researchers to

avoid the dichotomies which plague psychological research and are a challenge for Ecological research. This could help researchers to describe individual-environment relations when creating Ecological research paradigms, or when formulating testable hypotheses about perception and action. Not only do these terms better reflect the complementary and mutual relationship between individual and environment, but they illustrate how both are equally needed to produce behaviour (Good, 2007).

6. An Ecological Approach to Understanding Alcohol Misuse in Context

Contemporary ideas about the Ecological approach and affordances could be useful in developing and testing an approach for understanding different types of drinking behaviours carried out by young people. For example, the idea that behaviour might be extended or constrained by the environment and that cognitive processing might be secondary to this provides an alternative functional perspective or starting point for behaviour research. Current approaches for understanding and explaining drinking behaviour may be inadequate because they focus on only one part of the puzzle, by typically specifying intentions or supposed internal cognitive processes as an important antecedent of behaviour. Therefore, changing or moderating intentions without accounting for the embodied brain and the environmentally embedded body is unlikely to effectively change behaviour. Instead, a focus could be on the transaction between an individual and objects within their environment. This conceptual shift has been suggested in Chapter 1, in terms of addressing existing limited

approaches for understanding behaviour and in Chapter 2, alongside contemporary ideas about Gibson's Ecological approach and affordances.

One of the initial challenges for this research will be to find a way of capturing the intimacy, or interrelatedness, of the brain, body and world. Instead of taking data away from the world to be understood in terms of higher level representations, the affordance construct provides a means to talk about relations away from fixed dichotomies. However, without methodological re-tooling, it is difficult for researchers to tap into mutual individual-environment transactions. For example, an individual has their own unique relation to their environment and directly perceives available affordances within it. However, this is not directly evident to an independent researcher who is attempting to understand these relations for other individuals. Therefore, the author of this chapter argues that by re-defining subjectivity as something not hidden and internal, but accessible within individual-environment relations, researchers are provided with an appropriate window onto affordances. This would allow researchers to collect rich data at the interplay of body and world by investigating the subjectivity which exists between independent observers, individual drinkers, groups of individuals and their drinking environments. The next part of this chapter will outline a programme of research which aimed to do this.

6.2 Observations from an Independent Observer: Can Gibson's Affordances be used to assess the Functional Characteristics of a Range of Drinking Environments?

The first stage of this research programme aimed to explore whether Gibson's affordance construct could be used to assess the functional characteristics of the on-premise environments where alcoholic drinking takes place. This non-participant observation study focused on the transactions between individuals and their drinking environments in terms of affordances. Affordances have not been used before to look at complex, maladaptive social behaviours, such as risky drinking behaviour. Assessing opportunities for action in a broad range of modern, but complex drinking environments was challenging. However, direct observation provided an insight into alcohol-related affordances according to the subjective perspective of an independent observer. These observations were categorised using a functional taxonomy (e.g. Heft, 1988), and in terms of effectivities (e.g. Turvey et al., 1981). The findings of this study provided some important implications for the availability of alcohol-related affordances, including how these action potentials could be manipulated to help prevent risky alcohol consumption in certain contexts. This study will be presented in Chapter 4.

6.3 Understanding Individual Subjectivities: What Meaning do Alcohol-Related Affordances have for Individual Drinkers?

The second stage of this research programme aimed to explore the individual subjectivity which exists at the mutuality of drinkers to their drinking environments using phenomenology. Photo-elicitation interviews allowed participants to describe available opportunities for consuming alcohol that were and were not present in a range of modern drinking environments. These photographs included the alcohol-related affordances identified in the previous study. Interpretative phenomenological analysis (Smith, 1995a; Smith, Jarman, & Osborn, 1999) allowed the researcher to investigate first person drinking experiences, by tapping into the subjectivity which exists within individual-environment relations. This flow of information was direct in the discourse the researcher was having with the participant, as individuals came to make sense of their drinking experiences, based on their own histories and experiences in similar environments. Subjectivity was also created in the interview setting as participants explained how they would behave if they were put into similar contexts in the future. The findings of this study supported most of the alcohol-related affordances from the previous study and provided an important insight into why affordances were taken up by certain individuals. This study will be presented in Chapter 5.

6.4 Understanding Group Subjectivities: What Meaning do Alcohol-Related Affordances have for Groups of Drinkers?

As individual drinkers share their drinking environments, it was proposed that some of this subjectivity would also be shared with others. The third stage of this research programme aimed to uncover patterns of

subjectivity that exist within and between groups of young adults and the environments where they consume alcohol. Q-Methodology (Stephenson, 1953) is a powerful but relatively under-used method for investigating subjectivity, which has not been used in this way before. It was perfectly suited for the current study because it represents a hybrid of qualitative and quantitative research methods and overcomes many underlying dualisms in psychological research (Brown, 1997; McKeown & Thomas, 1988; Ramlo & Newman, 2011; Stephenson, 1953). The statements for this study were devised from the alcohol-related affordances identified by the previous two studies. These statements depicted viewpoints and invited participants to reflect on their drinking behaviour from their previous experiences. Subjectivity was constructed by participants as they sorted each statement on a grid in relation to other statements, based upon their viewpoint. This study highlighted patterns of subjectivity in the participant sample, as those with similar viewpoints were grouped together. This research has important implications for understanding group subjectivities that are formed from individual subjectivities and why certain affordances are taken up by groups of drinkers in certain contexts. This study will be presented in Chapter 6.

Figure 1 provides an overview of the three stages of this research programme.

Figure 1. *An Overview of the Methods used in this Research Programme*

Study 1
Observation:
Systematic assessment of alcohol-related affordances within licensed premises.

Study 3
Q-Methodology:
Quali-quantological investigation into group perceptions of alcohol-related affordances.

Study 2
Photo-Elicitation:
Phenomenological investigation into individual perceptions of alcohol-related affordances.
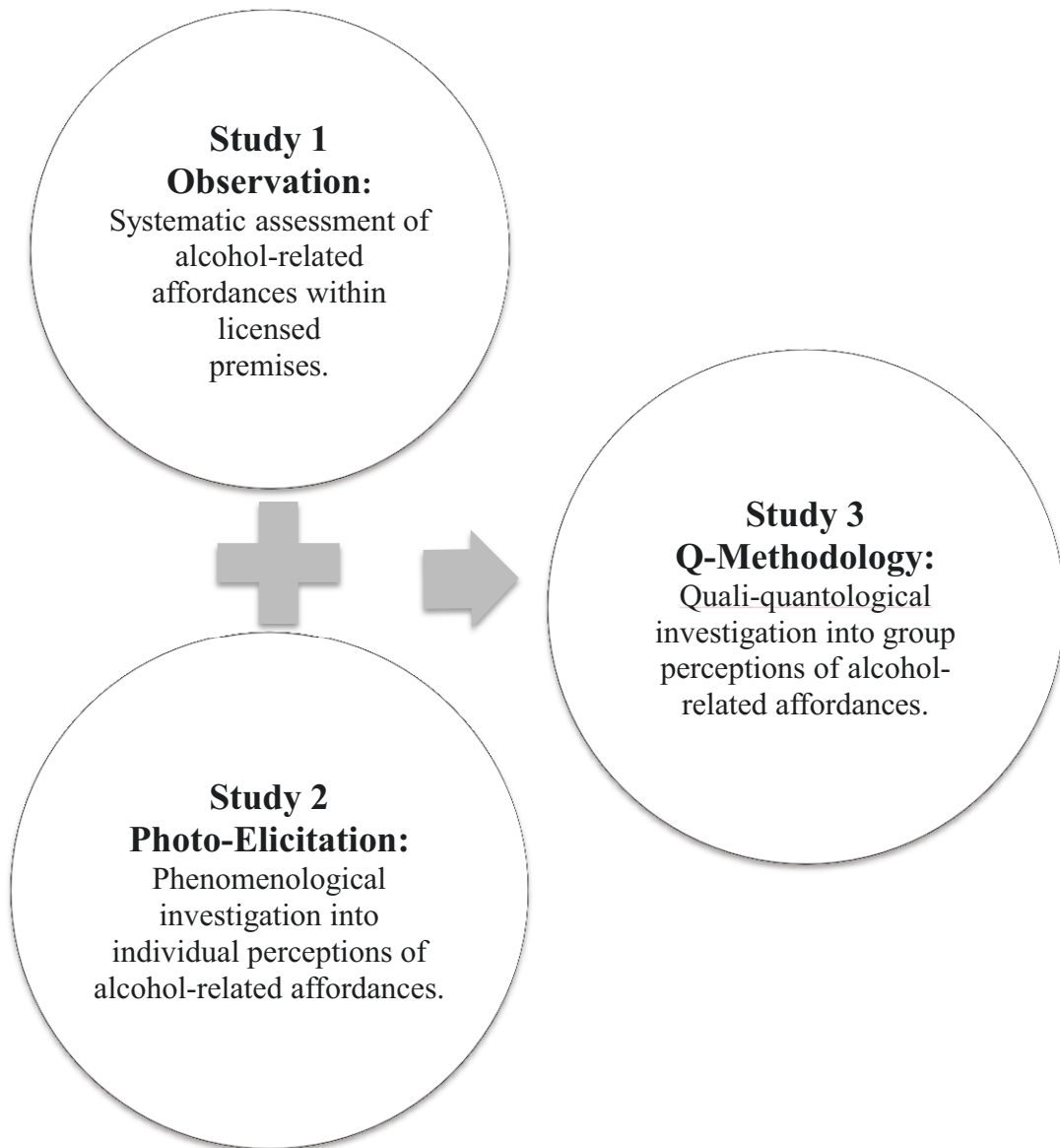
7 Conclusion

This chapter has outlined some of the key epistemological and methodological challenges surrounding a programme of research which aimed to use contemporary ideas about the Ecological approach and affordances to understand alcoholic drinking behaviour in young adults. Instead of focusing on how intentions or cognition mediates behaviour in an external world, this research programme focused on the direct and complex transactions of individuals with their environments. It was proposed that the subjectivity which exists between independent observers, individuals, groups of drinkers and their environments could provide a window onto these relations. This provided the researcher with a valuable insight into the availability of opportunities to consume alcoholic and non-alcoholic beverages in certain contexts.

CHAPTER 4

Affordances for Drinking Behaviour: A

Non-Participant Observation Study in Licensed Premises

A n affordance description results in an account of the *functional opportunities* of a setting. Affordances do not "cause" behaviour…but instead present possibilities as well as constraints on action. (Heft, 1997)

1. Introduction

Chapter 1 explained how alcohol misuse is a public health concern, particularly for young adults, who tend to be overlooked by prevention and policy. Many approaches aimed at understanding and explaining drinking behaviour have been found to be lacking. In Chapter 2, it was suggested that this may be because these approaches rely on a limited representational model of cognition. For example, psychological social cognitive models tend to specify intentions as the key, or proximal, mediator of behaviour, based on the view that *cognition*, taken to be mental processes such as beliefs, values, attitudes and intentions, guides behaviour. Additionally, there is a clear theoretical link between drinking environments and drinking behaviour, but more research is required to investigate how a combination of these factors influences drinking behaviour in a range of modern

establishments. James Gibson's (1979a) Ecological approach to perception has been presented as an alternative ontology which looks at how behaviour emerges from individual-environment relations. In Chapter 3, it was suggested that, despite conceptual and methodological challenges, these ideas could be used to understand drinking behaviour in context.

In brief, affordances are inherently relational opportunities for action, which provide the perceiver with functional information about the environment in certain contexts. This includes the agreed use-meaning of objects and related social norms. One way to understand the value of affordances is to consider what they contribute to levels of description. Heft's (1988) analysis of observational work on children's play environments involved coding detailed observations of a boy's daily play routine using a functional taxonomy of affordances. Heft realised that behaviour observations fell into a number of functional categories and could be coded as such. For example, Heft explains how original, form-based descriptions of a park scene might include descriptions of larger trees surrounded by benches, but are fixed and adevelopmental. Alternatively, function-based descriptions of the same scene (i.e. affordances) are arguably more psychologically meaningful, because they reflect the meaning that the park has for each individual in terms of the behaviours that can be performed with objects within it. For instance, different trees form different functional categories, as certain trees may be *climbed-upon* or *jumped-off of* and benches can be *stood-upon* or *sat-upon*. These possibilities for action vary not just depending on the properties of the environment, but also on the

perceiver. For instance, a closed gate may offer a child of a certain height with flexible limbs excitement, as it affords *jumping-over*. In contrast, an adult may see the gate as a barrier that they must open in order to *walk-through*. If affordances can highlight the richness and functional significance of children's environments, then they could also be applied adult's environments which are just as functionally rich.

Gibson insisted that the affordance construct incorporates the social domain, but much affordance work has focused on simple perception-action relations involving single individuals (Costall, 1995). In Chapter 2 it was explained how separating affordances from the social is difficult, because organisms have been transformed by social influence over time and the world is full of products of human intervention (Costall, 1995; Heft, 1989). When navigating their environments, individuals perceive available affordances from the information provided by the optic array which is engrained within certain contexts. As explained in Chapter 2, these contexts have functional significance for an individual, because perceived action opportunities are relative to an individual's effectivities, history and culture. Therefore, behaviour is both constrained and extended by social environments, which reflect a network of individual-environment relations (Good, 2007). Although few studies have investigated social affordances, some research has suggested affordances can be used to reveal predictable social action for some simple and adaptive social behaviours (Marsh, Johnston, et al., 2009; Marsh et al., 2006; Marsh, Richardson, et al., 2009). Therefore, it is possible that affordances could help investigate the social

environments where complex, maladaptive health-related behaviours, such as alcohol misuse, are carried out young adults. This would mean that, rather than understanding behaviour in terms of how intentions, cognitions or motivations mediate behaviour in an external world, a focus would be on how behaviour emerges from the direct and complex transactions between an individual and their environment.

1.2 Aim

This study aimed to investigate whether Gibson's affordance concept can be used to assess the functional characteristics of the social environments where alcohol is consumed.

2. Method

A non-participant observation design was used to assess the functional characteristics of drinking environments in terms of potential affordances for action. Seven different licensed premises from four different counties in South Central England were visited by the investigator for three hour periods on Saturday evenings. This included one countryside public house, one town public house, a wine bar, a sports bar, two nightclubs and a family holiday resort holding an 'adult only' weekend. A broad range of different public drinking establishments were chosen to reflect the different types of drinking environments available within the United Kingdom. This allowed the researcher to compare observations within contrasting settings. Although these establishment types are commonly referred to in research and policy, it is important to remember that these form-based names may

not actually reflect differences in the layout of affordances. During each visit, the investigator made notes about the setting and objects in the setting, with a particular focus on affordances and effectivities related to alcohol consumption. From this point onwards, these action opportunities will be referred to as alcohol-related affordances.

The field work for this research was conducted in real-world social environments, which is unlike laboratory research, questionnaires or surveys. These methods would not have provided ecologically valid observations of behaviour and may have been subject to demand characteristics. Although field studies make it harder to control external factors and events, they provide a close estimate of real-world behaviours. Naturalisation was important in this research. For example, if the investigator were to place notices within the environment, individuals or staff members might have actively sought out the researcher and may have been guarded about their behaviour. Observing the environment as a non-participant ensured that the observations recorded reflected the reality of the environments in which drinking behaviours occur. Before conducting this research, the investigator considered the ethical issues surrounding investigator safety, naturalisation and the legal limitations for observational research within public places. This study also went through a comprehensive ethical review and had full approval from the Ethics Committee at Oxford Brookes University *(See Appendix A for Ethical Approval Letters).*

2.2 Procedure

The investigator compiled as much information about each premise as possible before entering, using publicly available information. During the observational period, the investigator entered each establishment with a chaperone and both individuals walked straight to the bar area. To ensure that the researcher observed different types of serving practices by bar staff, the investigator ordered a soft drink or a glass of water and stayed by the bar area to observe serving practices, while the chaperone ordered an alcoholic drink separately. After entering each premise, the investigator assessed whether it was possible to record observational notes using either a notepad or a notepad program on a mobile phone device, as it was anticipated that this would minimise reactivity. During the observational period, the researcher walked around the establishment to observe and made notes specifically about the relationship of aspects of the environment to individual drinking behaviour. The researcher covertly recorded brief notes immediately after each observation. Both the researcher and chaperone acted appropriately for the environment in question.

The investigator did not select individuals or features of the environment to observe, but instead obtained an overall impression of the real-time transactions between individuals and their environments. This included aspects of each environment which appeared to constrain or extend opportunities for drinking. The researcher also sketched out the layout of each environment. These diagrams were later used to produce visual form and function based maps using Microsoft Publisher computer software.

These maps allowed the researcher to see the differences in available affordances between establishments. The investigator stayed in the premise for the duration of the three hour observational period. However, once the investigator felt that the research had generated a comprehensive array of affordances from a range of premises and a saturation point had been reached, data collection was brought to an end. By observing a broad range of premises for this study and by continuing to collect data until no new data arose, a completely representative range of establishments was not necessary for the current study. Instead, contrasting the layout of affordances in different settings until a saturation point had been reached provided an insight into drinking behaviour in relation to these contexts.

2.3 Analysis

The researcher then combined observational notes onto an observational coding sheet *(see Appendix B)* in order to categorise the data into:

- *General Establishment and Patron Characteristics*: This included the opening hours and estimated capacity. Patron characteristics included a rough headcount of patrons when entering and leaving the premises, apparent age-range and gender differences.

- *External Entrance-Level Affordances and Behaviour:* Occurrences included security, external lighting, access, shelter, external furniture, external displays, establishment access, a rough headcount of those

queuing to enter, entrance spacing, external noise and the behaviour of smoking and/or queuing patrons.

- *Internal Bar-Level Affordances and Behaviour:* This included the positioning of the bar, bar access, bar staff clothing, drinks displays, bar service, bar furniture, shape and size of drinks containers, alcohol measures, minimum spend limits, a rough headcount of those waiting at the bar and the behaviour of waiting patrons and/or those being served.

- *Internal Environmental-Level Affordances and Behaviour:* This included noise levels, décor, cleanliness, temperature, atmosphere, lighting, establishment layout, furniture, security, the behaviour of patrons and staff.

- *Promotional-Level Affordances and Behaviour:* This included alcohol, food promotions, advertisements and whether patrons appeared to be influenced by these.

- *Entertainment-Level Affordances and Behaviour:* This included entertainment providing facilities and the behaviour of patrons using them.

From this, the researcher produced preliminary, ethnographic reports which compared each type of establishment. This allowed the researcher to summarise the observational data for a number of establishments and compare different features within them. This data formed the basis for the next stage of analysis[1].

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[1] These notes were taken to an anthropologist who agreed they reflected the type of data obtained in ethnographic research.

Once these were completed, the researcher drew out for further study key canonical affordances that had been observed to have an impact on drinking behaviour. These alcohol-related affordances were then categorised using Heft's (1988) framework for classifying and coding environmental observations of affordances in terms of function. This meant that occurrences which shared the same affordance, or action potential, were grouped together. As explained in Chapter 2, an occurrence is the environmental disposition which complements an individual's ability, or effectivity, to act on an available affordance. For example, lighting, alcohol advertising, promotions and décor were occurrences which were grouped together because they were all *view-able*. The researcher also removed any duplicates and noted only the most prevalent affordances for promoting or inhibiting drinking behaviour. Two tables were produced by this analysis, one which outlined affordances relevant for promoting alcohol consumption and one for inhibiting alcohol consumption. The terminology and language used in the analysis purposely reflected that specified in previous research by Turvey et al., (1981). In this earlier work, affordances were always linked to *effectivities*, or the capabilities of patrons to carry out certain behaviours, given the availability of certain occurrences.

3. Results

Table 1 and 2 illustrate 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, the occurrence and then the activity. These are not mutually

exclusive as a feature can have multiple affordances, but only those relevant to alcohol consumption have been included.

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

Affordance	Effectivity	Occurrence	Activity
Access-able thing.	Accessing-thing.	Location, opening hours, no queues, large bars, no barriers to accessing bar, functional bar layout and payment regulations.	Accessing: Premises closer to one another were easier to access. Longer opening hours meant patrons could access alcohol for longer time periods. Bar areas were often viewed and accessed upon entering, taking up a large amount of space of each premise. Accessible bars had no physical barriers around them and few waiting patrons. Functional bar layouts meant bar staff could serve patrons quickly. Many patrons

			stayed around the bar area to consume 'shots' and to access alcohol easily. Patrons were observed to purchase more drinks than required to meet minimum spend limits for card payments or conditions to sit in a booth.
Stand-on-able thing (Prevents sitting-on).	Standing-thing.	Limited seating.	Standing: Patrons who had no opportunity to rest were observed to stand and drink. These patrons often acted on *non-canonical* affordances and sought out any other flat surface to sit or lean upon, such as the floor, stairs, doors, or even the bar.
Grasp-able thing (Prevents	Grasper-thing.	Limited tables or	Grasping: In premises with no opportunity to

| putting-on). | shelving, size and shape of drinks containers. | place drinks containers down, patrons were observed to hold their drink, possibly drinking it more frequently. In these premises, drinks and empty containers were placed on any flat surface, including the floor or on the DJ booth. In some establishments, only large containers were available (e.g. wine, pint glasses), or limited smaller containers. Half measures were often served in pint glasses and some patrons were observed to increase the size of their drink due when informed of this. When patrons bought multiple drinks at once they appeared to finish |

			these quickly, as it appeared difficult to grasp many drinks at once.
View-able thing *Purchase-able thing* *Consume-able thing.*	Viewer-thing *Purchaser-thing* *Consumer-thing.*	Lighting features, alcohol advertising, promotions and décor.	Viewing: Most premises were dimly lit with brightly lit bar areas or entertainment features. Alcohol images were observed on staff clothing, menus, bar products, interior decorations and drinks containers. Most premises had alcoholic drinks promotions only and it was often cheaper to purchase an alcoholic drink than a soft drink. As these appeared to influence what patrons purchased and drank, it is possible that some of these occurrences also afforded *purchasing* or

			consuming.
Listen-to-able thing (Prevents Communicating).	Listener-thing.	Loud entertainment features (music/ televised sports).	Listening: Loud entertainment features restricted local available sounds, leading patrons to shout or use hand gestures to communicate. Instead of holding a conversation, patrons appeared to drink. Premises with entertainment features, such as music, appeared to be busier and few patrons left these. As patrons stayed for longer, they may have drank more.
Consume-able thing.	Consumer-thing.	Drink availability and food availability.	Consuming: Cheap alcohol availability meant patrons bought more drinks at once. Water was always free, but not advertised. Many establishments

			had only a limited number of high alcohol content drinks. This restrained the choice patrons had when ordering as patrons appeared to order from what they could see on display. Some establishments had larger 35ml or 50ml spirit measures as standard, meaning patrons may have unknowingly purchased stronger drinks. If food was available, it was for a limited time only and often ordered at the bar, leading drinks to be purchased also.
Communicate-with-able thing *Purchase-able thing*	Communicator-thing *Purchaser-thing*	Interacting with bar staff and other patrons	Communicating: Most bar staff used upselling techniques (i.e. recommended bottles

Consume-able thing.	*Consumer-thing.*		when glasses of wine were ordered, or "doubling-up" on single measure spirits) and many patrons were observed to accept these offers. Staff responded negatively when non-alcoholic drinks were ordered ("would you rather have a proper drink?"). Bar staff also assumed patrons wanted pints when beer was requested and DJs announced time-sensitive drinks offers or promotions. It is possible that some of these affordances also afforded *purchasing* or *consuming*.

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

Affordance	Effectivity	Occurrence	Activity
Access-able thing.	Accessing-thing.	Queues, security and regulations.	Accessing: Queues prevented access to premises and bars. Security personnel prevented intoxicated individuals from entering premises and removed those with problem behaviours for the safety of others. In some establishments, patrons had to finish or discard drinks if they were prohibited outside or on the dance floor.
Sit-on-able thing.	Sitter-thing.	Available seating.	Sitting: Patrons used available seating and tables to sit on, which appeared to slow drinking rates.
Put-on-able thing.	Putter-thing.	Available tables and	Putting: Patrons used available tables, drinks

	ledges.	holders or nearby flat surfaces to put their drinks down while using entertainment features or dancing.	
Grasp-able thing.	Grasper-thing.	Drink container availability.	Grasping: A wide range of drinks containers provided patrons with the option to order small drinks, including wine glasses with small (125ml), medium (175ml) and large measures (250ml), and half pint glasses.
Consume-able thing.	Consumer-thing.	Food service, snacks, drink availability.	Consuming: Food availability provided patrons with an opportunity to place drinks down and eat a meal or bar snacks. Standard spirit measures were only 25ml.
Play-able thing.	Player-thing.	Games machines, pool tables.	Playing: Each machine or game required at least one hand to play. This provided another

			opportunity for action than drinking. When drinks holders were unavailable patrons placed their drink down on an available nearby flat surface, or played with one hand.
View-able thing.	Viewer-thing.	Television Features, Labels.	Viewing: Although televised entertainment features drew patrons into premises, patrons appeared to drink slowly when watching television. Alcohol warning labels were present on bottles, but not on glassware. Some establishments had 'drink responsibly' messages on leaflets, menus or posters.
Communicate -with-able thing *Purchase- able thing*	Communicator- thing *Purchaser- thing*	Interactions with bar staff	Communicating: Bar staff appeared to influence patrons' orders and restrain the amount of alcohol consumed. Some

Drink-able thing	*Drinker-thing*	staff inhibited consumption by refusing to serve certain high-alcohol content drinks or by refusing to serve intoxicated patrons. It was possible that these interactions also influenced what patrons purchased and drank, which can be seen in italics.

An affordance is only present if there is a mutual transaction between an individual and their environment. If properties of the environment *(occurrences)* are not complemented by properties of the individual *(effectivities)*, available opportunities for action become restricted. For example, premises in close proximity to one another with longer opening hours, limited queues and large service counters with many serving staff and few waiting patrons, afforded access to alcohol. However, patrons could not effect drinking when they were prevented entry into premises for being too intoxicated, or when long queues, drinks or payment restrictions prevented them from doing so. This led many patrons to purchase more drinks than required to avoid queueing again, or in order to meet minimum spending limits for card payments. Bar access was particularly poor at the resort, which may explain why patrons appeared

intoxicated upon entry and why many patrons brought in their own drinks, which were confiscated by security staff. In each of the premises, the building design appeared to direct the flow of customers to the bar area first upon entry. Many patrons were observed to stay around the bar area in order to continue effecting drinking more easily. Although most premises were dimly lit, with restricted view-ability, bar areas always tended to be well-lit and view-able from anywhere within the premise.

This research also allowed for observations to be contrasted within different settings. Figures 1-3 provide examples of the form-based visual maps from three different licensed premises: a town public house, wine bar and nightclub. Furnished premises, as seen in Figures 1, and 2 had available seating and tables which, when unoccupied, afforded sitting and putting. In so-called *vertical drinking* establishments, as seen in Figure 3, furniture was limited and often occupied. These environments did not support the *canonical* affordances of allowing individuals to sit or to put drinks down. When opportunities for action were limited in this way, patrons had to find new uses, or functional significances, 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 put drinks upon. For example, patrons were observed to sit on the floor, on staircases and even on the bar. When putting was not possible, patrons grasped their drinks, took more frequent sips and finished them more quickly. Alcohol intoxication may have also impaired perception, as many patrons effected putting drinks on non-flat surfaces or those not large enough to support them.

Figure 1. *A Visual Form-Based Plan of a Public House*
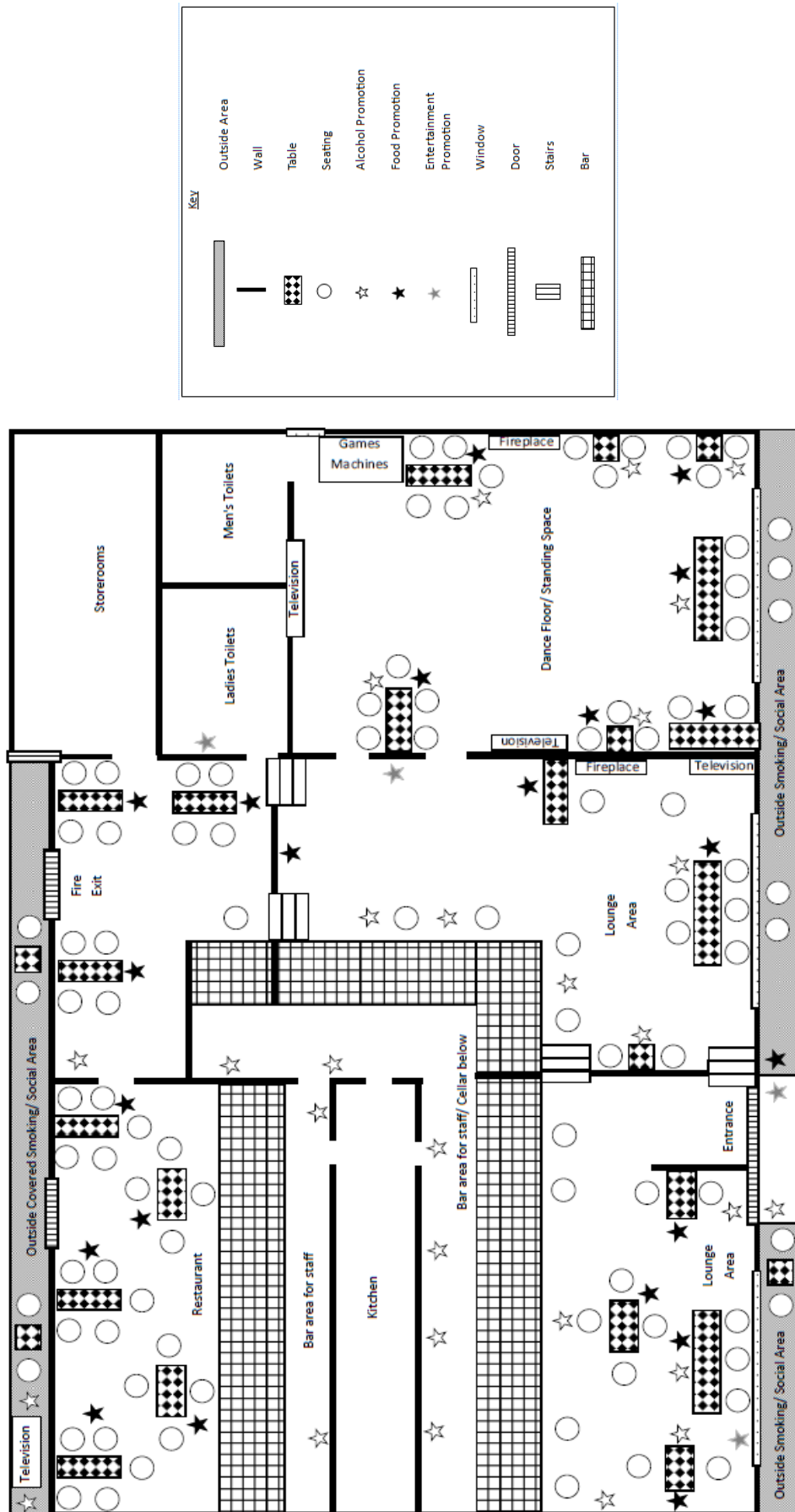
Figure 2. *A Visual Form-Based Plan of a Bar*
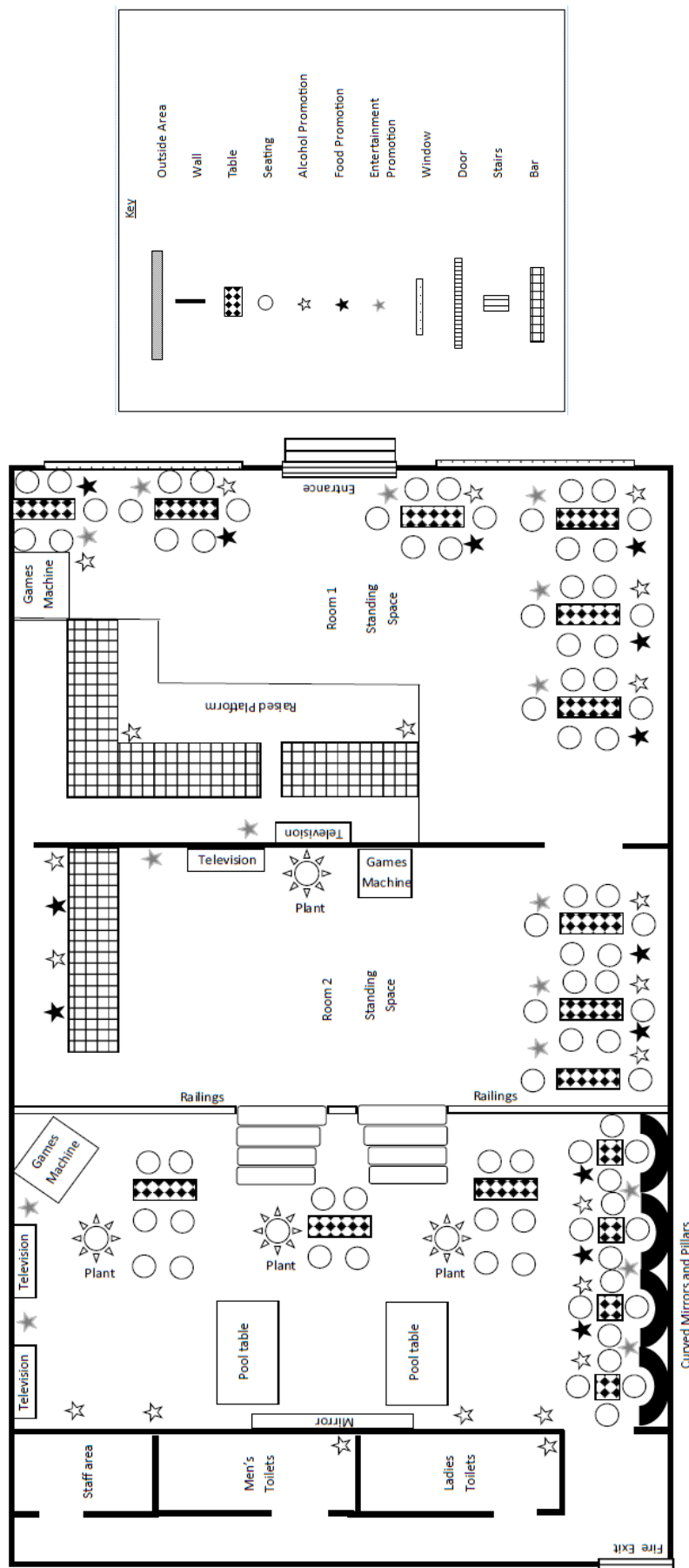
Figure 3: *A Visual Form-Based Plan of a Nightclub ('Vertical-Drinking Establishment')*
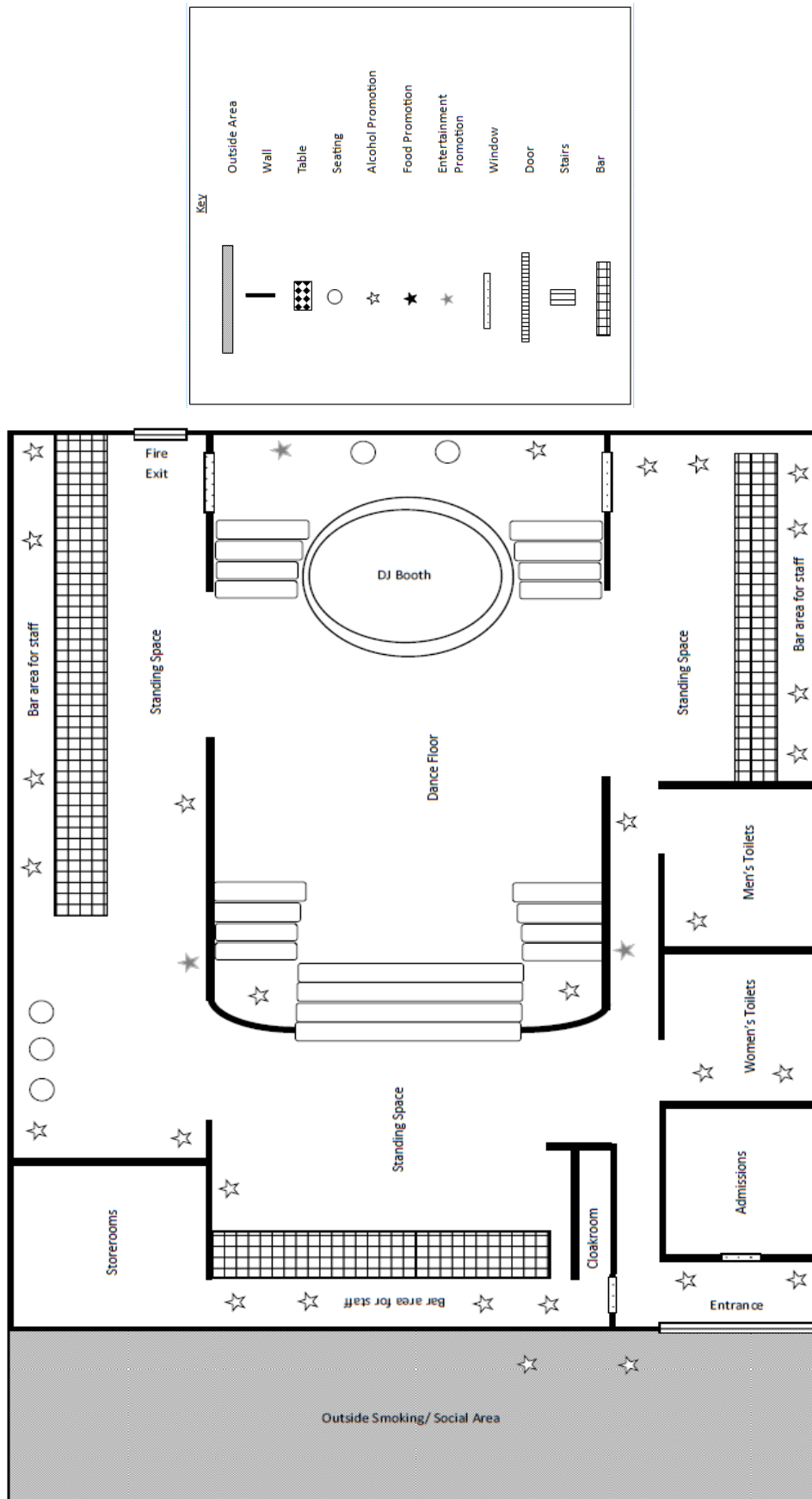
Figures 4-6 depict the same premises as in Figures 1-3, but utilise a function-based taxonomy instead of a form-based approach. As canonical affordances have been coded using different colours, it is apparent how different occurrences can provide the same primary action opportunities, or have similar functional significance for an individual. These function-based maps illustrate the *network of relations*, or collection of action opportunities that are nested within drinking environments and can be taken up by individuals within them.

Figure 4. *A Visual Function-Based Plan of a Public House*
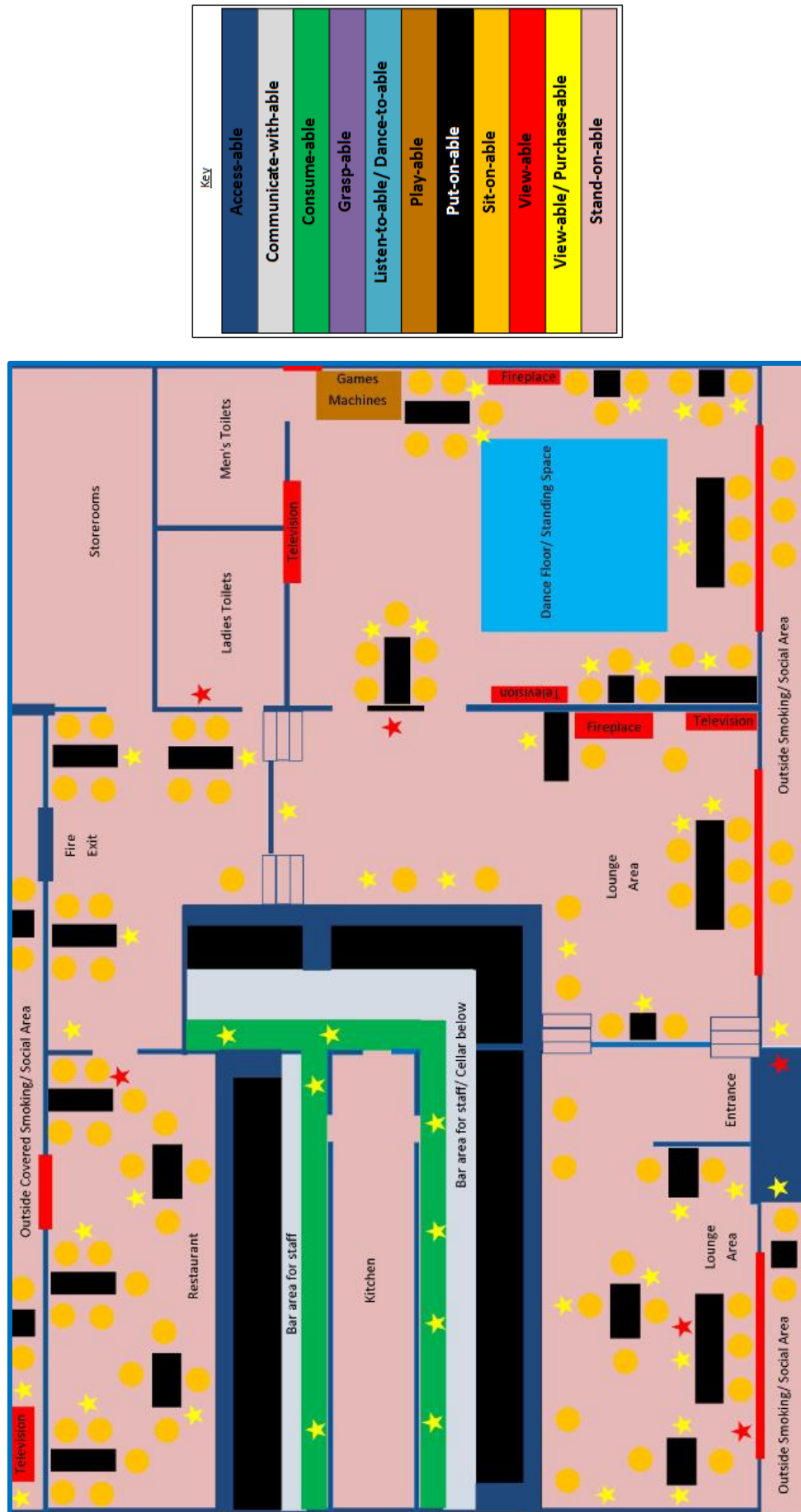
Figure 5. *A Visual Function-Based Plan of a Bar*
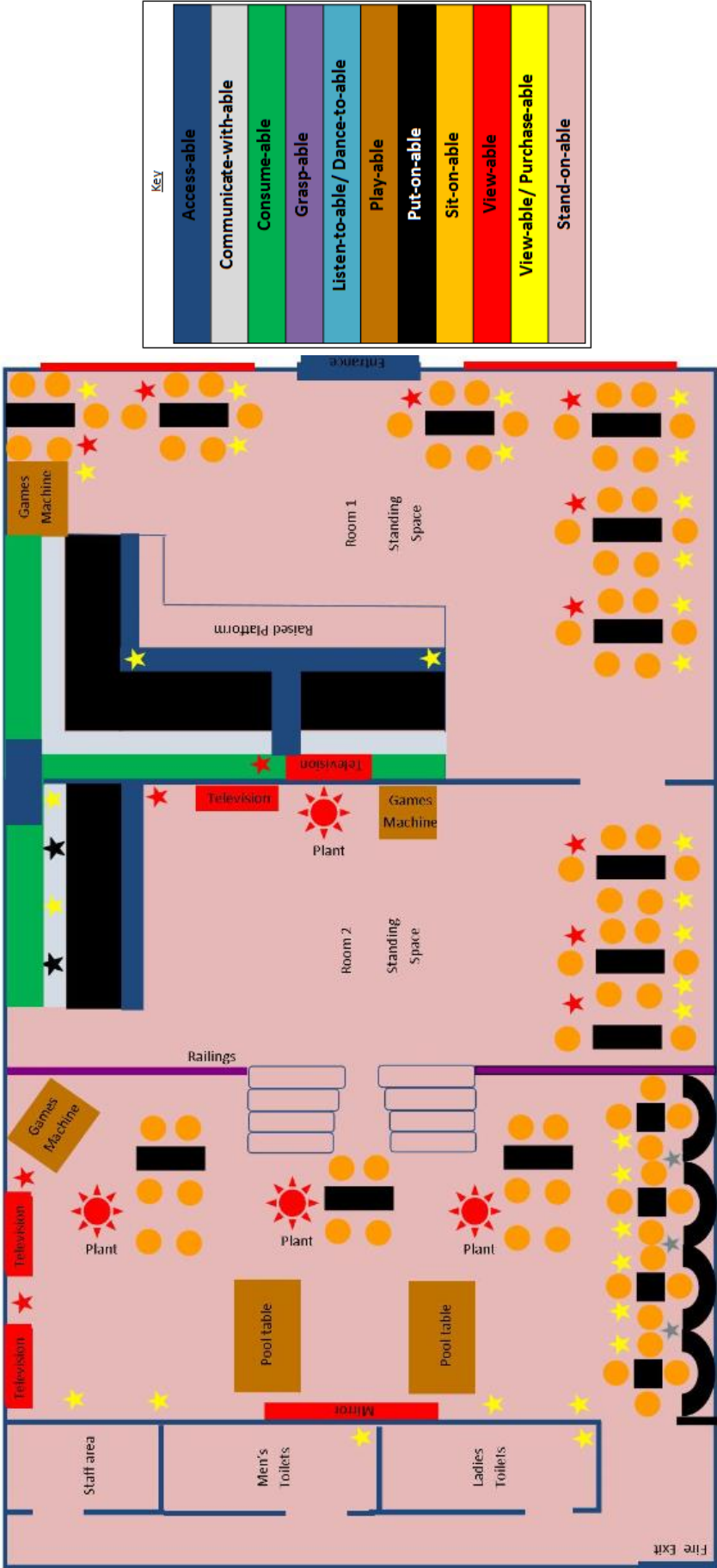
Figure 6. *A Visual Function-Based Plan of a Nightclub ('Vertical-Drinking Establishment')*
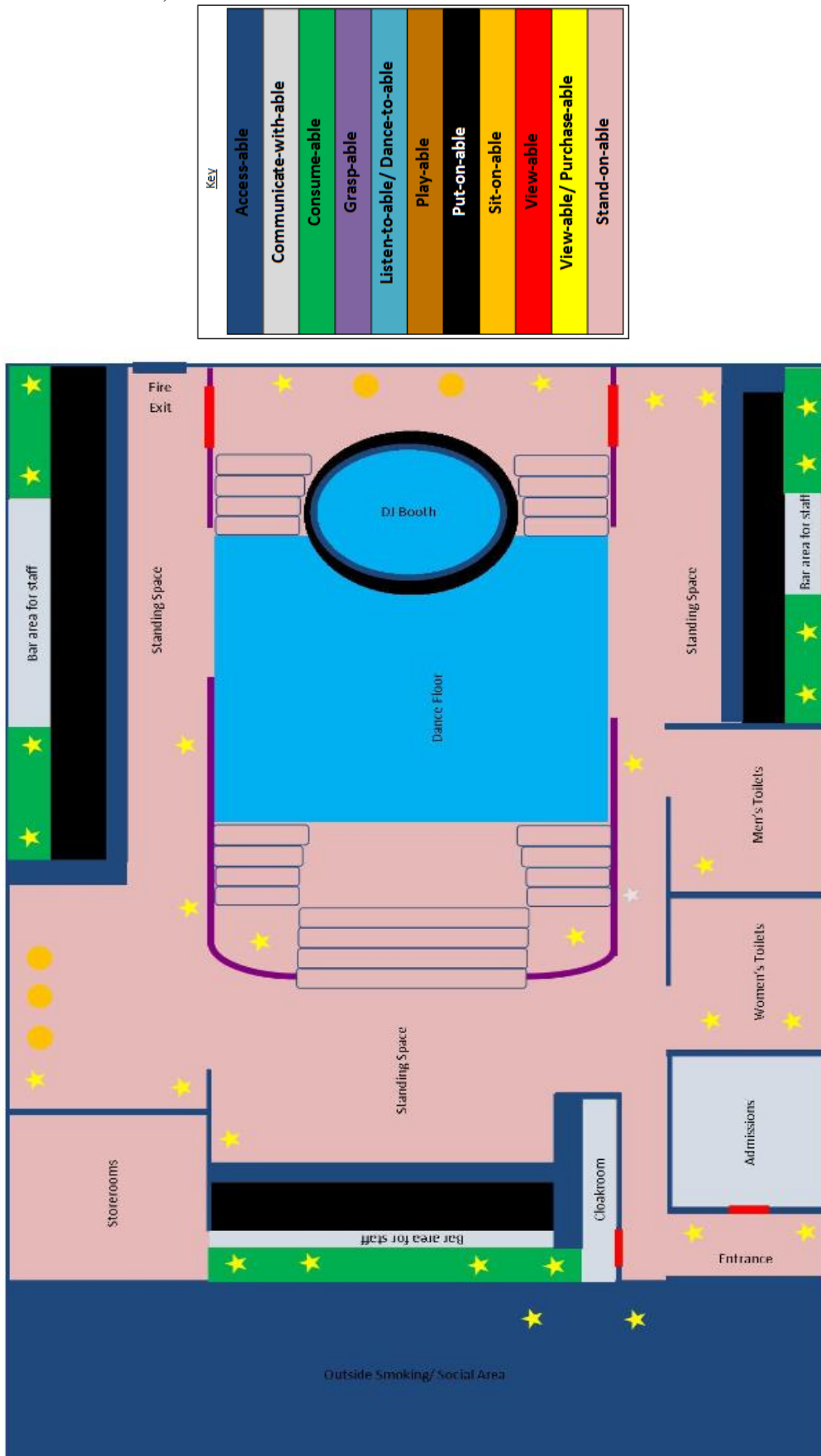
Figure 6 illustrates how, within *vertical-drinking establishments*, or establishments that had furniture cleared to create an open space, drinking appeared to be an end in itself and there were limited opportunities to engage in other activities. These premises tended to be smoky, unkempt and hot, with many patrons in close proximity to one another and apparent high levels of intoxication. In these premises, the opportunity to sit or put drinks down was limited, forcing patrons to stand and grasp drinks. In contrast, consuming alcohol was not the sole action opportunity in premises depicted in Figures 4 and 5. These were cleaner, furnished, served food and provided a range of alternative action opportunities than drinking, which were often taken up by patrons. In these premises, patrons could consume food when it was available, when tables were unoccupied and were large enough to put food and drink on. When table service was unavailable and food had to be purchased at the bar, patrons often purchased drinks with their meal. Despite this, drinking rates appeared slower when patrons consumed food, particularly when grasping cutlery. As patrons could only effect playing when hands were unoccupied, many put drinks in drinks holders, on nearby tables, or asked others to grasp them. When putting could not be effected, patrons finished drinks quickly, or played with one hand. Although some patrons used change from buying drinks to play on games, or to 'reserve' pool tables, playing on entertainment features appeared to inhibit food and drink consumption. However, food availability and entertainment features could also promote consumption, by attracting patrons into premises and increasing the time spent within them.

Once an individual becomes embedded within the network of relations within an environment, new affordances appeared to manifest which provided them with opportunities for action that were previously not available to them individually. For example, the existence of other patrons extended the organism-environment relationship, by providing individuals with opportunities to partake in drinking games, to consume sharing drinks, or to join in on drinking rounds. Therefore, communicating with others also influenced what individuals purchased and consumed. However, communicate-ability could only be effected when there were no loud entertainment features which would prevent an individual's multi-modal perceptual systems from picking up this information. When communication was restrained in this way, patrons appeared to replace communicating with consuming alcohol and appeared to subsequently drink more. The existence of others also restricted available action opportunities. For example, at the nightclubs and resort, security staff restricted entry to intoxicated patrons, those who violated dress codes, or consumed alcohol in areas where drinks were prohibited. However, in many cases, these regulations increased drinking rates, as patrons finished drinks quickly before entering outside smoking areas or dance floors. External smoking areas that were furnished, well-lit, provided shelter, heating and permitted drinking tended to be busier than those that did not. Likewise, dance floor areas tended to be more crowded around the edges, as patrons sought out opportunities to effect putting their drinks down on nearby ledges, to free up their hands to dance.

The existence of bar staff also appeared to extend the individual-environment relationship by increasing the availability of action opportunities that could be taken up. For example, *upselling techniques* were used by bar staff in most establishments, even in those which had table service, where servers carefully poured drinks, complimented soft drinks choices, double checked orders and drinks preferences, or refused to serve intoxicated patrons. It could be construed that presenting this information at the point of sale restrained the opportunity patrons had to purchase and consume certain types of drinks. For example, these verbal promotions often included alcoholic drinks recommendations, increasing alcohol measures or buying multiple drinks for a discounted price. Patrons were often observed to take up these action opportunities, particularly when they were unsure of what to order, or could not view their preferred drinks form behind the bar. Opportunities to consume smaller measures of alcohol or non-alcoholic drinks were also limited in terms of drinks container availability or alcohol measures. For example, within the observed bars, nightclubs and resort, small drinks containers and non-alcoholic beverages tended to be unavailable or limited. Many patrons were observed to change their drinks order, or increase the size of their drinks when informed by bar staff that they could not have preferred drinks or measures due to this. Additionally, in some establishments, standard measures for spirits were larger at 35ml, compared to the standard 25ml measures. Patrons may have also been influenced not to order water, as staff members were observed to take their time to fulfil this request, or responded negatively when water was ordered, despite it being free and available for all patrons by law.

In all establishments, advertisements and posters tended to include visual information about alcoholic drinks and promotional prices. For example, this often included promotions for multiple drinks, *pitchers* or *fishbowls* which contained the alcohol content of several drinks. However, these were not advertised as drinks to be shared by several people. Therefore, single individuals or pairs of individuals were observed to purchase and consume these multiple or large drinks promotions. Posters for alcoholic drinks tended to include colourful visual content, with words such as "Xtreme; glamorous; double up for £1; 2-4-1 cocktails; buy one drink, get one drink and a free shot; great value goldfish bowls", alongside alcohol logos and large pictures of young people smiling and drinking. Alcohol-related images were prominent in all of the observed establishments and particularly visible on products around the bar area, interior decorations, staff clothing, menus and drinks coasters. Some establishments had *Drink Responsibly* logos on promotional posters, menus and on drinks served in bottles. However, these health warnings were often small in comparison to other content and often accompanied pictures of alcoholic drinks. Cheap alcohol availability, particularly in nightclubs, meant patrons often purchased multiple drinks at once. However, these were often consumed quickly after being purchased, possibly because of the difficulty in effecting grasping and holding for multiple drinks at once.

4. Discussion

A non-participant observation method is a useful approach to assessing the range of potential affordances for promoting and inhibiting alcohol consumption within licensed premises. These alcohol-related affordances included access to alcohol, payment and security regulations, furniture to sit down upon or place drinks upon, opportunities for action other than drinking, such as food availability and entertainment features to play, watch or listen to, décor and lighting; the availability of drinks and drinks containers, and opportunities for action provided by others. The findings of this study illustrate how using a relational approach to compare observations from contrasting settings results in functional description of environments that are arguably more psychologically meaningful than form-based descriptions. For example, this approach emphasises the features of drinking environment in relation to those using it, instead of independent of those who are using it. Additionally, this study has illustrated the importance of normative opportunities for action, or canonical affordances, which are and are not taken up in these contexts. For example, this includes the drinking norms which have been developed in licensed premises over time, as well as within patrons' experiences, as these customs are embodied within and shape their behaviour. It has also been suggested that environmental characteristics such as poster promotions and upselling techniques, which do not in themselves directly constitute affordances for action, could promote these canonical affordances. These man-made objects could also be described as artefacts which support the shared understanding

of consuming alcohol, which appears to be the preferred opportunity for action in these contexts.

By utilising a functional taxonomy and coding observations in terms of affordances and effectivities, the researcher was able to obtain a useful and systematic assessment of drinking behaviour within complex, real-time environments. Importantly, this research also highlighted what these premises did not afford and how this might have affected drinking behaviour. For example, this included the limited opportunities for action seen in *vertical drinking establishments*, which have limited seating or tables to rest drinks upon, forcing patrons to stand and consume drinks. In these establishments, drinking is an end in itself, as there is little opportunity for other actions, such as sitting down to eat a meal or playing on games machines. Many observed drinking establishments had limited action possibilities other than drinking, possibly because proprietors are motivated to increase sales and because many customers visit licensed premises solely to drink alcohol. The findings of the current study suggest that providing alternative opportunities for action, such as games machines, appears to inhibit consumption. However, further research is required to determine the effect that these alternative opportunities for action may have on behaviour. An important ensuing stage of this research programme will confirm whether patrons entering drinking establishments are concerned with taking up these alternative action opportunities. In the current study, games machines were broadly coded as affording *playing*, but there are differences between different types of machines. For example, fruit machines afford

pressing and *slotting* as well as *playing* and were observed to attract lone drinkers or small groups. In contrast, boxing games machines tended to attract larger, competitive groups of drinkers and afford *punching*. Although these action opportunities might inhibit the opportunity to consume alcohol, they could also promote other alcohol-related problems, for example, aggressive behaviour.

As explained in Chapter 2, when taking the Ecological view, drinking behaviour is explained in terms of the direct, mutual and unmediated transactions between individuals and their environments. However, it may be construed that the affordance construct has been used too widely in the current study. For example, by coding music in terms of the opportunities it provides patrons to dance, as well as in terms of listen-ability and preventing communicate-with-ability. However, dancing requires individuals to coordinate how they move with an aspect of their environment, in this case, sound waves or vibrations which are picked up by another one of the body's perceptual systems: the ears. Taking up this action opportunity is not just dependent on the dancing capabilities of individuals, but also on music, rhythm and tempo. In turn, as has been shown by this research, the act of dancing could also promote or constrain opportunities for drinking alcohol, which is why it was coded as an alcohol-related affordance. Additionally, the affordance *access-ability* spanned a range of occurrences which were related to regulations, premise and bar access. In each case, these occurrences restricted alcoholic drinking behaviour by limiting the opportunity to access alcohol. Whether these action

opportunities were taken up were subject to individual capabilities such as age, intoxication levels, drinks preference, previous experiences and knowledge about normative behaviour in these contexts, including social norms.

Although the investigator took steps to ensure that behavioural inferences were made from observations alone, it is possible that this research was subject to confirmatory biases based on the investigator's preconceptions. Despite this, the alcohol-related affordances identified in the current study were preliminary and will be compared to the subjective perspectives of individual drinkers in the next study. Not only will this confirm the findings of the current study, but it will also provide an insight into the functional significance that these environments have for individual drinkers. In future research, a number of assessors could be used to observe affordances for drinking behaviour within a range of drinking environments. Having two observers would provide an inter-rater reliability estimate on the observational categories. The categories from a number of observers could then be compared in order to determine if the same alcohol-related affordances arose from each account. During the current study, the observer used rough headcount estimates in order to note, for example, how many people were stood at the bar at any one time. This proved to be difficult, due to the high number of people moving about these establishments and could be improved by having more than one observer within each environment at one time. Additionally, occurrences could be further defined or measured using quantitative methods. For instance, the bar in each establishment

could be measured in metres and then related to the number of patrons stood at the bar at any one time. This would more clearly quantify the difference between a 'small' and a 'large bar'. For 'loud entertainment features', sound decibels could be measured and then related to the number of people observed to be talking or drinking. Observing events over time, at different phases of an evening, or during opening and peak hours could also potentially supplement the analyses and observations from the current study. This was not possible in the current study due to ethical restrictions. For example, this may have required full approval from proprietors, which may have impeded the naturalisation. Additionally, repeated visits may have drawn attention to the researcher, which could have implications for researcher safety.

The affordance ontology specifies the interdependency and mutual relationship between an individual and the environment. As has been discussed in Chapter 3, one of the main challenges for this research was to find a way of capturing the intimacy of the mind, body and world using these inherently relational variables. The investigator had to determine how best to observe and systematically record the many affordances for action within real-time social drinking environments. This included deciding what language would best capture the interdependency between individuals and their environments. Using subjectivity as a window into individual-environment relations allowed the researcher to code observations using affordances and effectivities. Ideally, the investigator would have wished to directly observe the dynamic relationship between each patron within each

environment, but it was not possible to access each person's perspective in this way. Direct observation by an independent observer provided the best means to access these alcohol-related affordances, according to the subjective perspective of an independent observer.

It could be construed that recording affordances from an independent observer's third person perspective provides a limited insight into the investigator's conceptual system alone. However, it is important to remember that an independent observer is also a valid cultural informant. Although the investigator was positioned outside the environment as non-participant observer, they were able to use their perceptions and experiences of engaging in similar environments to interpret these observations. It was this subjective perspective, or the investigator's interdependency with each environment, that was an important focus for this research. Additionally, in Chapter 3, it was suggested that it is impossible to detach the investigator from their existing knowledge and it was this knowledge which was used as a tool to provide an insight into these complex environments in the current study. Despite this, a theoretical gap remains between relating observed environments to observed behaviour. In previous research, Heft (1988) coded affordances from actual records of actions and descriptions of environments. This confirmed, albeit indirectly, that certain occurrences afforded certain behaviours. Although this is an issue, the next study in this research programme will provide further confirmation of these findings, by comparing individual drinker's subjective perspectives about their drinking environments and drinking behaviour to the investigator's account here.

Similar to previous research (Heft, 1997), this will allow the investigator to determine if similar action opportunities arise from different accounts of the same environments, while further highlighting the unique functional significance, or specification, that these environments have for individuals.

Understanding the canonical affordances of these contexts may, in part, help researchers to understand the factors that contribute to excessive drinking and prevent alcohol misuse. The implications that the results of this study have for environmental design and the modification of environments that may be conducive to maladaptive drinking behaviours will be discussed in Chapter 7. For example, these findings have important implications for interventions put in place to reduce alcohol consumption, such as health messages or promotions for non-alcohol drinks. Instead of increasing awareness about excessive alcohol consumption or increasing the purchase and consumption of non-alcoholic drinks, these could actually promote alcohol consumption by reminding patrons of this available opportunity for action. Chapter 7 will also address how future research could further investigate alcohol misuse. For example, by manipulating alcohol-related affordances in contrasting settings, or educating patrons about these action opportunities and seeing whether this reduces problematic alcohol consumption. This would move beyond observation to experimental methods and could be achieved by comparing a control environment to one that had been manipulated by the researcher.

5. Conclusion

Affordances provide a theoretically grounded and useful concept for evaluating how individuals behave in relation to the characteristics of their environments. Describing environments in terms of their function for behaviour and effectivities highlights behavioural influences and constraints within these individual-environment relations. The current study has identified a range of alcohol-related affordances by independently observing the inter-dependency of individuals to their drinking environments. This provides an interesting beginning stage to two further empirical studies, in which phenomenology and Q-Methodology will be used in order to collect data about alcohol-related affordances from the subjective perspectives of individuals and groups of drinkers.

CHAPTER 5

Individual Perceptions of Alcohol-Related Affordances:

Photo-Elicitation Interviews and Phenomenology

T he phenomenological world…is revealed where the paths of my various experiences intersect, and also where my own and other people's intersect and engage each other. It is thus inseparable from subjectivity and intersubjectivity. (Merleau-Ponty, 1945)

1. Introduction

The first non-participant observational stage of this research programme presented in Chapter 4 showed how Gibson's affordances could be used as units of measurement to systematically evaluate the function and availability of alcohol-related action possibilities within licensed premises. Within this study, a qualitative coding and categorisation framework was established to identify alcohol-related affordances in relation to effectivities, or the abilities of patrons to carry out certain behaviours (Turvey et al., 1981). This suggested that affordances and effectivities appear to provide a useful tool for assessing inherently relational variables from an independent observer's subjective perspective. However, this research was based on the observer's own subjectivity and their interpretation of these environments,

including their capabilities and experiences. The current chapter will outline a study which incorporates a first-person approach and adds another perspective to the research. This will allow the researcher to better understand the first hand experiences of individuals behaving within their drinking environments (Barrett, 2011).

Chapter 3 argued how the distinction between objective and subjective is unecessary, but that existing methods remain bound by this dichotomy. This makes it difficult when researchers attempt to investigate affordances, which are inherently relational, using pre-existing psychological methods. It has been suggested that full objectivity is unattainable, because researchers can never fully detach themselves from the research process and to do so would actually impede their understanding of certain experiences (Chemero, 2009; Costall, 2012; Gregory, 1989; Hegelund, 2005). In addition to this, the author of this chapter has suggested that subjectivity should be redefined as not something hidden and internal, but something which is accessible within individual-environment relations. It can then be used as a window onto these relationships to explore available action potentials in certain settings. It could be construed that the study reported in Chapter 4 is a systematic evaluation of the function of drinking enivronments for drinkers, but it cannot be defined as an objective study. Instead, the study explores a form of subjectivity that exists between an independent observer and each drinking environment.

In Chapter 3, it was explained how Gibson was influenced by those who used phenomenological descriptions to build knowledge about and explore the richness of the world (e.g. Heidegger, 1927; Husserl, 1970; Merleau-Ponty, 1945). Phenomenology focuses on the human understanding of the world from lived experiences (Husserl, 1970). As affordances are the necessary components of immediate experience, phenomenology is a viable method for investigating the direct Ecological approach to perceiving (Heft, 2003). The emergence of phenomenology is credited to Husserl (1970), who emphasised the importance of understanding how people make sense of their worlds through experience. For Husserl (1980), participants do not automatically react to external stimuli, but behave based on their perceptions of the world and the meaning they attribute to it. Husserl critiqued positivist psychology for aligning itself with the natural sciences, but maintained that an objective reality is independent from the subjective experience of it. Husserl insisted that researchers used phenomenological reduction in order to bracket themselves from their preconceptions, so that they can perceive the original experience without interference. Husserl believed this provides pure, detached researchers with an accurate description of the experience. However, as previously discussed in Chapter 3, distancing oneself from the research process could actually impede the research process. Additionally, the researcher's own subjectivity might also aid the understanding and interpretation of function-based descriptions given by participants when they are making sense of their worlds.

Phenomenologists such as Merleau-Ponty (1945) and Heidegger (1927) also disagreed that there exists a separate, internal consciousness. Like Gibson (1979a), they believed that the physical and psychological worlds were combined, as all experiences occur within the world and cannot be separated from it. For example, when using a hammer, an individual simply picks up a hammer and strikes. An individual does not view their own consciousness or experiences as separate to the tool (Heidegger, 1927). This is because the objective and subjective are mutually entwined. The existential phenomenology associated with Merleau-Ponty (1945), focuses on an individual's experience at a certain place and time. Here, the origin of knowledge is the actual, lived experience of individuals within the world, as participants interpret and make sense of them. This complements Gibson's (1979b) Ecological theory, as it suggests organisms are adaptive and have the opportunity to search for possibilities for action through their relationship with the world. Therefore, in contrast to positivist views, organisms are not determined by their environments, but are active subjects of their own experiences.

It is not possible to directly investigate the relationship between individuals and their environments. However, interviewing participants and using interpretative phenomenological analysis to tap into the subjectivity which exists within individual-environment relations could allow researchers to understand why individual drinkers take up or do not take up certain opportunities to consume alcohol in certain settings, from their own perspectives. This would further illustrate how an individual's relationship

with their environment promotes or inhibits certain potentials for action. Phenomenology provides an insight into subjectivity because it taps into a participant's subjective perception, allowing them to describe and interpret their experiences. Typically, in phenomenology, researchers investigate how a phenomenon is perceived and given meaning by participants, from their own perspective. This is not fully consistent with the current study because, from an Ecological viewpoint, meaning is not given, but exists within the transactions individuals have with their worlds, including the objects and people within it. Subjectivity is therefore created during a participant's discourse with the researcher, as participants are making sense of drinking experiences in their drinking environments.

Subjectivity is also shared among participants who share the same experiences. The nature of this type of shared subjectivity, or intersubjectivity, has long been debated by philosophers, social, cognitive and developmental psychologists (Agosta, 2010; Dewey, 1896; Gallagher, 2005; Hobson, 2002; Kadar & Effken, 1994; Mead, 1938; Shotter, 1991; Stern, 1985; Trevarthen, 1979; Vygotsky, 1962). The general consensus within the literature is that intersubjectivity represents a shared understanding of the world which arises from the shared subjectivities between groups of individuals and their environments (Good, 2007). Therefore, subjective beings are involved in objective realities, while sharing subjectivity with other individuals. As the Ecological approach suggests that the objective and subjective are intertwined, subjectivity exists both between individual-environment relations and across groups of

individuals. Therefore, this intersubjective understanding does not require inference or mediation, but is provided in immediate experience.

1.2 Aim

The current study aimed to use phenomenology to understand the meaning that alcohol-related affordances had for drinkers, in terms of the subjectivity that exists between individuals and their drinking environments.

2. Method

The investigator initially planned to take participants around licensed premises in order for them to pick out available drinking opportunities during the interview, as they were carrying these behaviours out. This would have been similar to the analysis the investigator conducted in the first study, but from the perspective of individual drinkers. However, ethical restrictions meant that this was not possible during night time when other patrons were present. In addition to this, limited resources meant that videos of licensed premises could not be used because it would have been difficult to collate and de-identify them, for instance by removing all faces and premise names. To overcome this difficulty, the investigator had to choose a method which best reflected the reality of these environments and how individuals behave within them.

Photographs were considered the best method with the available resources, because they could provide ecologically valid representations of

licensed premises that were easy to de-identify. Photo elicitation is generally considered a powerful interview tool, because it allows participants to pick out and describe characteristics that are meaningful to them, particularly when used during an interview setting (Close, 2007; Hurworth, 2003). Due to a number of ethical restrictions, these photographs could not be taken by participants and had to be provided by the researcher. For example, permission had to be obtained for each photograph to be taken and photographs had to pose the least risk of identifying patrons and establishments. However, this allowed the researcher to use photographs which best reflected how licensed premises looked at night when patrons were drinking within them. The photographs were used primarily as a prompt so that participants could reflect on their drinking experiences within similar drinking environments, therefore, the photographs were not analysed separately to the interviews.

2.2 Obtaining Photographs

The investigator selected a broad range of premises to obtain photographs for the study. The investigator discussed the project with premise proprietors or bar managers when these were not available and obtained written consent for the taking of the photographs. Approximately twenty premises were visited by the investigator, but only seven gave permission for photographs to be taken. These premises were chosen to reflect the broad range of urban and rural establishments within South Central England. The final fifty photographs were taken from two public houses, three bars and two nightclubs. Of these, only the public houses and

bars gave permission for photographs to be used in publications. For each premise, photographs were taken of aspects relating to the coding scheme in the previous study (external entrance-level, internal bar-level, internal environmental-level, promotional-level, entertainment-level). This ensured that all of the affordances from the first study were included, but that other aspects were also present and could also be highlighted by participants during the interviews.

These photographs focused on environmental and contextual features of each premise, which included patrons drinking within them. In busier premises, particularly nightclubs, it would have been impossible to obtain consent from the hundreds of patrons who were, for instance, on the dance floor. The investigator researched the legal issues surrounding taking photographs in public places and it was determined that there were no legal barriers to doing so (Wiles et al., 2008). Research using such photographs tends to remove all faces and identifiable features from them (Lewinson, 2010). Therefore, as well as blurring all faces and premise names for photographs used in the current study, the investigator also ensured that the location of premises used for the photographs was outside of the locality in which participants are drawn from. This ensured that all of the photographs were novel for all participants and that premises would not be recognisable. Prior to the final study, the photographs were shown to two assessors independent of the study. This was to ensure that the photographs were representative of the environment they depicted. Not all of the premises gave permission for photographs to be included in the thesis. Examples of photographs with this permission can be seen in Figure 1.

Figure 1. *Premise Photograph Examples*

2.3 Procedure

The study took place in a tutorial room at Oxford Brookes University. Initially, participants were asked to self-categorise their general drinking behaviour as light, moderate or heavy. Participant age and gender were obtained, but participants remained anonymous throughout the study. During the study, participants viewed each high-definition photograph on a large computer screen and picked out characteristics that were meaningful to their drinking behavior. FastStone imaging software (freeware can be downloaded at: http://www.faststone.org/) allowed participants to pan and zoom around the image using the mouse, moving around the photograph as if they were in the premise it depicted. This meant that the images were fluid rather than static. It may have been the first time that participants had considered these environments in this way, so the investigator initially provided an example, which can be seen in Appendix D.

These semi-structured interviews involved open questions to allow participants to describe aspects in detail. For each of the 50 photographs, participants were prompted by the investigator to talk about opportunities for drinking behaviour that were present and those that were not present. For example, for each photograph participants were asked: *"what do you see here?"* This enabled participants to initially describe photographs by form, or what was there. Participants were then asked: *"please talk me through any aspects of the environment, or the arrangement of the environment that are meaningful to your drinking behaviour. Please focus on any opportunities for drinking more or less alcohol, based on your*

experiences…" This question allowed participants to focus on the function of the environment for their behaviour, in terms of affordances and based on their experiences. Afterwards, participants were asked: "*…are there any aspects that are important to your drinking behaviour which were not represented by these photographs?"* The investigator kept participants motivated by providing neutral feedback and probing in a non-directional manner.

Participants were asked to think aloud as they made sense of and interpreted their experiences, using the photographs to illustrate relevant aspects to the researcher. Each participant had full control of the computer and was able to move through the photographs at their own pace. The researcher did not rush participants to provide answers, as some participants found the interview more challenging than others. Participants were also informed that they might not find something relevant in every photograph. The interviews generally lasted for an hour and a half. The interview schedule was discussed with the supervisory team and an independent assessor before the interviews took place to ensure that the example task and interview questions were clear.

2.4 Analysis

The interviews were transcribed by the investigator and coded using Interpretative Phenomenological Analysis (IPA). IPA is a qualitative framework developed by Smith and colleagues (1995a; 1999), which has

foundations in health psychology (Smith, 1995b). IPA is an idiographic phenomenology, which allows for a detailed study of the individual subjective experience had by participants when acting in their world. It is experiential and focuses on capturing rich accounts of lived experiences through phenomenology. Instead of formulating a theory, analysing discourse, or focusing on thematic patterns, IPA uncovers the subjective meaning that emerges during one-to-one interviews. This provides the investigator with a central role in attempting to interpret how the interviewee makes sense of their personal and social world (Smith et al., 1999).

IPA was deemed an appropriate tool for the current study because it allowed the researcher to obtain a detailed insight into the differences in meaning that these environments had for individuals, from their drinking experiences. The IPA interview process is reflexive and allows for a systematic analysis of subjectivity from a first person viewpoint through participants' in-depth descriptions of their experiences. The interview schedule is also flexible and allows the researcher to adapt it based on a participant's response. This process is double hermeneutic, which means it is a method of interpretation which allows the researcher to make sense of the meaning constructed by participants, as they are making sense of their experiences during the interviews (Heidegger, 1927; Smith et al., 1999). Participants are placed into an already given world as the experience manifests in the interview setting. In the current study, the photographs were used to take participants back to their experiences of consuming

alcohol in these types of premises. Therefore, participants are not only describing how they would behave in each of the perceived environments as if they were there drinking at that time, but they are reflecting on their personal experiences of consuming alcohol in similar environments and how they might behave in the future.

The focus of this research was on the relation between individuals and objects within the world. Therefore, in participants' descriptions, the researcher focused on perceptions of drinking environments, the people and objects within them and the meaning of this in terms of affordances. During initial coding, occurrences highlighted by participants were noted and grouped by their affordance, or their function for drinking behaviour. An idiographic process of analysis was utilised, whereby the investigator initially analysed the value of every case in its own terms. This involved systematically searching for function-based themes in individual cases and grouping similar affordances together under one theme. These drinking experiences were then understood in terms of intersubjectivity, or the perspective of more than one individual. The researcher then moved on to explore patterns across cases, which allowed the researcher to extract recurrent main and subordinate themes related to each affordance.

2.5. Participants

IPA often uses purposeful homogenous sampling in order to obtain small participant samples with similar experiences (Smith et al., 1999).

Twelve undergraduate Psychology students from Oxford Brookes University aged 18-29 years took part in the study. This included 10 females and 2 males; 3 light, 1 light-moderate, 5 moderate and 3 moderate-heavy drinkers. The participant sample was homogenous in terms of demographics, as each participant was a student of a similar age. Additionally, the participant sample included individuals who shared the same experiences. For example, all participants had socialised and/ or consumed alcohol within licensed premises. Participants also had a wide range of drinking behaviours, which allowed the researcher to look at differences between cases. The study was advertised on the Oxford Brookes Participant Panel, which is a research participation scheme for Psychology students. Participants signed up to take part in the study and obtained participation credits for taking part.

3. Findings

This section is organised by each of the ten themes found in the analysis process: accessing alcohol; communicating with others; consuming food and drink; dancing to music; grasping objects; listening to sounds; playing on objects; putting down objects; sitting on objects and viewing objects. As IPA tends to be conducted on small numbers of participants, a focus is not on generalising results to larger populations or determining the specific number of people ascribing to each view (Smith & Osborn, 2003). Instead, the focus of phenomenology is on the common and dissimilar aspects of a whole experience, based on the recurrent themes which emerge from individual cases. In the current study, the themes represent the action

potentials or affordances and sub-themes represent relevant occurrences. These have been supported by anonymous participant quotes.

Table 1: *Main Themes and Sub-Themes from the IPA analysis*

Theme (canonical affordance)	Sub-Theme	Definition
(a) Accessing alcohol (access-able).	1. Bar Characteristics.	Features of the bar area.
	2. Regulation Signs/ Security.	Visual regulation signs and enforcers.
	3. Location.	Geographical spread of premises.
	4. Time.	The time of day. *The opportunity to access alcohol.*
(b) Communicating with others (Communicate-with-able).	1. Other Patrons.	Communicating with other patrons.
	2. Patron Characteristics.	Characteristics of other patrons.
	3. Bar Staff.	Communicating with bar staff. *The opportunity to communicate with others.*
(c) Consuming items	1. Drinks	Availability of drink to

(Consume-able).	Availability.	consume.
	2. Food Availability.	Availability of food to consume. *The opportunity to consume items.*
(d) **Dancing to sounds (Dance-to-able).**	1. Music.	*The opportunity to dance to music.*
(e) **Grasping objects (Grasp-able).**	1. Drinks Condiments.	Grasping drinks condiments.
	2. Food Condiments.	Grasping food condiments. *The opportunity to grasp objects.*
(f) **Listening to sounds (Listen-to-able).**	1. Music.	*The opportunity to listen to sounds.*
(g) **Playing on objects (Play-on-able).**	1. Games.	*The opportunity to play on objects.*
(h) **Putting objects (Put-on-able).**	1. Furniture.	*The opportunity to put objects.*
(i) **Sitting on objects (Sit-on-able).**	1. Furniture.	*The opportunity to sit on objects.*
(j) **Viewing Objects (View-able).**	1. Lighting. 2. Entertainment Features.	Premise lighting. Visual entertainment features.

3.	Adverts/ Promotions.	Adverts and promotions.
4.	Premise Décor.	Premise décor and cleanliness. *The opportunity to view objects.*

(a) <u>Accessing Alcohol (access-able)</u>

Accessing alcohol was important for most of the participants in this study. This theme was made up of four sub-themes: bar characteristics, regulation, location and time.

1. *Bar Characteristics* – Participants spoke about how long, prominent or nearby bars with a clear thoroughfare, few waiting patrons and multiple serving staff afforded access to alcohol, allowing participants to effect drinking with "easy access to the drink". Participants described how they actively sought out opportunities for effecting drinking based on these characteristics:

> "Well there's no one serving, so I wouldn't go up to the bar if no one was serving, I'd wait until someone came. …Yeah, yeah and if there was a queue or not, I'd wait until it went down before I went up, unless I was in a club 'cos there's a queue all the time and you've just got to go up and do it".

Other characteristics included drinks being organised in an "easier to dispense kind of manner", which were easier to serve. Participants reported that this allowed them to effect drinking more quickly because the bar staff would "serve people quicker."

When alcohol access was restricted and drinking could not be effected, participants described how they selectively adapted their behaviour in order to overcome this. One participant explained how they often purchased "more than one round", subsequently leading to increased alcohol consumption as they would then "drink the two in the same time that they drink the one". In contrast, other participants were unsure about the effect this had on behaviour and instead emphasised how drinking goals were more influential, as evidenced by the statement:

> "I think people would drink just the same to be honest, um, 'cos even though the bartender dispenses them faster, I don't know if that would have any implication on how much the person would want to drink".

Participants were also able to predict what action potentials were available in certain types of premises, based on their experiences in similar environments. For example, many effected drinking before entering premises with bar characteristics that restricted access to alcohol. One participant explained:

> "If I knew I was going to a place like that it would be a case of pre-drinking at home and then going out and not buying anything".

For a couple of participants, bar characteristics preventing alcohol access were not a concern, because effecting drinking in these premises was not important. One participant described: "I wouldn't drink …because I'm not like, I don't feel like I need to drink to have a good time".

2. *Regulation signs/ Security* – Although regulations cannot be directly perceived, those related to environment occurrences, including signs prohibiting alcohol in certain areas, table assignment and security were described by participants as inhibiting consumption. One participant explained:

> "You've got the legal notices and a warning about certain…oh drugs, yeah about drugs which will probably, if anything might decrease your drinking behaviour as though it's not directly related to drinking, it reminds you about um being wary of what you are doing and uh being careful of your intake, so even though they are talking about drugs you might think oh well I might not drink that much actually".

Other participants described how when drinks were prohibited in certain areas, their consumption would increase. For example, participants described how they would be "inclined to drink it quite quickly" in order to take up another opportunity for action and then "come right back and buy another one, drink quite quickly and then repeat the process". A small number of participants spoke about how regulation signs might actually

"influence a lot of people to drink", possibly by reminding them that this action possibility was available for them to take up.

In contrast to this, one individual described how repeated experiences within licensed premises meant that regulation notices and security staff were actually "something you kind of become used to so I don't think it would necessarily affect any type of behaviour". This suggests that the novelty of the visual scene might be important for the perception of such cues and repeated exposure to them might mean participants no longer pay attention to these features.

3. *Location* - There was also a strong element of progression in premises visited by patrons when consuming alcohol. Participants spoke of access to alcohol being inhibited when premises are geographically separate, making it "less likely that you are there to start the night and move on". Additionally, one participant explained how, in some geographical areas, limited alternative opportunities for action left individuals only to effect drinking. This individual explained: "In my home town it is mainly older people that live there and so the younger people don't really have much to do other than going out to clubs".

4. *Time* – Although time itself is not an affordance, participants described how longer opening hours afforded access to alcohol, allowing them to effect drinking for longer. As active agents, participants sought out this opportunity for accessing alcohol as it was often "hard to find places that are

open that late", so those that were encouraged drinking. In addition to this, participants described how opportunities for effecting drinking were increased when premises were "open during the daytime". Time was also dependent on an intersubjective social knowing shared between participants. These social norms influenced behaviour in terms of when it was "acceptable" to drink, such as in the evening or at weekends.

Alcohol access appeared to improve over time, as participants described how during the evening the opportunity to consume non-alcoholic hot drinks was restricted and participants often assumed premises "don't sell hot drinks at night". Many felt that this was because such drinks take longer to serve, as one participant explained:

> "I know bar tenders hate making coffee and hot chocolate…I wouldn't do that to them, you know, it at night, a place like this would probably be quite busy".

(b) <u>Communicating with others (Communicate-with-able)</u>

Most participants spoke about how their consumption was influenced by interacting with other individuals. This theme was split into three sub-themes: other patrons, patron characteristics and bar staff.

1. *Other Patrons* – Most participants explained how their drinking behaviour was influenced by their "social" drinking environments which are shared by other individuals also consuming alcohol. Interacting with others was important and participants wanted their environments to afford "social

interaction", or a shared sense of belonging, rather than "isolation". A number of participants explained how the action of talking meant that they effected drinking more slowly, as one participant explained: "I know the more I talk obviously the less I'm drinking".

The existence of other patrons also extended available opportunities for action in these premises. Participants spoke about selectively acting upon opportunities for drinking which were available to the group, as they would not want to be the only one drinking or not drinking. One participant explained:

> "If they were all drinking like coke and being quiet then you'd probably feel like you should copy them, but if they were like being loud and rowdy and [drinking] loads and loads of beer then you might think oh maybe we should get drunk too".

Participants felt that communicating with others restrained their own personal choice with regard to what opportunities for action they were able to take up, as one participant said:

> "You're just surrounded by everybody drinking again, sort of peer pressure…your friends around you saying 'go on just have a drink'".

However, through repeated experiences of effecting drinking in these environments with others, participants explained how they too were responsible for restricting the drinking choices made by others. One participant described how:

"If you come across someone who doesn't drink you're like 'What! You don't drink?'"

Participants felt it: "socially acceptable to just get rounds in when um people finish" which promoted opportunities for the group to effect drinking. Despite this, drinks which were meant to be purchased to share between two individuals were often consumed by one individual, as one participant described:

"People would probably be drinking alcohol and fishbowls are often like um, people will often buy one for like themselves, whereas they're not likely to ever drink that much if they were buying like uh single drinks, it's like uh with the pitchers as well, often you don't feel comfortable saying oh we'll share a pitcher, so people buy one for themselves and drink more".

A small number of participants expressed their displeasure at being influenced by others, as one participant explained:

"People can say whatever they want, what they think, other people would ridicule them for sitting there with a hot chocolate while everyone else was drinking pints of lager. I know that I and friends of mine have done it in the past, sometimes on purpose, sometimes not, well sometimes you're out with people and I have friends like this and they are like um that insist on you having a drink or, having a drink on you at all times, really pisses me off".

This participant was aware of the influences that communicating with others had on their drinking behaviour, but still found themselves acting upon

opportunities for action available to the group. This might be due to the immediacy of the relationship they had with their environment and with others, which restrained available action opportunities.

In contrast to this, not all participants felt that they had to take up these opportunities for action. One participant explained that "regardless of where it was, most people could just have one drink anyway, yeah and not like have ten or something".

2. *Patron Characteristics* – Alcohol consumption varies amongst patrons with different characteristics. This includes lone individuals and groups, age, gender, ethnicity, social class and nationality. For example, certain types of individuals appeared to be attracted to certain types of bars, each with their own distinctive layout of affordances, while others individuals were not. In the interviews, many participants spoke about drinking less when young children or older individuals were present, preferring to share their drinking environments and experiences with patrons similar to themselves. One participant explained:

"Old pubs, things like that, like the crowd might be, um older people so I would probably be less likely to drink as such as I usually do because I would feel a bit out of place, but that's something to do with personal preference or age related, whereas the last few were in like clubs and quite modern places where I am more likely to have a drink 'cos the crowd are only young so it's seems

young, so they can get as drunk as me so… I feel more in place, so I feel more like I can have a drink".

In contrast, a small number of participants preferred a wide range of patrons, as one participant said:

"I like drinking with a really broad range of people, well in age and also, you know, mixed students and just nationals and, you know, like characters".

3. *Bar Staff:* The existence of bar staff restrained the choices participants made when ordering. Many participants spoke about being uncomfortable ordering soft drinks, as one explained:

"I'd feel a bit silly coming here and being like 'can I have a coke?' probably, 'cos it seems like it's all about alcohol…Um, well having had previously asked for coke and these people being like 'What?!' [laughs], I'd, yeah I probably would almost, it's almost thought that you would get alcohol, so you'd feel a bit like embarrassed or like uncomfortable just asking for a coke".

Participants spoke about being influenced by sales techniques related to increasing drinks sizes or when drinks orders were communicated with others, as one participant recalled:

"I was asked once when I worked in a cocktail bar to, when I brought the drink over to say it was a vodka and coke because um they felt, because they were in a big group of people".

In contrast to this, inexperienced drinkers spoke about relying on their interaction with bar staff in order to effect drinking, as one participant explained:

> "Say you're like me yeah, eighteen, and you don't go to bars all the time, you don't know about the whole menu, you, I don't know might ask them what there is, what's good, what's not good, they might, they will probably try and give you the most expensive one but yeah but you'll be more inclined to buy it if they suggested it".

Other participants did not think their behaviour was influenced by interacting with bar staff, as one participant explained: "if I want one drink I will probably only go and buy one drink". Another participant agreed with this, insisting that:

> "If anything it would make me purposely not do what they wanted me to do…if they were like trying to supersize me [laughs] I think like uh then uh I'd be really annoyed".

(c) Consuming Food and Drink (Consume-able)

Participants spoke about their experiences consuming both food and drink in these premises.

1. *Drinks Availability:* Many participants felt that drinks availability at the point of sale was important for their consumption, as one participant explained:

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"I think um sometimes when you walk in somewhere and you uh walk to the bar and you're not ready for someone to come and ask you your order or something, then you just go with what is in your eye, eye line".

Participants tended to consume drinks based on preference, novel or uncommon drinks, but this was often subject to the visual drink display. For example, participants felt that their drinking behaviour was often restrained by the limited availability of drinks at the point of sale, as one participant said:

"A bar with a heck of a lot of drink wow! Yeah um very bright, you can see everything that's on show 'cos obviously they're wanna, trying to sell it to you so obviously gonna emphasise the alcohol [laughs] and they've got the soft drinks kind of tucked away, obviously emphasising the alcoholic ones".

This left people with limited options for behaviour, as another participant explained:

"You don't see any soft drinks and you're like, well I might as well just get an alcoholic drink".

In addition to this, many felt that the most prominently displayed drinks were stronger, as one participant pointed out:

"They have quite strong alcohols right here so I think you'd be yeah, you'd be drawn to the alcoholic drink…up here [points to top of screen]".

Some participants recognised that alcohol measures differed in premises, which unknowingly promoted consumption. One participant explained:

> "35ml definitely has an effect 'cos they do that abroad as well, a lot of places in Europe its 35ml as standard and not 25ml".

Although some carbonated drinks were on display for consumption, many participants viewed these as a "mixer, not as a drink that you'd have on its own".

Additionally, based on their experiences of behaving in similar environments, participants were surprised when the availability of drinks did not meet their expectations, as one person explained:

> "I don't think I've ever been to a club which has a uh coffee machine in it, 'cos that's sort of, coffee is sort of what you…is like the opposite of drinking anything, I don't think you'd be going in to a club, I think I'd find it very, very odd if I went to a club and it had a coffee machine in it".

In addition to this, participants were surprised to see that: "it actually states that tap water is free on request, trying to deter like, um, people drinking alcohol!"

Participants were able to consume alcohol more easily when it was "easy to see what's what", compared to products being covered up "like they do in supermarkets with cigarettes". In premises with both alcoholic and soft drinks available: "there's a lot of choice…I'm sure there would be something that everyone would like". Another participant explained this

meant that: "you're not like too pressured to have alcohol, there's another option that's quite easily accessible for you to see".

A small number of participants did not think that the availability of drinks at the point of sale influenced their behaviour, instead explaining that: "by the time I've got to the bar I've decided what I want to drink".

2. *Food Availability:* Participants reported how consuming food provided another opportunity for action than drinking, which would "slow down" drinking behaviour. This was thought to be because, as one participant explained: "food occupies you more than alcohol, so you just take a sip every so often whereas if it's, if it's just alcohol you'll drink it quite quickly". Other participants explained that they "don't usually drink" when eating. For others, drinking goals were important and many wanted to be kept separate from drinkers when eating, as one participant explained:

> "If I went in there with the intention of drinking I would be happy that people were eating, but if I went in there with the intention of eating I'd be a bit annoyed that there were people just drinking around me, like I'd rather be in a separate eating area".

Participants explained how ordering food at a bar with visible drinks would "increase your drinking behaviour" in contrast to if there was table service. Many participants explained how drinking premises were predominantly for drinking; therefore, the availability of food provided the opportunity for them "to accompany a meal, a drink with a meal". One participant explained they were more likely to consume alcohol while eating a meal than if they

were "at a café or maybe at home". Many participants changed the type of drink consumed with food, as one participant explained: "it would kind of be something to go with the food, so possibly a wine".

Other participants viewed eating as an opportunistic predecessor for effecting drinking, due to the physiological effects of food on alcohol intoxication "like if you were needing to line your stomach" with "hot food, starchy food, carbs…Um, kind of help absorb the alcohol more, yeah so people can then drink more". In addition to this, many believed that the type of food available could invite the opportunity for consuming alcohol, as one participant explained: "they've also got kebabs um which is often the food that people associate with alcohol". These participants appeared to automatically associate certain types of food with alcohol as from experience they were aware that certain types of food are often paired with alcohol.

Many participants were aware that the opportunity to effect eating was restricted to a limited time only, whereas alcohol is "served all day". Participants were able to describe when the layout of affordances in relation to this changed over time, as one participant explained:

> "I think it would change because people would, once, if they were eating dinner, then to have stopped eating dinner, then they'll all just be drinking after the food isn't being served".

Participants believed that it was important to have a choice when both food and drink were available. However, when there were "no options for food" in "drinking pubs", the only action available to them was to drink.

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(d) <u>Dancing to Music (Dance-to-able)</u>

1. *Music:* Dancing to music provided an alternative opportunity for action than drinking in premises. One participant explained that "it doesn't look like drinking is the sole purpose" in premises with opportunities to dance, which "would slow my drinking down". This appeared to be because participants found it difficult to effect dancing and drinking at the same time, as one participant explained "you can't dance properly with a drink in your hand". Dancing areas were often open spaced and sparsely furnished and easily recognised by participants, who were able to reflect on their experiences and "imagine that full of people dancing". When "there's hardly any space to prop your drinks", participants discarded drinks before dancing. This was particularly the case in busy premises, as evidenced by the statement:

> "You drink less because it's just a hassle sort of having a drink with people bumping into you and then often people get into fights about drinks being spilled over them".

Many individuals suggested drinking and dancing "goes hand in hand" and relied on drinking for hydration when dancing. However, those that could effect drinking while dancing reported how their drinking behaviour might become more sporadic but that the rate would increase, as one participant explained they would:

> "Drink faster, so not to have a drink on the dance floor…and then, then when they'd need a drink again they'd leave and get their drink".

Some explained how they drank "less actual liquid but probably more alcohol, so I'd have more things like shots or, you know, I wouldn't drink pints of things, because it's too crowded" when dancing. Others explained how: "I think generally most people are conscious about dancing", leading them to consume "a couple of drinks before they dance".

(e) <u>Grasping Objects (Grasp-able)</u>

Many participants spoke about how grasping drinks and food condiments influenced their alcohol consumption.

1. *Drinks Condiments:* Participants agreed that they consumed more alcohol when grasping their drinks, as one participant explained:

> "It's an involuntary thing, well, it is for me if you are holding it, you just, it's something you do, you just automatically do it without thinking, you automatically drink without thinking. I think people would drink more, because you drink whatever is in your hand and then you'd probably go and get another drink".

Drinks containers varied depending on the type of drink being served. Based on their experiences, participants were able to recognise what patrons in the photographs were grasping from "the colour of it, the shape of the bottle". This was often drink specific, as participants explained bottles often held alcopops or beer, tall glasses held spirits and pint glasses held beer. However, cocktail glasses varied, as one participant explained:

> "Cocktails come with so many different glasses, I mean if you have cocktail martini glass, you're getting quite a lot of alcohol…But then you know the cocktails from tumblers, you hardly get any really, it's no stronger than really a double vodka and orange".

As containers were drink specific, participants felt it was clear to others when they were grasping non-alcoholic drinks containers, which made them "more likely to order an alcoholic drink". Other participants were conscious that grasping transparent containers make it clear "you've drunk all that", whereas "you'd probably drink more if you couldn't see [inside the container]". Novel drinks containers promoted drinking behaviour, as participants wanted to have the opportunity to grasp them. One participant explained:

> "The buckets which, um, if you see one of them because they are quite novel, like pitchers or fishbowls, you might think well I'll have a bucket…promote drinking, because you can get a large drink with a lot of alcohol in it and take it away and not have to worry about queueing up at the bar again for a while".

When small glasses were unavailable to grasp, participants often increased the size of their drink. For example, participants felt that small and medium wine glasses were often unavailable, leading them to have a large glass. One participant explained how this varies between premises:

> "In the corporate places they are very strictly, you know all the glasses have measurements on them and they are very strict about it,

um but in the sort of low sort of pubs, less, less… never come across small, medium and large".

Participants also tended to relate other types of drinks condiments, including straws and drinks mats, with drinking alcohol. For example, one participant explained how:

"There's drink mats on the table and there's more than enough for each chair, so it kind of suggests that you would have a drink".

2. *Food Condiments:* Participants explained how grasping food condiments enabled them to eat and that a table with food condiments would suggest there was "a potential to eat" in that premise. In these premises, "it's a lot more about the food as it is about the alcohol, alcohol comes second", unlike other premises which were more drinking orientated. One participant explained:

"They also don't have wine glasses and that kind of thing on the tables, you don't immediately think when you sit down, uh you know you're not immediately thinking of alcohol and that kind of thing, um you have to like actually request it".

Participants explained how food condiments dictated that the area was for eating, not drinking, which subsequently influenced their behaviour. One participant contrasted eating and drinking premises, linking them to the intersubjective social knowing about social norms shared among individuals:

"I'm guessing like social norms, I guess, would play a role, because like, in a restaurant you're not gonna like, where there are table settings and seating areas and you can see would be knives and forks and place settings and stuff like that, you wouldn't necessarily get up on top of the table and start dancing 'cos it's not a normal thing to do in a restaurant, but you might, say if, in a club you, they do provide like podiums that you can jump up on and dance and that, so I guess, it's like depending on the place and the way they're laid out".

This links to canonical affordances, in that participants carried out behaviours appropriate for the environment, based upon contextual features and social norms. One participant described that they would be on "restaurant mode" and not "rowdy" or "drunk" in areas set up for food. Additionally, participants were "confused" by "conflicting" premises, when action potentials were not consistent with their expectations. One participant explained:

"The set-up of it looks more like kind of restaurant sort of thing, but the lighting is more, sort of a night time kind of drinking, so it kind of contradicts itself a bit 'cos it's got all these like menus or stuff, but it wouldn't be the sort of, I wouldn't wanna eat my food in that kind of darkness, like it would just be too, I wouldn't even be able to see what I'm doing, so I think you would be more likely to come in here and have a drink than you would be to try and have a meal".

Other participants were not concerned about the availability of food condiments and were able to easily act upon non-canonical affordances in

premises, for example, "using the food tables to sit at and drink". As one participant explained:

> "The tables are set up for eating. But not to the extent where you like…anyone, you can tell that anyone can sit there even if you are there for a drink, it's just like in case food happens".

(f) <u>Listening to sounds (Listen-to-able)</u>

1. *Music:* Participants were able to make inferences from the pictures based on their experiences. For instance, upon seeing a speaker many assumed they could listen to music. For participants, the opportunity to listen to music was something which would "draw more people into the venue", depending on music preference. Participants tended to "associate drinking with music", possibly due to frequent pairing of effecting listening and drinking simultaneously in their experiences, which may have led participants to associate the two action potentials with each other. However, loud sounds restricted opportunities to effect talking, as one participant explained:

> "In these places, because of the loud music, there isn't much spoken interaction, it's more like physical interaction".

Another said:

> "It's quite hard to talk as well if there is loud music, which there might be here, um…I guess you'd probably drink more, because you wouldn't be talking".

Participants did not think that this inhibited opportunities for drinking in terms of communicating with bar staff, because bar areas tended to be quieter and "the bar staff are quite used to listening to, uh, people shout orders across the bars".

(g) <u>Playing on objects (Play-on-able)</u>

1. *Games:* Many participants explained how games machines, puzzles and board games offered alternative opportunities for action than drinking. As a distraction from drinking, games were thought to inhibit consumption, particularly when they required "skill" and "concentration". Some individuals spoke about not wanting to leave machines in case others took up the opportunity to play them. One participant explained:

> "I think people get quite absorbed in it [games machines]…Um, I think I'd probably drink less…Because I'd be too focused on it".

Some participants explained how consuming alcohol would accompany any action carried out in these premises. For example, participants described how games machines provided drinks holders for patrons to effect putting and were often situated near the bar, so players could easily "turn to the bar and get another drink without spoiling your game". In addition to this, participants spoke about how they would "stay for longer and try and win", leading them to "spend [winnings] there and then…on alcohol". Another participant explained how:

"I think the games machines would promote alcohol consumption, 'cos you would like use your spare change from buying a drink to, to use in the game machines and then the change from that to buy another drink".

However, very few participants played on games machines, which meant many participants were unsure about the effect these had on their behaviour. One participant explained how it might affect the behaviour of others, but not their own as they did not play them:

"I don't know, it could work one of two ways I suppose, they might either, if they are really trying to concentrate they would probably, they might drink less, but equally they may just be so carried away that they sort of are drinking, it would be I think one extreme or the other".

(h) Putting objects (Put-able)

1. *Furniture:* Participants preferred premises with nearby flat surfaces or furniture whereby they could effect putting. When these were not available, participants were less likely to purchase drinks because they had to grasp them, or consumed them quickly. One participant explained that this was due to safety reasons:

"I think people are less likely to want to leave their drinks unattended, I know I definitely wouldn't wanna, definitely wouldn't leave my drink there and I'd never come back to it 'cos you just don't know".

Participants described how they sought to effect putting when carrying out alternative opportunities for action, such as playing and dancing, which required the use of one or both hands. This was important, as one participant explained:

> "it's just that easy, easily accessible to be able to put your drink down and pick it up, keep picking it up and putting it down again and you've, it's got like a safety aspect to it, even though you should never put your drink down anyway, but it does kind of have that same aspect to it that you can, that you've got somewhere to put your drink down, you don't have to hold it all the time".

Participants distinguished the characteristics of put-on-able surfaces, which they felt dictated certain types of consuming behaviours. For example, many participants spoke about how it was difficult to effect eating on certain tables, suggesting that the height of these tables dictated what could be put upon them. One participant explained:

> "The one [table] for eating is like lower down, like a dining room table with wooden chairs and placemats set out, salt and pepper and menu, um and then the other one has chairs that are like stools, so like higher up um and a high, a high table, then on that table there's just coasters for drinks, not anywhere for food as its quite a small table…Um, so again like the seats are quite like high, so it's like, like stools and like high chairs which always makes me think of like drinking, rather than like eating food…I just think you don't ever eat

food on a high stool and like a high table…not comfortably anyway."

(i) <u>Sitting on objects (Sit-on-able)</u>

1. Furniture: Most participants spoke about actively seeking out opportunities to effect sitting after getting a drink, as many "would never stand if I could sit, as a rule". This was particularly the case for women who would try to sit "when their shoes were hurting". Participants preferred to effect sitting near the bar for "easy access to the alcohol" and contrasted "nice and comfortable" seats in public houses to "functional", "space saving" stools in bars and nightclubs. In sparsely furnished premises participants could not effect sitting, which many felt inhibited consumption. This was evidenced by the following statement:

> "I find that people if they can't sit down they are less likely to have a drink because it's not particularly comfortable to try and stand up".

In these premises, one participant explained how:

> "The people are kind of the organisation [laughs], like it's just where people wanna stand, they set up the room how they want like, if, if all these people moved over there then that would give it a new arrangement".

This left those that were too intoxicated to stand to find any flat surface to rest on, as one participant explained how they found their friend "lying in the middle of like on the floor". In contrast to this, some participants felt

they effected drinking more quickly when the opportunity to sit was inhibited, as one participant explained:

> "I kind of tend to associate standing up drinking with drinking quite quickly, 'cos you wanna go off and do something else rather than kind of just standing there all night and, whereas if you can sit, you might drink quite a bit slower."

(j) Viewing objects (View-able)

Participants reported how viewing objects influenced their drinking behaviour. This theme was split into four sub-themes: lighting, entertainment features, promotions and advertisements, and décor.

1. *Lighting:* Participants spoke about how they often effected drinking in premises where viewing was impaired, as it was too difficult "see your drink", let alone to carry out more complex action potentials. The opportunity to effect drinking in an "anonymous" setting where "people can't see you" was appealing for many participants. Participants always found bar areas to be well-lit, as one participant explained: "there's little lamps above the bar, kind of tell you where the bar is".

Participants associated dim lighting with consuming alcohol. For example, one participant explained that "even in the day it's the illusion that its night time" in dim premises. Many believed dim lighting therefore promoted consumption, as one participant explained: "because I think it's later

therefore, to me it's kind of dark, kind of has like a nightclub kind of bar feel, so I drink more". Similarly, another participant explained how:

"If I was drinking and the lights were really bright it would make me maybe want to stop because it might give me a headache".

2. *Entertainment Features:* Participants spoke about how their consumption is inhibited when they are distracted from drinking by other alternatives for action, including watching television. One participant explained: "I'd drink slowly because I'd be absorbed by what was on the TV." In contrast to this, some participants felt that premises with televised programmes, such as sports features, provided an opportunity to effect viewing and drinking at the same time. One participant explained:

"When the sports are on, people tend to um be there longer, drink more kind of get a bit lively and get caught up in the sport and action and it really changes the crowd…it changes the whole dynamic of the environment…people tend to drink more and get carried away and then have some good banter and they will be out longer, as I'd be there for the whole game and then probably afterwards chat about it, so probably promotes and encourages drinking".

Participants felt "more inclined to drink" because "drinking's a lot easier than eating" when viewing entertainment features. Many felt that they "distractedly just sip on their drinks while watching, paying more attention to the game" than to drinking, which many felt led them to unknowingly consume more. In addition to this, one participant explained how

entertainment features tended to be situated near the bar area, explaining that this:

> "Means that if you are specifically watching the telly for any reason it means you will probably have to be stood by the bar and be relatively close to it, so you are more likely to go and buy another drink."

Viewing televised features was not appealing for all patrons, as one participant explained they would "probably avoid this environment". Other participants felt these action potentials were gender specific and might "discourage women".

3. *Advertisements and Promotions:* Participants felt that their consumption was promoted by viewing alcohol-related images on posters, which is also closely linked to consuming and purchasing behaviour. One participant explained: "no one goes to a place and sets out to buy a fishbowl until you see an advert for a fishbowl". It is possible that alcohol-related cues invite the affordance for consuming and purchasing, making further cues more salient for behaviour when the opportunity for action is later available. For example, upon perceiving exterior premise posters participants explained how they would think about effecting drinking. Therefore, when they are offered a drink by friends: "I'm already thinking about alcohol and what I would get, so I think I would be, more inclined". Participants felt posters depicting alcohol containers with interesting names promoted consumption.

Participants were "quite intrigued to try" these, even if they "haven't a clue what's in it". One participant explained:

> "'Wild shots' which I'm not entirely sure what they mean by that, but they, but they're animalistic in some sense".

Participants described visual alcohol displays as being "colourful" and appealing, in contrast to "bland" soft drink displays. Many participants felt this visual cue may make them "more likely to buy that type of drink". This also restricted the opportunity to consume other types of drinks, as promotions tended to be on "high percentage alcohol beverages such as shots and spirits". One participant described:

> "Everywhere you look there's promotion of um alcoholic drinks, not any soft drinks".

Participants always noticed posters advertising happy hours in the photographs. These were described as limited periods of time where patrons could purchase "very cheap alcohol". Many took up these opportunities for action "quickly…before it runs out'".

In contrast, when promotions were available all night, many felt this:

> "Would sort of slow people down a bit 'cos it's like, there's no rush, it's just available all night, we don't need to hurry up and get it 'cos it's gonna like sort of run out".

Advertisement placement was important for participants. Many felt that these had a larger impact on their drinking behaviour if they were unavoidable and present at the point of sale, as one participant explained:

"The triangle leaflety like things stood up and they're right in the way of the bar so when you approach the bar you can't help but view them and quite often say like if you have a handbag or something and you need to put it up on the table…to get your purse out or something you would probably have to move it so you will probably have to have a read of it…Especially if the bar gets busy you are probably likely to stand there and go well…I'm gonna be another five minutes so I might as well have a look at the drinks."

Many participants were more concerned about price than drinks preference, as one participant explained:

"A lot of people like, whatever they see is on offer they'll buy, whether they're really like keen on it or not".

Price is an abstract construct which cannot be directly perceived, but influenced behaviour when viewed on a promotion and can be directly perceived. Participants felt this would particularly influence their behaviour as "younger drinkers", who "don't have as much money". When prices were advertised at the point of sale, drinks appeared "quite cheap", influencing participants to purchase them even if it was for more alcohol than they wanted. One participant explained:

"Vodka, ten vodka shots instead of being twenty pounds are now half price at ten pounds...if a Jagerbomb is say two fifty if they can get five then they might think 'I might as well just have five and save the money' and then they end up drinking probably stupid amounts 'cos of all the deals".

When alcohol displays were not on view in premises, participants found them to be unappealing, as one participant explained: "there's no special offers or anything like that, I probably wouldn't stay and drink here." This was particularly the case for those who were less experienced in consuming alcohol in these types of premises and did "not want to ask how much things cost", as they relied on promotions to effect drinking: "'cos I wouldn't be sure of like the prices".

4. *Premise Décor:* Patrons highlighted many "subtle" aspects of the "alcohol related décor" in premises that were initially unknown to the investigator. This included vodka bottle shaped lampshades, alcohol-related wallpaper and bar stools shaped like beer caskets, as one participant explained: "it's just umm everywhere is sort of, sort of saying to drink". Participants felt "subconsciously" these "would have an effect", influencing them to drink the type of drink being depicted. One participant explained:

> "Even if it's just some unconscious thing, you'd end up wanting a drink, so I think it'd stimulate drinking".

It is possible that this alcohol-related décor might invite the affordance for drinking if the image provides the same functional information as the real object. As one participant said:

> "Everything is telling you to drink, like even the wallpaper and like…yeah even the uh lamps are um bottles with um a lamp on, which sort of, I don't know if that would be subliminal messaging or

something, but I think it might sort of, it's definitely somewhere where they are saying they want you to drink".

This appeared to have a larger effect when it was congruent with a participant's drinks preference, as one participant explained:

"That's obviously someone's [staff] t-shirt…the t-shirt which is advertising Jack Daniels. Um yeah uh so that, that jumps out at me straightaway, uh I don't know if that's just because JDs my favourite drink".

Participants were also able to contrast décor in different types of establishments and related these to different types of drinking behaviours from their experiences. This was evidenced by the statement: "you're inclined to drink something that's specific to the place you're at". For instance, public houses were described by participants as "rustic", "wood", "stone", "old fashioned", "dated", "depressing", "relaxed" and "someone's house" which would "make you think beer right away". These were appealing for "older people" only, so participants would behave "how I would behave at home". This suggests well-furnished premises with this type of décor portray that risky behaviour would not be tolerated, making them unappealing for young adults. In contrast, bars were described as "sophisticated", "exclusive", "posh", "modern" and "somewhere where you might have a cocktail and relax". These more attractive premises invited patrons to stay for longer. Participants described nightclubs as "tacky", "brightly coloured", "dingy", "functional" and somewhere to "get drunk". Although participants frequented these premises regularly, many found

them unappealing with poor levels of cleanliness. These perceptions may be due to repeated experiences of effecting drinking within different types of premises, based upon the shape and structure of the environment and the behaviours participants had carried out within them.

4. Discussion

Photo-elicitation interviews allowed the investigator to explore opportunities for action that are taken up by drinkers within these novel drinking environments, based on their experiences. The alcohol-related affordances identified by this study included opening hours, bar access, regulations and premise location affecting access to alcohol; communicating with others, including social influence from other patrons, sales techniques used by staff and patron characteristics; drink and food availability for consumption; entertainment features to dance, listen to or play on; drinks and food condiments to grasp; furniture to sit on or put drinks onto; and also lighting, entertainment features, advertisements, promotions, and décor to view. Many of these main themes and sub-themes from the IPA analysis corroborated with the alcohol-related affordances found in the previous study. However, these findings went beyond those of the previous study by providing an insight into the individual subjectivities that exist within individual-environment relations and the meaning that these features have for individuals.

Participants were able to directly reflect on drinking experiences within similar environments, as well as referring to changes in the layout of affordances over time. This suggested they were able to use the photographs to make sense of their experiences of behaving within similar environments. Participants were also able to compare and contrast premises with different affordance layouts, referring to the different functions of different types of environments. For example, participants were able to recognise when affordances for effecting drinking were limited and reflected on experiences of overcoming these. It is possible that, based on experience, participants had developed a shared intersubjective knowledge about what each type of premise affords in terms of alcohol consumption and had formed a preference based upon this. It appeared to be important for most participants to effect drinking in these establishments. Additionally, embodied cultural practices which influenced drinking behaviour became apparent when participants spoke about how the affordances of other patrons, situated drinking practices and norms influenced how much they drank. For some participants, how much they intended to drink was influential on their drinking behaviour. It is possible that that these individuals are more conscious of influences on their drinking behaviour from experience, which allowed them to actively and selectively seek out opportunities for action that are congruent with these situated goals.

Subsequently, participants had strong perceptions of what should be done within these environments. Many felt unable to consume alcohol on tables with food condiments, or to drink heavily around people eating food.

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This was based on their behavioural expectations for acting upon canonical affordances within these environments, subject to social and cultural norms, which dictated appropriate behaviour in a given context. Participants did not want to become too intoxicated in public houses as they treated these premises like their own home. In contrast, bars and nightclubs had a basic layout and were often dimly lit, which promoted excessive alcohol consumption and uninhibited behaviour. Likewise, participants were confused when opportunities for action were not congruent with their expectations for an environment, such as dark environments which had tables set up for food. These canonical affordances, or normative action opportunities, appeared to regulate behaviour because participants attempted to avoid acting on non-canonical affordances. For example, many felt discomfort when acting upon these unconventional objects uses, for instance, having to drink on a table with food condiments. It would be interesting to carry out this study in another culture to determine if this is also the case. For example, in some cultures cutlery may not be used to eat food, so these affordances may not constrain behaviour in the same way.

Participants found it easy to engage with the photographs and to relate this to experience, finding the process both interesting and unusual. Many participants had not considered their environments in this way before. It appeared to be easier to describe environments by form, or by what was there, compared to by function, or what can be done with it. As discussed in Chapter 3, this may be due to familiarity with describing their environments using form-based descriptions, or because individuals often take up

opportunities for action in the world without thinking about them. Although participants found describing environments by function a challenging task, they were able to take items of interest out of the flow of information within individual-environment relations to assess them in this way. Many participants explained that they visited these types of premises on a weekly basis without consciously paying attention to these aspects, but that they would not be aware of such influences. It is possible that an intervention for preventing opportunities to consume excessive alcohol could be formed by providing patrons with information about how such influences could affect their drinking behaviour. In contrast, those that went out less frequently found the study more difficult, due to their lack of experience of behaving within similar environments.

Some participants found it difficult providing reasons for their behaviour. For instance, easy to pour drinks dispensers on bars might mean drinks are received more quickly, but participants found it difficult to infer whether this influenced consumption. Additionally, participants could not explain why they associated dim lighting with increased alcohol consumption. For example, this could be due to repeated experiences of effecting drinking in premises which tend to have poor view-ability. This is an important critique of this study: is it possible to provide accurate reflections of experience and do we really always have insight into why we behave? Are participants sometimes attributing post hoc reasons for their behaviour or are they always accurately reflecting on their experiences? Phenomenological methods allow researchers to tap into the flow of

information between individuals and their environments in terms of subjectivity. Likewise, the affordance construct provides researchers with a function-based lexicon to describe the transactions between individuals and their environments. It remains difficult to tap into individual-environment relationships directly, but accessing subjectivity in this way provides a window onto these complex relations. These results will be discussed further in Chapter 7.

The methods used in the current study were theoretically appropriate but remained subject to the available resources at the time. Participants perceived a limited number of photographic representations of unfamiliar licensed premises, which provided an indirect measure of the transactions they have with their environments. Photographs have low ecological validity and require participants to return to these experiences and reflect on how they would behave in these environments, rather than interpreting their real environment as they are carrying out these behaviours. Photographs are also representations of an environment, which is methodologically important due to the subjectivity and relational nature of the variables of interest for this research. For example, using representations appears to be contradictory and secondary to the aims of this research. However, this is not a problem if, as Gibson suggested, the physical and psychological worlds are viewed to be mutually connected, as subjectivity provides a window onto these experiences. Although the interviews were focusing on recollections of experiences and photographs were representations of environments, this insight into subjectivity was current and direct.

Participants made sense of what they had done before and how they would behave if put into a similar context in the future. Therefore, subjectivity was created during participant's discourse with researcher as they made sense of these experiences.

Instead of assessing entire premises, using photographs of aspects of licensed premises meant that the current study was more open to bias than the previous study. To ensure participants were not led, the investigator captured a wide range of affordances and asked participants to reflect on opportunities for drinking that were and were not present in the photographs. The interview questions were open-ended and not of a sensitive nature, to counteract participants giving socially acceptable answers. In addition to this, the investigator emphasised that the focus was on opportunities for promoting and inhibiting consumption, not on an individual's risky drinking behaviour. Participants may have been led by the example, as many referred to similar features in later photographs, but the same example was used for every participant. Additionally, the current study only explored one modality: vision. Gibson was very clear that the body has interacting perceptual systems which are not just limited to vision. If future research cannot be conducted in the environments themselves, multi-sensory studies should be carried out which incorporate and can explore interacting modalities. For example, some experimental work has looked at how a multi-sensory environment can influence the taste and enjoyment of whisky (Velasco, Jones, King, & Spence, 2013), but such research takes a neuroscientific instead of an Ecological perspective.

Additionally, it might be valuable to interview participants before and after drinking in establishments to obtain a better sense of the network of relations that define certain drinking environments and the implications that this has for drinking behaviour.

The participant sample size was typical for the type of study, however, more female than male participants took part. This is a possible limitation of the current study, which was due to using the Participant Panel for recruitment. For example, more female students study Psychology than males and this was reflected in those who signed up to take part. This might suggest the themes which arose from the interviews are gender specific and could be improved in further research. Despite these issues, many of the themes arising from this research supported the alcohol-related affordances identified in Study 1. In addition to this, an insight was obtained into the experiences from those with a wide range of drinking behaviours. No participant was excluded from the study due to age, but the sample exclusively involved students who were aged 18-30 years old. The current programme of research aimed to understand drinking behaviours in young adults. While these findings could have implications for older individuals, this was not the focus of the current study. For example, older individuals may take up different opportunities for action or may carry out different types of drinking behaviours in certain settings. The investigator made sure that the participant sample had a wide range of self-categorised drinking behaviours, ranging from those who drank very little, to those who drank moderate-heavy amounts. Additionally, a saturation point appeared to have

been reached within the later interviews as, when moving across cases, similar themes were arising from the data. While it may have been advantageous to interview participants in groups, or to conduct focus groups, the focus of the current study was on exploring individual subjectivities using phenomenology. It was through this that the researcher was able to make sense of the participant's experience from their point of view, as participants understood and interpreted their experiences as they manifest during the interview setting (Merleau-Ponty, 1968; Smith et al., 1999).

5. Conclusion

This chapter has shown how the subjective-objective distinction becomes redundant when taking the view that the physical and psychological worlds are the same. When re-defined as something accessible within the flow of information between individuals sharing the same worldly experiences, subjectivity becomes a window onto individual-environment relations. Researchers using phenomenological methods can then understand behaviour in terms of situated action and can investigate patterns of subjectivity both within individuals and across cases. In the current study, participants were able to take occurrences out of the perceptual flow and evaluate them in terms of the function they had for their drinking behaviour. The next chapter will look at patterns of group subjectivity in relation to alcohol-related affordances, which could emerge from these individual subjectivities.

CHAPTER 6

Alcohol-Related Affordances and Group Subjectivities:

A Q-Methodology Approach
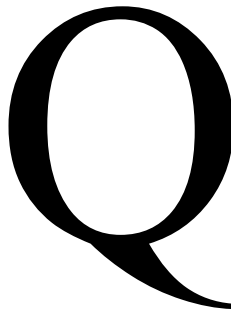
Q Methodology provides a foundation for the systematic study of subjectivity…it is this central feature which recommends it to persons interested in…human behaviour.

(Brown, 1993)

1. Introduction

Chapter 3 has explained how Gibson's Ecological approach and its emphasis on reciprocal perception-action relations was influenced by those who focused on the functional role of activity in developing knowledge about the world (e.g. Dewey, 1896, 1930; Dewey & Bentley, 1949; Mead, 1938). Like Gibson, many of these theorists disagreed with many prevailing dichotomies in psychology (e.g. internal/ external; mind/body; subjective/objective) and instead emphasised the mutuality of organisms with their environments. Gibson's Ecological approach emphasises the mutual unison between an individual and their environment, in terms of affordances (Costall, 2012). These shared, mutual, emergent properties of the transactional situation of an individual reflect the various but limited opportunities for action available within certain environments (Gibson, 1979a). As affordances exist at the relation of an individual to their

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environment, existing dichotomies no longer work (Dewey, 1896; Dewey & Bentley, 1949). Therefore, when understanding behaviour, the focus is moved from inside the head to the direct and unmediated individual-environment system.

This has important implications for psychology as previously considered internal processes, such as subjectivity, cognition, intentions and beliefs, are no longer represented by inaccessible, hidden representations contained within the head, but become situated within perceptions of the world and experiences of acting within it (Costall, 2012). However, as has been explained in Chapter 3, applying the Ecological approach to the study of complex behaviour is challenging, because the language and methods used by researchers continues to uphold the difference between what is presumed external, objective and accessible, and that which is internal, subjective and hidden. For example, quantitative methods tend to be used to study the objective, external world, whereas qualitative methods tend to be used to study subjective, internal processes (Hegelund, 2005). Additionally a name often refers to what form the item takes, rather than the function it has for behaviour (Dewey & Bentley, 1949; Heft, 1988).

Although these issues may make it difficult for researchers to tap into the mutual transaction between individuals and their environments, the author of this chapter has argued that subjectivity provides an appropriate window for researching affordances. In Chapter 4, a non-participant observational study illustrated how the affordance construct can be used to

describe a range of drinking environments by their function, from an independent observer's perspective. This study focused on how individual-environment relations can extend or constrain an individual's drinking behaviour and highlighted potential alcohol-related affordances. In Chapter 5, a photo-elicitation interview study was used to uncover the individual subjectivity that exists at the relation of drinkers to their drinking environments, from individual drinkers' own perspectives. This phenomenological investigation confirmed many of the alcohol-related affordances from the first study and provided an insight into the meaning of certain affordances for individuals and why they were taken up.

If subjectivity is accessible within the flow of information between an individual and their environments, then it must also be present between the transactions of groups of individuals and their environments. As has been explained, individuals act upon canonical meanings of an affordance, based on their history of experiencing the culturally normative uses of the object in similar contexts (Costall, 1981). This knowledge about convention is both situated and social, because it is based on an individual's experiences of interacting with environmental objects and with other individuals. Although perception is uniquely specifying, groups of individuals carrying out similar behaviours in shared environments may share some form of awareness (Reed, 1990). This shared subjectivity was introduced in the previous chapter and is often referred to as intersubjectivity or social knowing, reflecting a combined meaning and social knowledge of others (Gallagher, 2005; Good, 2007). Therefore, instead of focusing on shared

internal mental representations between groups, in Ecological terms an understanding of others can arise from exploring this type of shared awareness.

Q methodology was developed by Stephenson (1953) in order to systematically measure subjectivity, or group perspectives on a topic (Brown, 1986; McKeown & Thomas, 1988). Despite having a wide ranging application, Q is rarely acknowledged and relatively under-used (Brown, 1980; Watts & Stenner, 2012). This is unfortunate because Q-methodology is a powerful, theoretically grounded tool which can be used to examine consensus and disagreement among members of a group (Brown, 1980; Brown, 1986; Stephenson, 1953; Thomas & Watson, 2002). In terms of subjectivity, Q-methodology is used to identify shared points of view, or patterns of subjectivity in human perceptions and behaviours (Stephenson, 1953). Here, subjectivity is defined as something that can be systematically analysed when it is communicated operantly, spontaneously emerging as participants sort statements to construct meaning (Brown, 2002b; Smith, 2001; Stephenson, 1953, 1968). As Q-Methodology is quali-quantological, it sits in the middle of a qualitative-quantitative continuum and represents a hybrid of research methods (McKeown & Thomas, 1988; Ramlo & Newman, 2011). The qualitative aspects of the statements and post-sort interviews are based on constructivist perspectives and can be used to develop theory, whereas the more quantitative factor analysis is based on post-positivist perspectives and can be used to test hypotheses to confirm a theory (Brown, 1997; Ramlo & Newman, 2011).

The laboratory is often viewed as the best environment for testing accounts of shared experience. However, little mixed method work has explored the intersubjectivity of social knowing (Good, 2007). This approach is innovative, as Q-Methodology has never been used in this way to assess the subjective reports of young people regarding their drinking environments. Q is a unique method, because it forces participants to rate a set of items in relation to other items in a forced distribution, based upon their opinions of a particular topic (Van Exel & de Graaf, 2005). Not only does this make Q-Methodology a viable method for investigating affordances, which in themselves are relational, but it provides a means for exploring group patterns of subjectivity at the relation of an individual to their world. The focus of the current study was on the patterns of subjectivity that exist within individual-environment relations and between groups of individuals when consuming alcohol in these shared drinking environments.

1.2 Aim

The current study aimed to explore group perspectives or subjectivities of alcohol-related affordances using Q-Methodology.

2. *Method*

2.2 Defining the Concourse

The concourse refers to the communication surrounding a topic in everyday discourse which must represent the opinion held by a range of different individuals (Brown, 1993; Watts & Stenner, 2012). The researcher must draw a representative sample from this, because these items used in the Q-study will represent the quality of the concourse (Brown, 1980). The Q-sort items can vary from objects, pictures, single words and phrases, but the current study used statements printed on cards, which is most often used. These statements have to be self-referent opinions, not facts, and are obtained through a wide range of methods, including interviews, observations, or items from popular culture. In the current study, the researcher was able to combine the findings of the previous first two studies in order to produce a varied concourse of individual and group perspectives related to alcohol-related affordances. This included the observational categories and main interview themes from the previous two studies. Statements originating from oral or written communications with participants are often referred to as 'naturalistic', whereas 'ready-made' statements come from other sources, including observations (McKeown & Thomas, 1988). The current study used a hybrid of naturalistic and ready-made statements in order to include a representative and comprehensive range of statements best suited to the topic.

2.3 Developing the Q sample

In Q-Methodology, representativeness is achieved by using Fisher's (1937) principles of variance design and applying a theoretical-based structure to the concourse. This experimental design helps to produce a representative miniature version of the concourse, which is called the Q-set. This structure does not have to provide a testable hypothesis, but offers a possible explanation of the factors which later emerge from the analysis (Brown, 1980). This also allows the researcher to obtain broadly representative statements as they can select various aspects of each statement. To represent the range of opinion from the previous two studies, each Q-statement was grouped by its affordance and function for drinking behaviour (i.e. having an effect/ no effect on alcohol consumption). This ensured that the statements were broadly divergent from one another (Brown, 1996). This meant that some participants might agree with each statement, whereas some might disagree. The researcher then removed duplicates and condensed the set of over a hundred statements to the sixty final statements.

The affordances listen-to-ability and dance-to-ability had the least number of statements. As these affordances tend to rely on the same occurrence, for example music, they were combined into one affordance factor. The view-ability affordance factor had the most statements and, in the previous studies, it was concluded that some of these occurrences may also afford purchasing. Therefore, this affordance factor was split into two: view-able and view-able/ purchase-able. As can be seen in Table 1, for each

of the 10 different types of affordances there were three statements, two effect statements and two no effect statements. There were 60 final Q-statements, which can be viewed in Appendix E. This included 30 effect statements and 30 no effect statements. This is typical, as most Q-methodology statement sets often contain between 40-60 statements. However, this number is flexible and fewer or more statements than this can be used (Brown, 1980; Van Eeten, 1998; Van Exel & de Graaf, 2005).

Table 1. *Structure Applied to the Statements*

Affordance *(Factors: N = 10)*	Function for Drinking Behaviour *(Levels: N = 2)*	
	(a) Effect	(b) No Effect
(c) Access-ability	(ac) N = 3; 1, 3, 5	(bc) N = 3; 2, 4, 6
(d) Communicate-with-ability	(ad) N = 3; 7, 9, 11	(bd) N = 3; 8, 10, 12
(e) Consume-ability	(ae) N = 3; 13, 15, 17	(be) N = 3; 14, 16, 18
(f) Grasp-ability	(af) N = 3; 19, 21, 23	(bf) N = 3; 20, 22, 24
(g) Listen-to-ability/ Dance-to-ability	(ag) N = 3; 25, 27, 29	(bg) N = 3; 26, 28, 30
(h) Play-ability	(ah) N = 3; 31, 33, 35	(bh) N = 3; 32, 34, 36
(i) Put-on-ability	(ai) N = 3; 37, 39, 41	(bi) N = 3; 38, 40, 42
(j) Sit-on-ability	(aj) N = 3; 43, 45, 47	(bj) N = 3; 44, 46, 48
(k) View-ability	(ak) N = 3; 49, 51, 53	(bk) N = 3; 50, 52, 54
(l) View-ability/ Purchase-ability	(al) N = 3; 55, 57, 59	(bl) N = 3; 56, 58, 60

Note: 10 x 2 = 20 cells, 20 x 3 = 60 statements for sorting by respondents.

Selecting statements for inclusion in the final Q-set is a very important part of the process, but Brown (1980) has stated that this is more of a creative than a systematic process. During this process, the researcher was careful not to miss anything which had arisen in the previous two studies, or to privilege any statements over others. In a Q-Methodology study, it is important to obtain a Q-set which is broadly representative of the subjectivity which exists about a topic. While it is simply not possible to capture everything, each statement represents the meaning that a certain topic has for an individual at a particular time. Different researchers might apply different structures to the concourse, which could lead to different Q-sets being developed from the same concourse. This is not an issue, because the purpose of applying the structure to the statements is to cover all of the points of view, while providing another possible explanation for the resulting factors. Importantly, despite differences in the statement structure and what researchers consider representative, only the participants can give the statements meaning when they sort the statements (Brown, 1993). It is possible that some participants might interpret the same statement differently, but it is this meaning that a participant derives from a statement that is important. Therefore, the researcher's perception of the Q-set items is separate to the participants' views of them (Brown, 1999). In addition to this, comparative Q-Methodology studies have suggested that different statement structures and Q-sets generally tend to lead to the same resulting factors, or perspectives (Thomas & Baas, 1992).

Each statement was printed onto a separate card with a corresponding number to facilitate the sorting process. Statements were generally formatted in the following manner: [occurrence] [effect or no effect on consumption]. The statements were based on the alcohol-related affordances identified in the previous two studies, but included occurrences and behaviour, as it was believed these would be easier for participants to understand. It is often recommended that short phrases should be used and double-barrelled statements with two or more different propositions should be avoided (Watts & Stenner, 2012). However, sometimes longer phrases or two clauses might be necessary, but these should always be clear and related (e.g. Van Exel & de Graaf, 2005). In the current study, examples were provided for some statements to help participants with reflecting on their experiences. To ensure the statements were clear, statements were continually reviewed by the supervisory team. A set of statements was then given to five individuals unrelated to the study for feedback on clarity and grammar. Once this was complete, a full pilot study was conducted with ten individuals before the final study was carried out. This addressed issues associated with double negatives, two clauses and statement clarity.

2.4 Participants

The P-set represents the participant sample and is often smaller than the Q-set (Brouwer, 1999; Brown, 1980). Participant sampling in Q-studies is different to that used in experimental research or surveys because it utilises quota, purposive and convenience sampling techniques on small participant samples. Most Q-Methodology studies recruit small numbers of

participants, often between 20 and 40 participants, as any more than 40 can jeopardise the comprehensiveness and reliability of the factors (Brown, 1980; Stephenson, 1953; Van Exel & de Graaf, 2005; Watts & Stenner, 2012). Successful Q studies have even been conducted on single cases (Brown, 1980). Instead of focusing on how many people subscribe to a particular view, a focus is on what the particular views about a topic are, which people load onto them and why this is. Therefore, only enough participants are needed to determine the existence of each factor, so that they can be compared (Brown, 1980). Each factor, or viewpoint, has to have at least two participants loading onto it in order to be retained. Furthermore, in the final analysis, three to four factors are often retained and this is usually no more than six (Van Exel & de Graaf, 2005). However, it is possible that the prevalence of this could be much higher in the general population.

As Q-Methodology focuses on the range of viewpoints, including minority viewpoints, factors are retained if more than one person loads onto it (Brown, 1993). If factor loadings are insufficient, then the investigator must reconsider the Q-set of statements, as adding more participants will have little impact on the resulting factor scores (Brown, 1980). The P-set can never be random, but must consist of individuals who are relevant to the topic, have clear and/or distinct viewpoints and might define a factor. In the current study, the sampling technique used was stratified by gender to ensure an identical number of male and female participants took part. Theoretical sampling obtained individuals with similar demographics who had a range of viewpoints about the topic. This included 40 Health and Life

Science students from Oxford Brookes University, 20 males and 20 females aged 18-33 years. These individuals all socialised and/ or consumed alcohol in licensed premises. Participants had similar demographics so the only differences of interest were those loading onto certain factors.

2.5 Procedure

Theoretical recommendations suggest that Q-methodology grids range from, 'strongly (e.g. disagree)' to 'strongly (e.g. agree)' with absence of feeling or uncertainty in the middle (Brown, 1980; McKeown & Thomas, 1988). The kurtosis of the distribution of a Q grid also depends on the topic, for example, if participants have little knowledge about or opinions on the topic, a steeper distribution allows for more uncertainty. If participants have strong opinions about a topic, a flatter distribution provides room for strong agreement or disagreement. The grid in the current study adhered to recommendations for Q-sets containing 60 statements. Therefore, it had a relatively flattened distribution, which ranged from -5 (strongly disagree) to +5 (strongly agree). Table 2 represents the fixed distribution for the Q-set, including the labels, column range and depth of the Q-Methodology grid.

Table 2. *Fixed Distribution for the Q-Set*

	Strongly Disagree					Neutral					Strongly Agree
Column Range	-5	-4	-3	-2	-1	0	1	2	3	4	5
Column Depth	2	4	5	6	8	10	8	6	5	4	2

Participants sat at a table in front of an A0 poster of a Q-methodology grid, the Q-set and three boxes, as seen in Figure 1 on the next page. Participants were provided with the Q-set, which were a pack of randomly numbered cards and contained one statement on each card. It has been suggested that participants find it easier in the final sort if they conduct a preliminary sort (McKeown & Thomas, 1988). Therefore, participants were asked to preliminarily sort the Q-set based on their opinion of the topic and the *condition of instruction*. In order to get an impression of the degree of opinion surrounding the topic, participants were asked to read each statement carefully. As they were reading each statement, participants were asked to think about their recent experiences of consuming alcohol within licensed premises and whether they agreed, disagreed, or were unsure and/or ambivalent that the statement reflected how they would behave in each context. Participants were then asked to put each statement into one of three boxes, labelled 'agree', 'disagree' or 'neutral'. They were then able to rearrange the cards until they were happy with how they had separated the items. As the number of cards in each of the three piles always tended to be equal, the researcher was satisfied that the statements appeared to be representative of the range of opinion about drinking behaviours within drinking environments.

Figure 1. *Q-Methodology Grid*
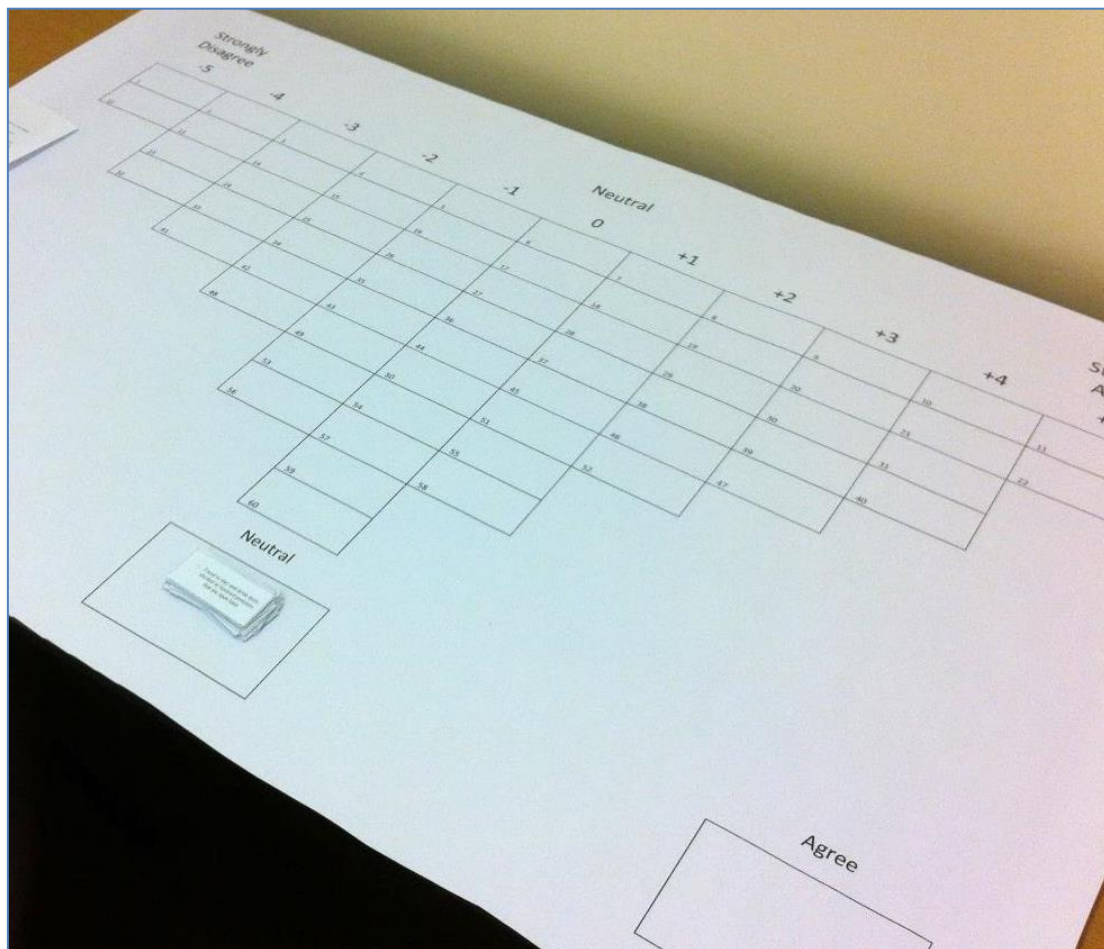
For the final sort, participants placed the statements on the bipolar, quasi-normal distributed Q-Methodology grid. Each card was sorted relative to other cards, forcing participants to rank statements based on their own subjectivity (Stephenson, 1953). As this was a fixed distribution task, participants were asked to adhere to the distribution provided and only place one statement into each position on the grid. For instance, if participants wanted to place a statement in the +5 column but there were no +5 positions remaining, they were asked to place the card into a position in the +4 column and so on. Participants were then asked to place statement numbers into the score sheet provided. Participants were given a full demonstration of what was required and had written instructions. The researcher was also present in the room while the Q-sort was conducted, allowing participants to ask questions throughout.

In order to obtain further insight into each participant's point of view, it is recommended to follow the sorting process with an interview. Q-Methodology studies are often conducted in face-to-face interview situations because the sorting process is complex and unusual. However, similar results have been found in Q studies conducted by mail (Van Tubergen & Olins, 1982) and no difference in reliability or validity has been found between face-to-face Q studies and those conducted on computers (Reber, Kaufman, & Cropp, 2000). Although computer studies are easier to administer and help to obtain a wide sample of participants, it is more difficult to address inaccuracies and studies are often left incomplete. Face-to-face interviews were preferred for the current study because they enabled interaction between participant and researcher throughout. This also meant

that participants provided detailed responses to the post-sort interviews, which aided factor interpretation. During the interviews, participants were asked about statements they placed in the strongly agree and disagree ends of the grid; those that stood out for them; those that were easier and harder to sort; and where they thought their neutral line was on the grid. This helped the researcher during the factor interpretation phase.

2.6 Analysis

The Q-Methodology analysis involves factor analysis, correlation, factor rotation and the calculation of factor scores (Brown, 1980; 1986; 1993). PQ Method software (Schmolck & Atkinson, 1992) was used in the current study because it is designed specifically for recording and analysing Q-sort data. Other software is available, including PCQ (Stricklin & Almeida, 1998), SPSS or Excel, but these are either costly or do not provide all of the analyses that PQ Method does (Stephen, 1997). PQ Method categorises participants with similar points of view onto factors, as well as revealing consensus or disagreement among the different factors (Brown, 1980). If every participant held a distinct point of view about the topic, there would be no correlation between their Q-sorts. When there are significant correlations between participant sorts, they can be analysed. These are then distinguished as viewpoints and participants are measured in accordance to them (Stephenson, 1935). The number of factors retained tends to depend on the Q-sort variability, significant loadings and variance, but usually three to four factors are retained.

PQ Method allows for both centroid and principal components factor analysis to be conducted (Schmolck, 2002). The centroid method was used in the current study as it is the most typically used and tends to be recommended for extracting factors (McKeown & Thomas, 1988; Schmolck, 2002). Although Brown's (1993) 'magical number of seven' is suitable, it is recommended to extract as many variables as possible to retain the most variance. As PQ method can handle up to eight factors, eight factors were extracted for factor rotation. Factors are rotated in order to increase the correlation of a particular participant's Q-sort onto a factor (Watts & Stenner, 2012). Varimax rotation was used for the factor rotations in the current study. Although hand rotation can be done, it is often viewed as unscientific, as it shifts the perspective from which the Q sorts are viewed and is only used when there is a preconceived theoretical reason to do so (Brown, 1980; 1986). For example, it can be used if one sorter is distinct from other sorters because they have a leadership role (McKeown & Thomas, 1988), which was not the case for the current study.

In order to identify which Q-sorts are highly correlated with each factor, the factors are then flagged. This flagging is often then adjusted by researchers to obtain clean loadings (Van Exel & de Graaf, 2005). In the current study, the flagging was adjusted to include only clean loadings of .43 significance or higher, a level which is considered rigorous for Q-methodology (Brown, 1980; Stephenson, 1953). This threshold for the statistical significance of factor loadings was determined using: SE = 1/ (sqrt[N]), whereby SE represents the standard error and N represents the

number of statements in the Q-set (Brown, 1980; 1993). There were 60 statements in the current study, so SE = 1/(sqrt[60]) = 1/7.745, therefore the SE = .13. Correlations are taken as statistically significant at the .001 level when in excess of 3.29 standard errors. Taking this significance level, 3.29(SE) = 3.29(.13) = .4277. Therefore, sorts were flagged when they were above .43 (2 d.p.).

The final Q-analysis was then run on the rotated factors to calculate factor scores. Q methodology creates a set of normalised factor scores for each factor, which provide an exact measure of the distance of each statement from the mean (Van Exel & de Graaf, 2005). The z-scores can be used to create a representative Q-sort grid for each factor, ranging from -5 (strongly disagree) to +5 (strongly agree). This represents a hypothetical sort for an individual who would fully load upon that factor. In the current study, PQ Method produced four sets of normalised z-scores, each containing all of the 60 statements and listed in rank-order. *Factor arrays* are the column positions of the statements in this representative Q-sort grid and reflect the subjective perceptions of the group loading onto a factor. It is the strongest z-scores (positive for the most *agree* and negative for the most *disagree*) which differentiate each of the factors. In addition to this, PQ method provides a list of distinctive statements which distinguish one factor from another.

3. Findings

Brown's (1986) centroid method of factor analysis was used to extract eight factors. The researcher then used the eigenvalues and explained variance to determine how many factors to retain. Factors are often retained for the final solution when they have eigenvalues over 1.00, as this satisfies the commonly accepted *Kaiser-Gutman* criterion. Additionally, factors must have at least two significant factor loadings at the 0.01 level, in order to satisfy *Humphrey's rule* for factor significance (Brown, 1980). Based on the unrotated factor matrix, four factors appeared to explain the most statistical variance (47%), with at least two significant factor loadings and eigenvalues of more than 1.00. As well as relying on objective criteria, the Q-Methodology analysis was also conducted in an exploratory manner to ensure the validity of the final solution. Further information about how this was done is provided in the later stages of this chapter.

Table 3 contains the correlations between these final four factors. The correlation matrix indicated that most of the factors did not correlate well, as desired. The strongest correlation was between Factor 1 and 4 at .425, which is a moderate positive correlation and indicated there might be commonalities between them. The factor analysis categorises participants with similar perspectives into factors, based upon how they sorted the statements. Therefore, this suggested that most of the factors represented separate clusters of subjectivity, or perspectives about alcohol-related affordances (Brown, 1986). A further explanation of the correlations found between factors is provided later on in this chapter.

Table 3. *Correlations between the rotated factor scores*

Factor	1	2	3	4
1	1.0000	0.1938	0.2037	0.4346
2	0.1938	1.0000	0.1973	0.0723
3	0.2037	0.1973	1.0000	0.1379
4	0.4346	0.0723	0.1379	1.0000

The researcher then used varimax rotation for the factor rotations and allowed the program to flag the individual sorts for each factor. This flagging was then adjusted to include only clean loadings of .43 significance or higher.

Table 4 contains the factor loadings for each of the four rotated factors. Certain participant sorts were flagged because they were significantly associated with each factor. Each '*' in the table illustrates the flagging of these *defining sorts*. For example, participant 1 is significantly associated with Factor 4. Only pure loadings were accepted, and sorts were rejected if they significantly loaded onto more than one factor. Therefore, participants 6, 11 and 18 were not associated with a single factor because they did not meet this threshold. These sorts are highlighted in grey in Table 4. Participants 28, 31, 34 and 36 were also omitted as they significantly loaded onto more than one factor. These *confounded sorts* are denoted by *F*. For example, participant 28 had significant loadings above .43 on Factors 1 and 2, which suggested that they held a combination of views from both

factors (Brown, 2002b). The remaining participants were associated with one of the three factors because they had significant loadings above .43 on only one factor. These pure loadings are often referred to as *factor exemplars*, as they are clean expressions of the factor, representing the point of view for that factor (Brown, 1986). Factor 2 had most of the explained variance and the most participants significantly loading onto it, followed by Factor 1, Factor 4 and Factor 3, respectively.

Table 4. *The Four Rotated Factors Connected to Alcohol-Related Affordances*

	Factor Loadings			
Q-Sort	1	2	3	4
1	0.2225	-0.3308	0.0121	**0.7109***
2	**0.7511***	0.1629	0.2148	0.1349
3	**0.5688***	0.3518	0.0393	0.2723
4	0.2782	**0.4685***	0.1582	0.2960
5	0.2309	**0.6515***	0.0311	0.2113
6	0.1012	0.3275	-0.0376	0.1581
7	0.3882	-0.1866	0.2279	**0.4635***
8	0.1415	**0.5746***	0.0907	0.3363
9	**0.7035***	0.1368	0.2644	0.1047
10	**0.5510***	0.2171	-0.2752	0.2606
11	0.2510	0.1593	0.3114	0.3592
12	0.2684	-0.0304	-0.2343	**0.5621***
13	**0.7355***	-0.3884	-0.0458	-0.0074
14	0.1605	**0.6045***	0.2123	0.3367
15	0.3395	0.3294	**0.4638***	0.1622
16	0.0450	0.2129	0.1061	**0.5834***
17	-0.0178	**0.6341***	-0.1386	-0.2778
18	0.3671	0.1628	0.2053	0.2018
19	0.2672	0.2058	-0.1832	**0.4829***
20	-0.1822	**0.8185***	0.0673	-0.0730

21	**0.5572***	0.1573	0.2082	0.2349	
22	**0.7169***	-0.1984	0.2947	0.1912	
23	0.3717	**0.4736***	0.2012	0.1050	
24	**0.5965***	0.1176	-0.1781	0.1927	
25	**0.5105***	0.2646	-0.1241	0.1699	
26	**0.4928***	0.3250	0.4070	-0.0714	
27	**0.4265****	0.3205	-0.1888	-0.0661	
28	0.5725	0.5563	-0.0938	0.0075	(F1,2)
29	-0.0062	**0.4709***	-0.0146	0.3741	
30	0.0356	0.1077	**-0.5566***	0.0515	
31	0.0560	0.4381	0.5441	0.2598	(F2,3)
32	0.1571	**0.6794***	0.0168	0.0216	
33	**0.6273***	0.0534	-0.0674	0.0708	
34	0.5439	0.0313	0.2609	0.5146	(F1,4)
35	-0.0310	**0.8309***	0.1725	0.0681	
36	0.4874	0.0289	0.0525	0.4379	(F1,4)
37	0.1047	**0.4625***	0.0106	0.0454	
38	0.0082	0.1493	0.3409	**0.4782***	
39	0.0214	**0.6470***	-0.2359	-0.1557	
40	0.1182	**0.5545***	0.1437	-0.0433	
% Expl Var	16	17	5	9	

* indicates sorts with significant loadings of .43 or higher on one factor.
** this sort was retained as PQ method rounded .4265 to .43 (2 d.p.)

The z-scores, factor arrays and distinguishing statements helped to interpret, and name the four factors. Rather than outlining the entire representative sort, only the top five most agree and most disagree statements will be reported. As these statements are positioned at the extremes of the grid, they are the most meaningful statements to the sorters and to the emerging factors (Brown, 1986). Table 5 lists the four factors and descriptions of each viewpoint. Tables 6, 9, 12 and 15 include the five statements that received the highest, positive z-scores for each of the four factors. These statements represented the *most agree* side of the grid for

these perspectives. Tables 7, 10, 13 and 16 contain five statements for each of the four factors that received the highest, negative z-scores. For each factor, these statements represented the *most disagree* side of the grid. Tables 8, 11, 14 and 17 include the distinguishing statements for each factor.

Table 5. *The Four Factors from the Q-Method Analysis*

Factor 1: *Conscious and Compliant*	Conscious of contextual and social influences within drinking environments on their drinking behaviour, compliant with contextual influences, as long as they enabled them to effect drinking.
Factor 2: *Aware and Autonomous*	Aware of contextual and social factors influencing others within drinking environments, but are autonomous in own drinking decisions.
Factor 3: *Canonical and Considerate*	Concerned that behaviour was appropriate and considerate for the context that they are in (i.e. based on taking up canonical affordances), very much influenced by context.
Factor 4: *Unaware and Unanimous*	Initially unaware of influences. Believed their drinking behaviour to be influenced by contextual, social factors and unanimous with the social group in which it was conducted.

3.2 <u>Factor 1: Conscious and Compliant</u>

Twelve participants had significant positive loadings onto Factor 1, including eleven females and one male participant, aged 18-23. This included three light drinkers, one light-moderate drinker, five moderate drinkers and three moderate-heavy drinkers. Table 6 lists the five highest positive z-score statements and factor arrays for Factor 1, which represents *strongly agree* within the Q-sorts, in rank order.

Table 6. *The Five Highest Positive Z-score Statements for Factor 1 – Strongly Agree*

No.	Statement text (all scored as *agree* for Factor 1 loaders)	Z-Score	F. Array
37	I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.	2.431	5
25	I tend to drink more alcohol when listening to music.	2.230	5
12	I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.	1.643	4
1	I tend to drink more alcohol in licensed premises that are open later.	1.550	4
30	Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.	1.495	4

Table 6 suggests that these individuals strongly agree that they drink more alcohol when they have to hold their drink (put-on-ability, Statement 37), and when access to alcohol is improved by longer opening hours (access-ability, Statement 1). Those taking this perspective believe listening to music increases consumption (listen-to-ability/ dance-to-ability, Statement 25) and dancing to music does not affect their drinking behaviour, as they can dance and drink at same time (listen-to-ability/ dance-to-ability, Statement 30). Table 7 lists the five highest negative z-score statements and factor arrays for Factor 1, which represents *strongly disagree* within the Q-sorts, in rank order.

Table 7. *Five Highest Negative Z-score Statements for Factor 1 – Strongly Disagree*

No.	Statement text (all scored as dis*agree* for Factor 1 loaders)	Z-Score	F. Array
38	Having to hold my drink does not affect how quickly I drink from it.	-2.207	-5
26	Listening to music has no effect on how much alcohol I drink.	-2.086	-5
11	I feel embarrassed ordering soft drinks, because the bar staff might judge me and respond negatively to my order.	-1.988	-4

| 29 | I drink less when I dance because it is difficult to hold my drink and dance at the same time. | -1.686 | -4 |
| 50 | Dimly lit pubs, bars and nightclubs have no effect on my drinking behaviour. | -1.244 | -4 |

Table 7 suggests that these individuals strongly disagreed that having to hold their drink (put-on-ability, Statement 38) and listening to music has no effect on their drinking behaviour (listen-to-ability/ dance-to-ability, Statement 26). These individuals strongly disagreed that they feel embarrassed ordering soft drinks in case bar staff respond negatively (communicate-with-ability, Statement 11) and that they drink less when holding a drink while dancing, because it is difficult to do both at the same time (listen-to-ability/ dance-to-ability, Statement 29). These individuals also disagreed that dimly lit bars and nightclubs have no effect on their drinking behaviour (view-ability, Statement 50). Table 8 lists the distinguishing statements for Factor 1 with factor arrays for the other factors.

Table 8. *Distinguishing Statements for Factor 1*

No.	Statement text (consensus statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
25	I tend to drink more alcohol when listening to music.	5*	-1	2	0
30	Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.	4*	0	0	-5
55	I often buy drinks from promotions when they look interesting, like cocktails in teapots or fishbowls.	3*	-3	-3	-4
19	When buying multiple drinks at once I drink them more quickly than I would normally, because I cannot hold all of them at the same time.	3*	-1	-3	4
3	I drink more alcohol if the bar is busy, because I buy more drinks at once in case I cannot get to the bar again.	1*	-4	4	4
8	I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.	0*	4	5	-4
56	I tend to only order drinks that I like, so promotions for interesting looking drinks tend to have no effect on my drinking behaviour.	0*	4	4	5

7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	0*	-4	-4	4
21	I drink more when small glasses or bottles are unavailable, because I feel like I have to increase the size of my drink.	-2	-3	0	1
20	Buying many drinks at once does not affect how quickly I drink them, because I will find somewhere to put them down and will drink them at a normal pace.	-2*	3	3	-4
43	I drink less alcohol when there is nowhere to sit down and I have to stand.	-3*	-1	0	2
29	I drink less when I dance because it is difficult to hold my drink and dance at the same time.	-4*	1	-1	3
11	I feel embarrassed ordering soft drinks, because the bar staff might judge me and respond negatively to my order.	-4*	-5	-1	-4

*Note: P < .05, but * indicates significance at P < .01*

Table 8 provides distinguishing statements which differentiate the view of those significantly loading onto Factor 1 than any other factor. In line with the *strongly agree* statements, these individuals believe they drink more alcohol when listening to music (listen-to-ability/ dance-to-ability, Statement 25) and are able to dance while drinking (listen-to-ability/ dance-to-ability, Statement 30). These individuals also felt that they were

influenced by interesting looking promotions (view-ability/ purchase-ability, Statement 55) and buy multiple drinks at once when the bar is busy (access-ability, Statement 3), but drink them quickly as they cannot hold all of them at the same time (grasp-ability, Statement 19). These participants were neutral or unsure that influence from friends affected their behaviour (communicate-with-ability, Statements 7 and 8) and about ordering drinks they liked (view-ability/ purchase-ability, Statement 56). Additionally, these participants disagreed they would increase their drink size if no small containers were available (grasp-ability, Statement 21) and that buying multiple drinks at one does not affect their behaviour (grasp-ability, Statement 20). In line with the *strongly disagree* statements, these individuals disagree that they drink less when they have to stand (sit-on-ability, Statement 43), or when dancing (listen-to-ability/ dance-to-ability) and that they feel embarrassed ordering soft drinks because of the response by bar staff (communicate-with-ability, Statement 11).

In the interviews, those significantly loading onto Factor 1 spoke about being aware of how their relationship with their drinking environment increases their alcohol consumption and spoke about their experiences of this. For instance, individuals were conscious that they drank more when alcohol is available for longer:

"I'd say obviously if it stays open late, you're gonna, and you're in the mood to stay out, you're def…you're drinking more because you're staying there later, but knowing that a premise is closing at

eleven, people sort of drink more right before it closes so that they get more drinks in before it closes, if you see what I mean? (Line 103)…Um, it's just the, the opportunity, like if it's open later and people are there, they are obviously gonna drink a lot more, um… (Line 151)." *Female aged 20, moderate drinker.*

"If it was open later then I'd drink more just because I think, I'd think that I'd have to like fuel myself or whatever to last for longer, but then I realised that I kind of always have a bit of like a peaking point, where I'll be like 'oh I don't need it anymore' and that will last me for the rest of the night (Line 91)." *Female aged 20, moderate drinker.*

These individuals also emphasised that standing and holding their drink increases their consumption:

"I notice that if I have a drink in my hand the straws always in my mouth, you know I can't stop, 'cos also when I'm holding it I wanna finish it more quickly, as well 'cos it's annoying having to hold it, so like that's lethal for me, I notice 'cos I will just drink it in one second (Line 16)." *Female aged 20, moderate drinker*

"I think that's definitely true because you're automatically drinking it [when holding your drink], you're sipping it, you'd go through drinks really quite fast I'd say (Line 66)." *Female aged 20, moderate drinker.*

These individuals spoke about how loud music inhibited the opportunity to talk, leaving them only to drink:

> " I drink more in licensed premises with loud music because it is too loud to talk, um I think that's probably quite true (Line 41)." *Female aged 20, moderate drinker.*

Other participants spoke of pairing drinking behaviour with music:

> "Um, just love music and it tends to go hand in hand [with drinking] to be honest when I go out (Line 30)." *Male aged 23, moderate-heavy drinker.*

As these individuals were aware of how their behaviour was promoted or inhibited by these features, they took action when access to alcohol was inhibited:

> "I'm really, really impatient and if the bar, like the other night I was at [local nightclub] and the bar was so busy, I've, I waited like about half an hour in the queue, so when I'd finally got there, I just ordered as many drinks as I wanted and then I didn't have to go back, so [laughs]….Drank them, quite quickly, yeah [laughs] (Line 16)." *Female aged 19, light-medium drinker.*

> "Because it's just queuing is a nightmare and it just kills the mood on a night out, so even, if you're, like wherever you are I often if it is really busy just buy like a couple, I mean we don't buy like a tray full but like two at a time or something (Line 21)." *Female aged 22, moderate-heavy drinker.*

These individuals believed it was easy to effect drinking while carrying out other opportunities for action:

> "'Cos I always dance with my drink, I don't need to put it down [laughs]. (Line 32)… I can drink while dancing, 'cos that's just what I do anyway, so it's just something which is just normal (Line 84)." *Female aged 18, light drinker.*

While these individuals appeared to be conscious of contextual influences on their behaviour, they were unsure about social influences:

> "I don't really, I'm not really bothered about their [bar staff] sort of reaction to my drinking habits, so I'd happily, if I want to, I wouldn't generally order a soft drink, but it wouldn't be affected by them, it would be just me really (Line 56)." *Male aged 23, moderate-heavy drinker.*

> "…not affected by the reaction of the bar staff, I think, I've never really noticed any sort of reaction by the bar staff, they just, it's their job to take everyone's drinks, obviously if they like, I don't know judge someone and make them feel bad, then that person wouldn't come back and that's clearly bad for business, so I think they, they just take everyone's orders, um (line 112)… from what I've experienced anyway peer pressure doesn't really play a role anymore, I don't really know anyone who would pressure someone else into drinking and if that person said 'no I'm getting up early', they'd keep at it, I think that behaviour sort of fell away at a younger

age I'd say, than my group anyway, yeah (Line 151)." *Female aged 20, moderate drinker.*

Based upon the significant positive participant factor loadings, agreement and disagreement statements, distinguishing factors and post-sort interviews, those taking the view of Factor 1 were conscious of contextual and social influences on behaviour. However, they appeared to be compliant with contextual influences, as long as they enabled them to effect drinking. From this, the researcher named Factor 1 Conscious and Compliant.

3.3 Factor 2: Aware and Autonomous

Thirteen participants had significant positive loadings onto Factor 2, including five female and eight male participants, aged 18-31. This included one individual who socialises in licensed premises but does not drink, four light drinkers, three light-moderate drinkers and five moderate drinkers. Table 9 lists the five highest positive z-score statements and factor arrays for Factor 2, which represents *strongly agree* within the Q-sorts, in rank order.

Table 9. *Five Highest Positive Z-score Statements for Factor 2 – Strongly Agree*

No.	Statement text (all scored as *agree* for Factor 2 loaders)	Z-Score	F. Array
12	I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.	2.225	5
16	Where certain drinks are positioned behind the bar has no effect on what I order, because if I cannot see something I want I will ask for it.	2.074	5
8	I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.	1.954	4
14	I do not feel inclined to have to buy discounted or promoted drinks and would ask about prices for other types of drinks, including soft drinks.	1.436	4
10	I refuse to be influenced by the bar staff when they are trying to sell me drinks, so they have no effect on my drinking behaviour.	1.418	4

Table 9 suggests these individuals strongly agree that their behaviour is not affected by reaction of or sales techniques used by bar staff (communicate-with-ability, Statements 12 and 10), or by drink positioning, as they will ask if they cannot see something they wish to consume (consume-ability, Statement 16). Those taking this perspective believe that they drink what and when they want, as they are not influenced by friends

(communicate-with-ability, Statement 8) and do not feel inclined to buy discounted or promoted drinks if they wanted to consume other drinks (consume-ability, Statement 14). Table 10 lists the five highest negative z-score statements and factor arrays for Factor 2, which represents *strongly disagree* within the Q-sorts, in rank order.

Table 10. *Five Highest Negative Z-score Statements for Factor 2 – Strongly Disagree*

No.	Statement text (all scored as dis*agree* for Factor 2 loaders)	Z-Score	F. Array
11	I feel embarrassed ordering soft drinks, because the bar staff might judge me and respond negatively to my order.	-2.521	-5
9	When the bar staff try to sell me drinks I often accept the offer, even if it is for more alcohol than I wanted.	-1.866	-5
15	I order alcohol because I notice it first at the top of the bar and soft drinks are often hidden underneath in the fridges.	-1.843	-4
7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	-1.670	-4
57	Alcohol branding and images are everywhere in		

pubs, bars and nightclubs and make me want to

drink more.   -1.364   -4

Table 10 suggests these individuals strongly disagreed that they feel embarrassed ordering soft drinks in case bar staff respond negatively (communicate-with-ability, Statement 11) and that they accept drinks when sales techniques are used on them (communicate-with-ability, Statement 9). Those significantly loading onto this factor disagree that the placement of alcohol behind the bar influences them to consume alcohol over soft drinks (consume-ability, Statement 15), that they drink more when influenced to by friends (communicate-with-ability, Statement 7) and that alcohol branding and images makes them want to drink more (view-ability/ purchase-ability, Statement 57). Table 11 lists the distinguishing statements for Factor 2.

Table 11. *Distinguishing Statements for Factor 2*

No.	Statement text (consensus statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
12	I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.	4	5	1	4
16	Where certain drinks are positioned behind the bar has no effect on what I order, because if I cannot see something I want I will ask for it.	3	5*	2	3

60	The location of advertisements and drinks promotions has no effect on how likely I am to buy them.	1	3	1	-1
4	How easily I can access the bar and order a drink has no effect on how much alcohol I drink.	-1	3*	-2	-2
24	Having cutlery on the tables or people eating around me would have no effect on my drinking behaviour.	-3	1*	-4	-3
46	The layout of the furniture in a licensed premise has no effect on my drinking behaviour.	-1	1*	-2	-1
29	I drink less when I dance because it is difficult to hold my drink and dance at the same time.	-4	1*	-1	3
26	Listening to music has no effect on how much alcohol I drink.	-5	1*	-5	-2
37	I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.	5	1*	-3	5
48	Table service has no effect on my drinking behaviour.	-2	0*	-4	-2
42	Putting my drink down safely on a nearby table or ledge has no effect on my drinking behaviour.	-2	0	-2	-1
23	I drink less in licensed premises with cutlery on the tables, because it feels like an eating environment and I would not want people drinking heavily near me while I was eating.	3	-1*	4	3

53	I drink less alcohol when watching television, because it distracts me from drinking.	1	-1*	-3	1
25	I tend to drink more alcohol when listening to music.	5	-1	2	0
47	I drink less alcohol if I am assigned a table to sit on and there is table service, because it appears more strict and orderly.	4	-1*	3	2
1	I tend to stay and drink more alcohol in licensed premises that are open later.	4	-2*	2	3
27	I drink more in licensed premises with loud music or sports features, because it is too loud to talk.	0	-2*	4	0
49	Dim lighting in pubs, bars and nightclubs makes me drink more alcohol, because it seems like night time.	3	-2*	0	0
21	I drink more when small glasses or bottles are unavailable, because I feel like I have to increase the size of my drink.	-2	-3*	0	1
13	I tend to order alcohol instead of soft drinks in licensed premises, because there are always more promotions and discounted prices on display for alcohol than soft drinks.	0	-3*	-1	1
3	I drink more alcohol if the bar is busy, because I buy more drinks at once in case I cannot get to the bar again.	1	-4*	4	4

15	I order alcohol because I notice it first at the top of the bar and soft drinks are often hidden underneath in the fridges.	-3	-4*	3	-2
9	When the bar staff try to sell me drinks I often accept the offer, even if it is for more alcohol than I wanted.	-4	-5*	-1	1
11	I feel embarrassed ordering soft drinks, because the bar staff might judge me and respond negatively to my order.	-4	-5*	-1	-4

Note: P < .05, but * indicates significance at P < .01

Table 11 provides distinguishing statements which differentiate the view of those significantly loading onto Factor 2 than any other factor. In line with the *strongly agree* statements, these individuals are not affected by the reactions of bar staff (communicate-with-ability, Statement 12), the positioning of drinks to be consumed (consume-ability, Statement 16), the location of advertisements and drinks promotions (Statement 60, view-able/ purchase-able), bar access (access-ability, Statement 4), being in areas with food condiments (grasp-ability, Statement 24), the layout of furniture (sit-on-ability, Statement 46) or music (listen-to-ability/ dance-to-ability, Statement 26). These individuals agree they drink more quickly when there is nowhere to put their drink (put-on-ability, Statement 37) and drink less when dancing as it is difficult to hold a drink and dance (dance-to-ability/ listen-to-ability, Statement 29). However, these individuals were unsure whether table service (communicate-with-ability, Statement 48) and the

opportunity to put down drinks (put-on-ability, Statement 42) had any effect on their drinking behaviour.

These individuals disagreed that drinking in areas with food condiments for eating (grasp-ability, Statement 23), watching television (view-ability, Statement 53) and being assigned a table (sit-on-ability, Statement 47) would make them drink less. These individuals also disagreed that listening to music (listen-to-ability/ dance-to-ability, Statement 25), longer opening hours (access-ability, Statement 1), noisy premises (listen-to-ability, Statement 27), dim lighting (view-ability, Statement 49), unavailable small glass sizes (grasp-ability, Statement 21), poor bar access (access-ability, Statement 3), alcohol-related sales techniques (communicate-with-able, Statement 9) and negative responses to soft drinks orders by bar staff (communicate-with-ability, Statement 11) would make them drink more. In addition to this, they disagreed that they would consume alcohol because it is more prominent behind the bar (consume-ability, Statement 15) and because there are more alcohol-related promotions than soft drink promotions (consume-ability, Statement 13).

In the interviews, those significantly loading onto Factor 2 spoke about being aware that these factors may influence others, but unlike those in Factor 1, they were certain that their drinking behaviour was not influenced in any way:

"I mean, I'm um, I've, I've, I'm a cocktail waitress, I've done a huge amount of hospitality, I've supervised nightclubs and stuff like that, so I'm, I think I'm quite opinionated anyway when it comes to drinking, I'm not easily led, um so obviously more about the influence, like I, it's more…probably more the influence of other people, um, especially bar, when it said about the bar, bar staff, will they influence what you drink and stuff like that, um it's more the other end because um I, I know what it's like to be bar staff and you shouldn't, you shouldn't make fun of someone that doesn't wanna drink what they don't wanna drink, sort of thing…I'm not affected, yeah it's um bar staff again, um, I think, students, I know, younger students, eighteen, nineteen year olds, if the bar staff gives some gip, you know they probably will accept another shot or, you know a, a uh promotion of shots if there's six shots for a certain amount of money, um I think that's true (Line 41)…I just think it's 'cos I'm just, I'm strongly, I wanted to do this study 'cos obviously I'm quite strongly opinionated on drinking and stuff like that….Yeah and I'm not, yeah exactly and I'd imagine the amount of Freshers that come in that are like 'yeah I'll just drink whatever and stuff' and I'm just like 'no, no!' Mine's about quality not quantity (Line 186)." *Female aged 24, light drinker.*

"Um, yeah things to do with uh, 'cos sometimes it is cheaper to buy alcohol, which is, um but then, that's something that, um I'm not, I'm not gonna just buy an alcoholic drink just to save money, but don't I think, I think, should really, I dunno, it should, it seems like it

should be like cheaper to buy a soft drink like Red Bull for instance, you might as well buy a like, an alcoholic drink for the price, but…I wouldn't be influenced because of the promotions or um it's cheaper to buy a double than a single and things like that." *Male aged 23, does not drink but visits licensed premises regularly.*

These individuals placed great emphasis on how communicate-able affordances do not affect their behaviour, particularly behavioural influences from their interactions with friends:

"Because it's just basically true, I, I don't never feel pushed by my friends, they, the only thing they do is to make me go to the city centre to the bar, so leave house and meet them, but then I can drink whatever I want (Line 27)!" *Female aged 19, light-moderate drinker.*

"I will drink what I want…yeah generally, um I mean if my friends um were trying to get me drunk for instance um they, they wouldn't be able to do it 'cos I'm quite strong and opinionated and I know, I know that I don't like being drunk, um and I know that I'm ill the next day if I do get drunk [laughs], um so I mean my friends, I mean at the end of the day, if they're my friends will respect if I don't want to drink too much and to be honest a lot of my friends aren't binge drinkers, they're not huge drinkers themselves, um so I think that's why it's probably why I agree so much on that one (Line 12)." *Female aged 24, light drinker.*

These individuals spoke about how communicating with bar staff also provides opportunities for increasing consumption, which these individuals were strongly against:

> "Last year I decided to do a month without alcohol and I found that um I didn't really care what the staff um thought as, 'cos I'd, I'd decided to do it and so they didn't really have any reasons for me not doing it and so I was paying them, so…Um, no not particularly, it's like sometimes they'd ask would, would, well I'd ask for a coke and they would say 'okay with vodka?' or something that like and I'd just say 'no just coke' and sometimes they're a bit surprised, yeah (Line 23)." *Male aged 20, light drinker.*

> "Because it's their job to, to give me what I want and they shouldn't judge me and anyway so I don't really feel bad for what I order, 'cos it's my, it's my decision, yeah (Line 27)." *Female aged 19, light-moderate drinker*.

These individuals believed they drank what and when they wanted to and many had their set drinks:

> "I go to the bar with an idea of what I want to get first of all and I'm kind of straight on that 'cos I know how much it costs and whatever and like I always find it very frustrating, say for instance when I go to a bar, I know what I want to get and they go 'oh do you want this as well' and I'm like 'no! I ordered this, so I'll have this please', kind of so… for instance I drive, so if I'm ordering a soft drink I know why I'm ordering a soft drink, because I don't wanna go, be

driving home in a poorly state, so I, if I, I don't really, it's not, not really a member of bar staff's right, right position to be judging you, but um I mean if I am buying soft drinks I know why I'm buying soft drinks, so their reaction means nothing (Line 52)." *Male aged 18, moderate drinker.*

"I know the drinks and how to drink, therefore I always know what I'm going to order, um unless they don't have want I want to order then obviously I have a second option and all that, so usually what they would suggest wouldn't impact me or affect me in anyway, 'cos I know my drinks, so unless like some people know their drink, they will probably think about suggestions…uh, well it's kind of like self-explanatory, I kind of like yeah drink um whatever I want to drink, so I can have like a vodka shot of and everyone can have like a vodka mix, I don't like to mix my alcohol, so I drink neat, so that is a very strange thing for quite a lot of people, especially I guess British, they like to mix, so like yeah your vodka and coke, vodka and lemonade and all that, and I know I, I'm just used to neat, like alcohol or cider and all that, so I don't drink, yeah so I'll, most people would drink beer at like a local bar and I wouldn't drink it, so it's fine by me…I know my drink and therefore I disagree with whatever they would want to offer me and choose my own drink (Line 70)." *Male aged 20, moderate drinker.*

"I will drink what I want when I want to, so influencing my drink…has no effect on my drinking behaviour, um yeah basically I try not, well I don't be, don't get influenced, like I agree that I don't

want to have a drink, so I won't let my friends or anyone, 'cos I know that's quite a big, that is quite a big pressure, a lot of people do feel like, I decided that I'm not no, yeah, yeah I don't want it yeah… Um, well it's the same for the bar staff as well really, they influence, um, I'll ask for a, if I want some milk or something I will ask for it to see if they have it, if they look at me funny it doesn't bother me really…. Um, I think yeah well sometimes you, yeah, like if you say can I have a coke and they like 'um would you like, what would you like with that, like vodka or rum or something?' and it's like 'no I'll just have a coke', so yeah I think sometimes it can be seen as having, it's not a proper drink, or like it's not kind of, it's like you get rushed to be served 'cos they will wanna be serving the people that are buying the proper drinks, yeah (Line 20)." *Male aged 23, does not drink but regularly socialises in licensed premises.*

In contrast to Factor 1, these individuals were not concerned about inhibited opportunities for consuming alcohol:

"I wouldn't buy multiple drinks, so I wouldn't, I know I wouldn't buy multiple drinks simply because you'd have to set it down and you know you've always got the risk of somebody spiking it (Line 30)." *Female aged 18, light drinker.*

"Um I just buy one drink at a time and if I cannot reach the bar then I'll wait until there's more space (Line 51)." *Male aged 20, light drinker.*

Based upon the significant and positive participant factor loadings, the agreement and disagreement statements, distinguishing statements and post-sort interviews it was clear that these individuals were aware of contextual and social factors influencing others, but that they were very much autonomous in their own drinking decisions. It was because of this that the researcher named Factor 2 Aware and Autonomous.

3.4 Factor 3: Canonical and Considerate

Factors are retained if more than one participant significantly loads onto it. However, as only two participants significantly loaded onto Factor 3, the researcher initially omitted Factor 3 from the final solution and tested a three factor solution. Compared to the four factor solution, this reduced the variability accounted for by the final solution, the number of exemplar sorts significantly loading onto each of the final factors and the strength of these loadings. The final set of factors should account for as much variability in the original correlation matrix as possible. Factor 3 accounted for 5% of variance and captured a perspective which was of theoretical importance. As excluding Factor 3 would have resulted in the loss of important data, it was retained in the final analysis,

Two male participants significantly loaded onto Factor 3. Participant 15, aged 18 was a moderate drinker and participant 30, aged 27 was a moderate-heavy drinker. However, this was a bipolar factor as participant 15 was a *positive loader* and participant 30 was a *negative loader*, as shown in Table 4. Negative loaders are defined as having a

representative sort that is a mirror image from those loading positively onto this factor (Ramlo, 2011). To further explore the differences between Participant 15 and 30, Factor 3 was split into two for exploratory purposes. This provided an insight into the differences between distinguishing statements, agreement and disagreement for the positive and negative loader. For example, it appeared that participant 15 placed statements 5, 8, 23, 56 and 27 on the *agree* side of the grid, whereas participant 30 placed them on the *disagree* side of the grid. Likewise, participant 15 placed statements 26, 28, 7, 48 and 24 on the *disagree* side of the grid, whereas participant 30 placed them on the *agree* side of the grid. These differences will be discussed after outlining the statements which the significant positive loader (Participant 15) agreed and disagreed with. Table 12 lists the five highest positive z-score statements and factor arrays for Factor 3, which represents *strongly agree* within the Q-sorts, in rank order.

Table 12. *Five Highest Positive Z-score Statements for Factor 3 – Strongly Agree*

No.	Statement text (all scored as *agree* for Factor 3 loaders)	Z-Score	F. Array
5	I drink less alcohol if I am not allowed to drink in certain areas, such as outside or on the dance floor.	2.238	5
8	I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.	1.956	5
23	I drink less in licensed premises with cutlery on the tables, because it feels like an eating environment and I		

would not want people drinking heavily near me while I was eating.	1.749	4
56 I tend to only order drinks that I like, so promotions for interesting looking drinks tend to have no effect on my drinking behaviour.	1.674	4
27 I drink more in licensed premises with loud music or sports features, because it is too loud to talk.	1.598	4

Based on Table 12, the participant with a significant positive loading onto this factor strongly agrees that they drink what and when they want to, as they are not influenced by friends (communicate-with-ability, Statement 8), or by promotions because they only order drinks that they like (view-ability/ purchase-ability, Statement 56). This individual also believes that they drink less in places with cutlery on tables (grasp-ability, Statement 23) and if they are prohibited from drinking in certain areas (access-ability, Statement 5). They also believe they drink more when the volume in the premise is too loud for them to talk (listen-to-ability, Statement 27). Table 13 lists the five highest negative z-score statements and factor arrays for Factor 3, which represents *strongly disagree* within the Q-sorts, in rank order.

Table 13. *Five Highest Negative Z-score Statements for Factor 3 – Strongly Disagree*

No.	Statement text (all scored as dis*agree* for Factor 3 loaders)	Z-Score	F. Array
26	Listening to music has no effect on how much alcohol I drink.	-2.445	-5
28	Whether I can talk in a licensed premise has no effect on how much I drink.	-1.880	-5
7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	-1.674	-4
48	Table service has no effect on my drinking behaviour.	-1.542	-4
24	Having cutlery on the tables or people eating around me would have no effect on my drinking behaviour.	-1.467	-4

Table 13 suggests that this participant strongly disagreed that listening to music (listen-to-ability, Statement 26), whether they can talk (listen-to-ability, Statement 28), table service (sit-on-ability, Statement 48) and drinking in areas with food condiments (grasp-ability, Statement 24) has no effect on their drinking behaviour. They also disagree that they drink more when influenced by friends (communicate-with-ability, Statement 7). Table 14 lists the distinguishing statements for Factor 3.

Table 14. *Distinguishing Statements for Factor 3*

No.	Statement text (consensus statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
5	I drink less alcohol if I am not allowed to drink in certain areas, such as outside or on the dance floor	-1	0	5*	2
27	I drink more in licensed premises with loud music or sports features, because it is too loud to talk.	0	-2	4*	0
15	I order alcohol because I notice it first at the top of the bar and soft drinks are often hidden underneath in the fridges.	-3	-4	3*	-2
12	I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.	4	5	1*	4
33	I tend to buy a drink so I can use the change to go on games machines.	-2	-3	0*	-3
36	Playing pool or darts games does not affect my drinking behaviour.	2	2	-1*	2
29	I drink less when I dance because it is difficult to hold my drink and dance at the same time.	-4	1	-1*	3
37	I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.	5	1	-3*	5

53	I drink less alcohol when watching television, because it distracts me from drinking.	1	-1	-3*	1
28	Whether I can talk in a licensed premise has no effect on how much I drink.	1	1	-5*	-1

Note: P < .05, but * indicates significance at P < .01

Table 14 provides distinguishing statements which differentiate the view of those significantly loading onto Factor 3, compared to any other factor. In line with the *strongly agree* statements and in contrast to those significantly loading onto any of the other three factors, those significantly loading onto this factor strongly agreed that they drink less alcohol if there are rules about where alcohol can be consumed (access-ability, Statement 5) and drink more alcohol when they cannot talk in louder premises (listen-to-ability/ dance-to-ability, Statement 27). These individuals agree they would consume alcohol because it is more prominent behind the bar (consume-able, Statement 15) and that bar staff responses do not affect their drinks orders (communicate-with-ability, Statement 12). Those loading onto Factor 3 were unsure whether playing on games machines would affect their consumption (play-ability, Statement 33), but disagreed that playing on games (play-ability, Statement 36) and being able to talk in a licensed premise (listen-to-ability/ dance-to-ability, Statement 28) has no effect on their consumption. They also disagreed that they drink less when dancing because it is difficult to hold their drink (listen-to-ability/ dance-to-ability, Statement 29) and when watching television because it distracts them from

drinking (view-ability, Statement 53). Unlike participants significantly loading onto all of the other factors, they also disagreed that they drink more quickly when there is nowhere to put their drink because they automatically sip it (put-on-ability, Statement 37).

This was an interesting bipolar factor which was retained within the analysis because it accounted for 5% variability in the final solution and more than one individual significantly loaded onto it. Both of these participants appeared to be very good observers of their environment and, compared to those significantly loading onto the other factors, were very much aware of what could and could not be done in them. For example, both had worked in licensed establishments, which allowed them to talk about observing the relationship between patrons and their drinking environments, as well as their own behaviour. However, while it appeared that context was important for both participants, the significant negative loader emphasised the importance of goals on their own behaviour:

"I understand that placement can be important, can be, and there are some cues, you know, of course, you may not know what you want yet [at the bar], I work in a bar, behind the bar, so I see a lot of people who come to the bar and sort of, it's so automatic to walk up to the bar and they haven't, they haven't, there's been no prior thinking to the bar and then like everyone goes 'um…' and you can see their eyes wandering, so there is definitely cues, but the fact is that they come to the bar already, I don't think having the soft drinks

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at lower sights, I don't think it, doesn't matter if you didn't show anything, people would still have an inkling of whether they wanted an alcoholic drink which or a soft drink (Line 75)." *Male aged 27, moderate-heavy drinker.*

These differences are also evident in each participant's description of music. For example, participant 15 (*significant positive loader*) spoke about music being associated with drinking behaviour, as well as restricting other behaviours they could carry out in these premises:

"Music just gets everyone excited and tends to like kick start the drinking process…so I would say the music does have, does play a part in how much people drink…Um, again because of the music you don't tend to, you can't really hear anyone who's trying to talk to you, you can attempt it but in the end you, you just give up and drinking becomes a way of trying like to pass the time (Line 27)..." *Male aged 18, moderate drinker.*

While participant 30 (*significant negative loader)* also believed that they drank more alcohol in premises with music, they disagreed that it was the music leading them to drink more. Instead, they believed that the premises they choose to drink within tended to have these types of occurrences. Therefore, it was only due to this that these features correlated with their behaviour, leading them to disagree:

"Because um, I listen to a lot of music at home and I don't, don't drink there and I've go out and again it's just, it's, it's they correlate, in that there is music out in places that sell alcohol, so you know,

you, um but it's not particularly the music that makes me drink (Line 38)." *Male aged 27, moderate-heavy drinker.*

Despite these differences, both participants spoke at length about acting appropriately in a given context. For instance, participant 15 spoke about adapting their drinking behaviour based on the environment:

 "Um, definitely the cutlery if it's a, in an environment where people like families are eating I would tend to not drink at all, because I would feel, I would feel pretty, I'd feel bad about it, so…(Line 38) … I feel like if I'm sitting at a table and someone asks me if I want a drink I will tend to just order something relatively basic, so maybe a pint of beer, whereas if I went to a bar I would tend to buy something a bit more…strong….Um, I think it's just the environment again, um, because if I'm, in a in, a nightclub and I'm, ordering a drink I know most people around me will get vodka or sambuca or whatever, whereas when there tends to be someone coming to ask you what you want a drink, you're most likely in a bar or a restaurant, so you're not in the kind of environment where you have to so get absolutely drunk and it's just moderation (Line 57)." *Male aged 18, moderate drinker*

As well as influencing how much they drank, the drinking context also influenced the type of drink that participant 30 believed to be appropriate to consume. This is an interesting point which was not represented by the statements and led them to disagree:

"…it's things in regards to eating, um, I think it's, doesn't make me drink any more or any less if I'm in a social environment, in a sense that if I go out for dinner with my girlfriend we are sitting to have dinner, I would drink quite a lot…but I would drink different things, so I would drink quite a lot but quite often I'll have a cocktail beforehand and then we'll have a bottle of wine and maybe like another drink afterwards, but some people that may be a lot, but it would be in context, we wouldn't just be sitting there downing pints, so the question says will you, you feel less inclined [to drink] a lot if you saw knives and forks and I wouldn't, 'cos, but I would change the type of alcohol that I drank in that context (Line 47) ." *Male aged 27, moderate-heavy drinker.*

In addition to this, participant 30 emphasised how regulations in these premises were important for their drinking behaviour and, in particular, how context could both inhibit and promote consumption:

"Because I smoke, so you're not allowed to take glasses outside, so I will drink less alcohol in these areas…but, actually, I end up drinking a lot more because like a lot of the places have got like the table where you put your drink down, but um, on the one hand you're either gonna get it spiked, so they tell you, or, or you come back and it's gone, so instead of, instead of having areas where I drink less, you end up drinking more because you got to, so I'll down that drink, as my mates will say 'I wanna go out for a cigarette', I'll say 'oh I've just got a drink' and I'll end up downing that drink so I can go with them while they're smoking and then

come back inside and then have, then immediately go buy another drink, whereas if I could take the drink with me I'd sip it slower, you know 'cos I would feel that I didn't want to lose it (Line 61)." *Male aged 27, moderate-heavy drinker.*

From this, it appeared that both drinkers were adept observers of their environment and provided detailed accounts of their drinking experiences. These individuals visited premises which provided certain action opportunities and were very much concerned about the appropriateness of their behaviour for certain settings. This suggests that not everyone takes up the opportunity to act on non-canonical affordances. Instead, those taking the view of Factor 3 regulate their behaviour even when actions are limited, so that their behaviour is considerate for their current environment. While participant 30 shared the view of participant 15 that behaviour had to be appropriate and considerate for the context they were in (i.e. based on taking up appropriate action opportunities, or canonical affordances), their point of view was inverted. Therefore, both had qualitatively different reasons for how these features affected their behaviour. Based upon the positive and negative significant participant factor loadings and the agreement and disagreement statements that distinguished the factor, the researcher named Factor 3 Canonical and Considerate.

3.5 Factor 4: Unaware and Unanimous

Six participants significantly and positively loaded onto Factor 4, including four female and two male participants, aged 19-29. All of these participants self-categorised themselves as moderate drinkers. Table 15 lists the five highest positive z-score statements and factor arrays for Factor 4, which represents *strongly agree* within the Q-sorts, in rank order.

Table 15. *Five Highest Positive Z-score Statements for Factor 4 – Strongly Agree*

No.	Statement text (all scored as *agree* for Factor 4 loaders)	Z-Score	F. Array
37	I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.	2.266	5
56	I tend to only order drinks that I like, so promotions for interesting looking drinks tend to have no effect on my drinking behaviour.	1.926	5
19	When buying multiple drinks at once I drink them more quickly than I would normally, because I cannot hold all of them at the same time.	1.540	4
12	I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.	1.506	4
7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	1.618	4

Table 15 suggests participants significantly and positively loading onto this factor strongly agree that they drink more quickly when there is nowhere to put their drink (put-on-ability, Statement 37) and when ordering multiple drinks at once because they cannot hold them all at the same time (grasp-ability, Statement 19). Those significantly loading onto this factor take the view that they drink what they like and are not influenced by promotions (view-ability/ purchase-ability, Statement 56) or by sales techniques used by bar staff (communicate-with-ability, Statement 12). However, these individuals felt they were influenced by their friends, who expect them to have a drink at all times (communicate-with-ability, Statement 7). Table 16 lists the five highest negative z-score statements and factor arrays for Factor 4, which represents *strongly disagree* within the Q-sorts, in rank order.

Table 16. *Five Highest Negative Z-score Statements for Factor 4 – Strongly Disagree*

No.	Statement text (all scored as dis*agree* for Factor 4 loaders)	Z-Score	F. Array
38	Having to hold my drink does not affect how quickly I drink from it.	-1.788	-5
30	Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.	-1.768	-5

8	I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.	-1.516	-4
20	Buying many drinks at once does not affect how quickly I drink them, because I will find somewhere to put them down and will drink them at a normal pace.	-1.406	-4
55	I often buy drinks from promotions when they look interesting, like cocktails in teapots or fishbowls.	-1.357	-4

Table 16 suggests participants significantly and positively loading on this factor strongly disagreed that not being able to put down their drink (put-on-ability, Statement 38), dancing to music (dance-to-ability/ listen-to-ability, Statement 30), influence from friends (communicate-with-ability, Statement 8) and buying then holding many drinks at once (grasp-ability, Statement number 20) has no effect on their drinking behaviour. Those significantly loading on this factor strongly disagreed that they buy drinks from promotions when they look novel or interesting (view-ability/ purchase-ability, Statement 55). Table 17 lists the distinguishing statements for Factor 4.

Table 17. *Distinguishing Statements for Factor 4*

No.	Statement text (consensus statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
19	When buying multiple drinks at once I drink them more quickly than I would normally, because I cannot hold all of them at the same time.	3	-1	-3	4*
7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	0	-4	-4	4*
29	I drink less when I dance because it is difficult to hold my drink and dance at the same time.	-4	1	-1	3*
5	I drink less alcohol if I am not allowed to drink in certain areas, such as outside or on the dance floor.	-1	0	5	2
9	When the bar staff try to sell me drinks I often accept the offer, even if it is for more alcohol than I wanted.	-4	-5	-1	1*
10	I refuse to be influenced by the bar staff when they are trying to sell me drinks, so they have no effect on my drinking behaviour.	2	4	3	0*
60	The location of advertisements and drinks promotions has no effect on how likely I am to buy them.	1	3	1	-1

28	Whether I can talk in a licensed premise has no effect on how much I drink.	1	1	-5	-1*
44	Having to stand when there are no available seats does not affect how much alcohol I drink.	0	0	1	-2*
26	Listening to music has no effect on how much alcohol I drink.	-5	1	-5	-2*
20	Buying many drinks at once does not affect how quickly I drink them, because I will find somewhere to put them down and will drink them at a normal pace.	-2	3	3	-4*
8	I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.	0	4	5	-4*
30	Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.	4	0	0	-5*

Note: P < .05, but * indicates significance at P < .01

Table 17 provides distinguishing statements which differentiate the view of those significantly loading onto Factor 4 than any other factor. In line with the *strongly agree* statements, those significantly loading onto Factor 4 strongly agree that they drink more when buying multiple drinks because they cannot hold them all at the same time (grasp-ability, Statement 19), which corresponds with Factor 1. In contrast to those significantly loading onto other factors, these individuals also strongly agree that they

drink more when influenced by friends (communicate-with-ability, Statement 7). These individuals agree that they drink less alcohol when dancing as they cannot hold their drink at the same time (dance-to-ability, Statement 29) and when drinks are not allowed in certain areas (access-ability, Statement 5).

In contrast to those significantly loading onto other factors, these individuals agree that they accept offers used by bar staff even if it is for more alcohol than they wanted (communicate-with-ability, Statement 9), but are unsure if this does not affect their behaviour (communicate-with-ability, Statement 10). Those significantly loading onto this factor disagree that the location of promotions (view-ability/ purchase-ability, Statement 60), whether they can talk (listen-to-ability, Statement 28), having to stand when they cannot sit (sit-on-ability, Statement 44), listening to music (listen-to-ability/ dance-to-ability, Statement 26), buying many drinks at once (grasp-ability, Statement 20), influence from friends (communicate-with-ability, Statement 8) and dancing to music (dance-to-ability/ listen-to-ability, Statement 30) has no effect on their drinking behaviour.

Based on the distinguishing statements and the moderate correlation between Factor 1 and Factor 4, it appeared that both groups of participants felt that their relationship with their environment influenced their alcohol consumption. However, while participants significantly loading onto Factor 1 would actively pre-drink or buy many drinks at once in order not to queue and then drink them quickly, individuals significantly loading onto Factor 4

had not considered these types of influences before and initially found it difficult to explain their behaviour:

"…Um having to hold my drink does not really affect how quickly I drink from it, in um statement thirty eight, I was, I sort of put that into sort of minus three for disagree, um 'cos, never really thought of it again before (Line 53)." *Male aged 23, moderate drinker.*

"Yeah it's um, I mean when I, when I put the statements down I thought, you sort of go back to times when you think about it and you think well there's clear times when it's been like that. (Line 27)…I wouldn't say they don't affect my drinking behaviour…I would, I've never really thought about that when having a drink (Line 149)." *Male aged 19, moderate drinker.*

"Um, yeah it was okay, it wasn't, it wasn't that easy in terms of I didn't really, like, some of these things I've never really thought about when I go out drinking, so… (Line 8)." *Female aged 19, moderate drinker.*

"Very interesting, I've never seen anything like this before… (Line 114)." *Female aged 29, moderate drinker.*

In addition to this, these individuals emphasised affordances provided by other individuals:

"You go there and you'll buy lots of drinks and then if people see you with more than one in your hand essentially it's, 'well now you've gotta drink it', so you get rid of it, you get rid of it anyway,

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but yeah so, I'll, you'll buy multiple drinks just and you can drink them fast (Line 39)." *Male aged 19, moderate drinker*.

This was an important different between Factor 1 and 4. Those significantly loading onto Factor 1 strongly believed that social influences did not affect their drinking behaviour. However, in contrast to the perspectives of Factor 1 and participants significantly loading onto Factors 2 and 3, those significantly loading onto Factor 4 felt communicate-with-ability affordances strongly influenced their drinking behaviour:

"I've been out with my brother and his friends, 'cos my brother and his friends are older, it often, you often feel influenced by that and they'll do rounds and then you have to do a round, just so you can't really skip out, um, but yeah it's, it's, it's when you're with a group of friends you are gonna to drink more, because, I just it think that's the whole point of it, if you've got your group of friends, you're going to go out together, so…(Line 27), it's all to do with the friends thing, um I wouldn't say I'd drink what and when I want, because I'd say friends do have an influence, so like if your friend says 'oh I'm gonna get this do, do you want, do you want something like that?' or he'll go to the bar and he says 'oh I'm getting this, I'll get you one' and then so, some, sometimes you won't actually have a choice so what you get, they decide for you they bring them back, um especially if it's sort of like a big event, so like a birthday or something, um if it is your birthday you don't really have a choice in what you're drinking all the time, even if you say 'no', you end up with a drink in your hand. (Line 65)…I think, I think it was mostly

about the social, social factors (Line 145)." *Male aged 19, moderate drinker.*

Drinking behaviour was portrayed as a habit which is maintained by other individuals:

"Because I am a social drinker [laughs]….No, no, no um, not really pressure, it's a social pressure under normal conditioning you know? It's like on um, on the base of a habit, you don't feel really pressured like in terms of negative pressure, it's more like socially conditioning a habit (line 24)." *Female aged 29, moderate drinker.*

In addition to this, these participants felt that they had a shared sense of belonging to their drinking groups and that the opportunities they had to effect drinking had to be unanimous with the group:

"Um, probably the, um…yeah I drink more alcohol with friends, because someone sort of goes 'oh lets have another drink' and everyone goes 'yeah', um and also you kind of, the bar staff are trying to sell you more alcohol, they're like 'oh yeah do you want a double?' and you're like 'yeah go on then'. (line 29)… so, maybe how many of your friends are drinking [is important], 'cos if one of them's like saying 'no I can't drink' or 'I don't want to be drinking' then you're probably more likely to go actually neither do I, but I think as a whole if most of your friends are drinking then it makes more of a difference….um but yeah I think it is more like whether you're friends are like 'yeah let's all go out and get completely

smashed' or whether they're like 'no' (Line 81)." *Female aged 19,*
moderate drinker.

Therefore, based upon the significant positive participant factor
loadings and the agreement and disagreement statements that distinguished
the factor, these individuals appeared to be initially unaware of the effects of
these influences on their drinking behaviour, but took the view that their
drinking behaviour was unanimous with the social group in which it was
conducted. It is because of this that the researcher named Factor 4 Unaware
and Unanimous.

3.6 Consensus and Disagreement Statements

In addition to the four perspectives discussed above, the Q-
methodology analysis revealed a number of consensus statements. These
statements are not distinguishing between any of the identified factors
because they have been sorted in a similar manner by participants who
significantly loaded onto each of the different factors. The top five
statements participants sorted in a similar manner can be seen in Table 18.

Table 18. *Consensus Statements Across all Four Factors*

No.	Statement text (consensus statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
58	Alcohol branding and images within pubs, bars and nightclubs have no effect on my drinking behaviour.	2	2	1	1

32	Playing on games machines has no effect on my drinking behaviour, because I will typically not drink at all or my friends would buy me drinks and I will drink while playing.	-1	0	-1	0
39	I tend to drink rather than eat on higher, narrow tables, because there is only enough room to put drinks down and not enough room to comfortably eat on them.	1	-1	0	0
31	I drink less when playing on games machines, because it is something else to do other than drinking.	-1	1	0	0
22	The limited availability of small glasses or bottles would not affect my drinking behaviour, because I would not increase the size of my drink or I would change my order.	1	2	0	1

The consensus statements represented a range of affordances and behavioural effects (effect/ no effect) from all four factors. Participant sorts tended to correspond for affordances related to grasping, alcohol-related images and alternative potentials for action. For instance, participants tended to agree that alcohol branding and images (view-ability/ purchase-ability, Statement 58) had no effect on their behaviour. This corresponds with the interviews, whereby many participants spoke about not being

consciously aware of visual cues such as alcohol branding and images influencing their behaviour. Additionally, participants were unsure about the effect games machines (play-ability, Statements 31 and 32), table height (put-on-ability, Statement 39) and glass availability (grasp-ability, Statement 22) have on behaviour. In the interviews, many participants spoke about how alternative opportunities for action, such as games, were not taken up when effecting drinking. Many participants had also not considered the action potentials associated with the height of furniture and few had experienced issues with glass availability. The top five statements that participants significantly loading onto all factors sorted differently can be seen in Table 19.

Table 19. *Disagreement Statements Across all Four Factors*

No.	Statement text (disagreement statements across all 4 factors)	F. Arrays (factor no.)			
		1	2	3	4
2	How late a licensed premise stays open has no effect on how much alcohol I drink.	-2	3	3	-3
38	Having to hold my drink does not affect how quickly I drink from it.	-5	0	2	-5
7	I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	0	-4	-4	4

8	I will drink what and when I want to, so				
	influence from my friends has no effect on				
	my drinking behaviour.	0	4	5	-4
37	I drink more quickly when I have to hold				
	my drink because I automatically sip from my				
	glass when I am holding it.	5	1	-3	5

The disagreement statements represented a range of affordances and behavioural effects (effect/ no effect) from all four factors. Participant sorts mostly differed on affordances related to alcohol access, grasping and social affordances. For instance, unlike participants significantly loading onto factors 1 and 4, those significantly loading onto factors 2 and 3 agreed opening hours do not affect consumption (access-ability, Statement 2). Additionally, those significantly loading onto all factors, apart from factor 3, agreed that they drink more quickly when they cannot put their drink down (put-on-ability, Statement 37 and Statement 38). Participants significantly loading onto factors 2 and 3 believed that they are not influenced by social factors, whereas those taking the perspective of factor 4 thought they were, and those significantly loading on factor 1 were unsure about this (communicate-with-ability, Statements 7 and 8).

4. Discussion

Q-Methodology is a useful method for assessing patterns of subjectivity that exist between groups of individuals and their perceptions of

their relationship with their drinking environments. Four factors or perspectives were identified in the current study and the amount of variance the factors explained was quite high, as desired. The majority of the sample took the view that they were aware of contextual alcohol-related affordances influencing their drinking behaviour, but they believed their behaviour to be autonomous and particularly not affected by social affordances. Likewise, a similarly large group of participants took the view that they were conscious of these influences, but compliant to their effects, taking further action when opportunities for drinking were inhibited. A small number of participants were unaware of these influences, but believed themselves to be highly influenced by affordances related to interacting with others, viewing their drinking behaviour as unanimous with the group. Those significantly loading onto the other factor viewed canonical affordances as important and were considerate in acting upon appropriate behaviours given the context. These factors represented not only four different ways of talking about the types of affordances that are relevant to drinking behaviour, but also what these affordances meant to individuals.

These four factors represent clusters of group subjectivity which emerged operantly from individual subjectivities (Smith, 2001). They are not clear distinctions between different personalities or drinking types, but are functional differences in perspectives that are held by groups of individuals about their behaviour, in relation to alcohol-related affordances (Brown, 1993; 2002a). Alcohol research often focuses on environmental influences or the internal subjectivity attributed by participants to their

behaviour. Instead, this study focused on group perceptions of the transactions between an individual, their environment and their behaviour. Subjectivity exists within the relation between individuals and their drinking environments, as well as between groups of individuals in the participant sample who shared the same viewpoint. This shared subjectivity was revealed as participants sorted statements in relation to one another to their own points of view. These final factors represented patterns of group subjectivity, or intersubjectivity, which had emerged from individual subjectivities. These results will be discussed further in Chapter 7.

Q-methodology does not set out to correlate scores or traits, nor does it set out to be fully generalizable to a population of people (Brown, 1986; 1993). Q-Methodology uses the centroid method of extraction and looks at the different viewpoints in an entire sample, rather than separating a phenomenon into component parts. This is because Q-methodology defines patterns of subjectivity rather than determining what proportion of the population holds each perspective (McKeown & Thomas, 1988). Questionnaires, surveys or response experiments would have been inappropriate for the current study, because they involve imposing pre-existing categories onto participants (Brown, 2002a). In addition to this, ranking tasks, such as Likert scales could actually result in a loss of meaning as this reduces qualitative data to a ranked score (McKeown, 2001). Therefore, instead of analysing statements as separate items, Q allowed the researcher to focus on the meaning of statements and sorts in relation to each other. This relational window onto meaning is a more

valuable insight into subjectivity than would have been provided from answering questions in interview or focus group settings (Brouwer, 1999).

An infinite pool of possible statements surrounds any topic and Q-Methodology is sometimes criticised because the reliability of the q-set is unknown. However, Q defines patterns of subjectivity, rather than testing participants on a set of items, or determining what proportion of a population holds each view. A good quality q-set should be replicable and allow viewpoints around a topic to be revealed, despite using different statement structures or groups of participants (Brown, 1993). When researchers follow these recommendations the test-retest reliability of Q-methodology studies is very good, often above .80 (Brown, 1980; Dennis, 1992; Peritore, 1990; Waltz, Strickland, & Dennis, 1988). It is because of this that large sample sizes, generalizability and validity are not an issue in Q research and were not an issue for the current study (McKeown & Thomas, 1988).

Young people might generally be less knowledgeable about the risks associated with drinking environments and might generally be more susceptible to peer pressure, particularly as alcohol is often consumed in groups. For example, individuals taking the view of the Unaware and Unanimous group felt vulnerable to imitating the drinking rates of the group and could benefit from being informed about these influences. The features identified by the distinguishing, consensus and disagreement statements in this study could also be used to inform the design of the public

environments where alcohol is normally consumed. Additionally, further work could involve informing the wider public about the functional effects of their surrounding environments and how this might influence behaviour. It is possible that future Q-Methodology studies might also uncover similar perspectives held by participants in relation to the environments where they conduct other types of health risk behaviours. The findings of these studies could have important implications for preventing these types of maladaptive behaviours.

5. Conclusion

The affordance construct appears to be a viable method to apply to the study of health behaviour. Quali-quantological, mixed methods such as Q-Methodology provide the perfect foundation for studying these relational variables. This research emphasises the suggestibility of certain affordances for different groups of individuals and their propensity to act upon these. For example, the relationship between brain, body and environment may be mutual and perception direct and unmediated, but not every individual takes up every affordance in an environment. This insight into group subjectivities has emerged from individual perceptions of drinking environments and drinking behaviours. The next chapter will describe the implications the findings from each of these three studies have for understanding drinking behaviour.

CHAPTER 7

Discussion of Results

W e need to recognise the special status of "canonical affordances", the established, widely agreed use-meanings of things.   (Costall, 2012)

1. Introduction

Chapter 4 presented Study 1, which provided a functional taxonomy of environments where drinking behaviours are carried out. This study described alcohol-related affordances based on the subjective perspective of an independent, non-participant observer. Study 2 was presented in Chapter 5, whereby the meaning of these environments for individual drinkers was explored using phenomenology. This study confirmed many of the alcohol-related affordances in Study 1 and provided an insight into why these affordances are taken up by individuals. Chapter 6 presented Study 3, which focused on understanding clusters of subjectivity from the individual subjectivities obtained in Study 1 and 2, including why certain alcohol-related affordances are taken up by groups of drinkers. The current chapter will discuss the importance of these results, in relation to the existing literature on drinking environments presented in Chapter 1 and for preventing risky alcohol consumption. A case will be made for objects that

do not directly constitute affordances for action, but could prime or promote canonical affordances. This chapter will end with the suggestion that canonical affordances have important implications for understanding drinking behaviour.

2. Alcohol-Related Affordances have Implications for Prevention

In Chapter 3, the author made a case for the Ecological study of complex social settings where young adults might engage in alcoholic drinking behaviour. It was hoped that using contemporary ideas about Gibson's (1979a) Ecological psychology and affordances would allow for an investigation into how an individual's relationship with their drinking environment extends and constrains opportunities for consuming alcohol. As discussed in Chapter 2, this was hoped to provide a more relational approach to understanding drinking behaviour, by combining individual and environment factors in an Ecological framework. In turn, it was expected that this would provide a better understanding of drinking behaviour than the dominant social cognition models outlined in Chapter 1, which have been found to be lacking (Michie & Abraham, 2004; Webb & Sheeran, 2006). Gibson's Ecological approach accounts for mutual individual-environment relations and, unlike many of these social cognition models, is not flawed in terms of the problems that have been ascribed to representationalism (e.g. Bickhard & Terveen, 1995; Chemero, 2009; Costall & Still, 1991; Harnad, 1990; Janlert, 1987; Michaels & Carello, 1981; Pecher & Zwaan, 2005; Reed, 1991; Shaw, 2003). Additionally, the findings of this research programme were hoped to contribute to the

inconclusive literature presented in Chapter 1 about the effects of different types of drinking environments on drinking behaviour (Hughes et al., 2011).

Chapter 2 provided a contemporary definition of the Ecological approach and affordances which were used for the current research programme. As affordances exist at the relation of individuals to their environments, they cannot be accessed directly or measured for research purposes (Costall, 2012; Gibson, 1979a). In Chapter 3 it was suggested that, instead of characterising subjectivity by hidden mind-based representations, it could be re-defined as something which is accessible within the flow of information between individuals and their environments, as individuals perceive the world and act within it. As subjectivity is created and maintained by the transactions that individuals have with their world, it was then proposed that it could be used as a window into the relationship between drinkers and their drinking environments. These affordances were used in order to explore available opportunities for consuming alcohol in certain settings. Three studies were conducted to identify the meaning that alcohol-related affordances had for individuals, by tapping into the subjective perspective of an independent observer, individual drinkers and groups. As discussed in Chapter 3, the methods used in each study were relatively under-used and had not been used in this way before. Additionally, the author of this chapter was careful to use language which reflected the mutually inseparable and dynamic relationship between individuals and the transactions that they have with their environment. This maintained Gibson's (1979a) Ecological principles, by studying the

function the environment had for drinking behaviour, how behaviour emerged from on-going, reciprocal relations and by not resorting to any type of dualism.

2.2 Non-Participant Observation by an Independent Observer

Chapter 4 presented Study 1, which was a non-participant observational study involving seven licensed premises within the United Kingdom. This study adopted a functional, affordance-based approach to identify the wide array of affordances, or action opportunities, which appeared to be relevant to both the rate and amount of alcohol consumption by patrons within these premises. These alcohol-related affordances were also specific to the effectivities, or action capabilities, of drinkers within these settings. A rich account of alcohol-related affordances was obtained, according to the subjective perspective of an independent observer. These observations reflected properties of the environment in relation to patron behaviour within these environments. One of the conclusions of this study was that Gibson's affordance construct provides Ecological researchers with an innovative approach for analysing complex individual-environment relations, illustrating the normative and functional qualities of these environments for alcohol-related behaviours.

A range of features and practices were observed to promote the purchasing and consumption of larger quantities of alcohol and contributed to increased drinking rates in these settings. This supported research

presented in Chapter 1, which suggested drinking behaviour is influenced by the environments in which it is consumed (Homel & Clark, 1994; Hughes et al., 2012; Hughes et al., 2011; Kilfoyle & Bellis, 1998; Miller et al., 2005; Nusbaumer & Reiling, 2003; Stockwell et al., 1993; Stockwell et al., 1992). For example, longer opening hours, accessible bar areas, minimum credit card limits, point-of-sale drinks promotions, upselling techniques and negative responses by bar staff to soft drinks orders, appeared to increase alcohol consumption in Study 1. In-line with previous research (Mistral et al., 2006), the findings from Study 1 also suggested that *vertical drinking establishments* promote higher alcohol consumption as they have limited action opportunities other than drinking. For example, within these premises, patrons cannot eat, converse, play games, watch television, sit or place drinks down. When action opportunities were limited in this way, patrons were left with no choice but to take up non-canonical affordances. These action potentials contrast with the conventional use-meaning of objects. For example, despite affording *standing-on*, patrons were observed to sit on the floor when opportunities to sit were limited. Patrons appeared to seek out occurrences which allowed for desired behaviours, for instance, the floor provided a flat solid surface which allowed patrons to effect sitting, even though this goes against convention for how it is normally used.

The findings of Study 1 suggest that investigating the canonical affordances of drinking environments could contribute to preventing alcohol misuse, by highlighting the significance of alcohol-related affordances for environmental design. This supports research presented in Chapter 1 which

suggested that moderating environmental features of drinking environments could reduce alcohol consumption (Graham et al., 2006; Hauritz et al., 1998; Homel et al., 2004; Homel & Clark, 1994; Hughes et al., 2012; Hughes et al., 2011). Additionally, taking a function-based approach to design is arguably more useful than the descriptive, form-based approach often utilised in environmental description (Heft, 1997). For example, limiting the number of vertical drinking establishments in one geographical area; reducing opening hours; introducing a standing to seating ratio; incorporating drinks holders and safe shelving to put drinks down safely; and regulating the number of high-content alcoholic drinks per customer are some of the ways that could prevent heavier or riskier alcohol consumption, based on these findings. Additionally, stocking sufficient numbers of smaller drinks containers; having unit measurements on glasses; monitoring point-of-sale advertisements and promotional posters; improving the content on health awareness material; prohibiting access for intoxicated individuals; removing minimum spend limits for booths or card payments; increasing prices; introducing water dispensing machines; monitoring the number of patrons queuing at the bar or outside; restricting alcohol on the dance floor or by the bar might constrain opportunities for consuming alcoholic beverages. Furthermore, ensuring other opportunities for action are available other than drinking; introducing table service; training staff to use sales techniques responsibly and to be impartial to patrons orders might also inhibit excessive alcohol consumption, based on the identification of alcohol-related affordances in Study 1.

2.3 Photo-Elicitation by Individual Drinkers and Phenomenology

Chapter 5 outlined Study 2, which was a photo-elicitation interview study involving twelve young adult drinkers who reported having a range of different types of drinking behaviour. Each participant panned around 50 high definition computer-based photographs of different public houses, bars and nightclubs. These photographs included many of the affordances identified by the investigator to be related to alcohol consumption in Study 1. Participants were asked to pick out and describe aspects of the photographs that they believed to be relevant to their own drinking behaviour, based both on their experiences in similar premises and on their potential future behaviour if they were to enter each premise. Interpretative phenomenological analysis was used to investigate first person drinking experiences, by tapping into the subjectivity that exists within individual-environment relations. This flow of information was direct in the investigator-participant discourse, as individuals made sense of their drinking experiences in the interview settings. The findings of this study confirmed many of the alcohol-related affordances identified in Study 1, while illustrating why certain alcohol-related affordances are taken up by individual drinkers.

Study 2 highlighted many of the embodied cultural practices which shape drinking and related social behaviours within these settings. This went beyond the observations in Study 1 and included the affordances of patrons themselves. For example, in Study 1, it was suggested that other patrons extended perception-action relations, providing individuals with

extended opportunities to effect drinking. In Study 2, an insight was provided into why these opportunities were taken up. For example, participants described the convention of imitating the drinking rate of the peer group and adhering to drinking practices, such as buying and drinking *round*s, or additional beverages, as soon as drinks had been finished. Participants also felt restricted to ordering alcohol because soft drinks containers had distinctive sizes and shapes, leading other individuals to know if they were not drinking alcohol. This highlighted the importance of investigating what these types of affordances meant for groups of drinkers, as well as how certain occurrences could influence drinking behaviour. For example, if beverage containers were standardised in terms of size and shape, so non-alcoholic and alcoholic beverages were less distinct, patrons could take up the opportunity to order soft drinks as well as alcoholic drinks.

The opportunity to consume certain types of beverages was also restricted by serving staff. For example, in Study 1, some members of staff were observed to use irresponsible serving techniques. In Study 2, it became apparent that many participants disliked upselling techniques, drinks recommendations and feedback on drinks orders by bar staff. However, many participants explained how they felt compelled to act on point-of-sale recommendations if they could not immediately view their preferred drink. In contrast, inexperienced drinkers had not formed drinks preferences and welcomed this information to make their order, which highlighted the importance of understanding different subjective perspectives. The problem

of permissive serving staff continuing to serve intoxicated patrons was highlighted in Chapter 1 (Clapp et al., 2009; Graham et al., 2006; Hauritz et al., 1998; Homel & Clark, 1994; Hughes et al., 2011). The findings of Study 2 suggest how serving staff conduct themselves when communicating with patrons is also important. In addition to this, research suggests that staff training or server fines have little impact on patron intoxication (Bellis & Hughes, 2011; Clapp et al., 2009; Graham et al., 2006; Homel & Clark, 1994; Hughes et al., 2012; Ker & Chinnock, 2008; Saltz, 2011; Stockwell, 2001; Stockwell et al., 1993; Toomey et al., 2008; Wagenaar et al., 2005). Therefore, further regulation or monitoring of staff training is necessary for all staff members, including management, and could form part of licensing conditions. This training should be patron not sales-centred and should include advice on demeanor when communicating with patrons.

In Study 1, patrons were observed to act upon non-canonical affordances if action opportunities for desired behaviours were restricted. For example, in premises with little or no furniture, patrons were observed to sit on the floor or on tables, which conventionally do not afford sitting. In Study 2, it became apparent that participants had a shared intersubjective knowing of available canonical affordances in certain types of premises which extended and restricted opportunities for them to effect drinking. Participants used this knowledge, describing how they selectively adapted their behaviour when expectations for premise characteristics were not met, or when normative action opportunities were not available. For example, when visiting premises they expected would have poor bar access,

participants engaged in *pre-loading*, purchased multiple drinks at once, or *pub-hopped* to seek premises with better bar access. Participants took no action when premises were quieter or open later, for example, as this allowed them to effect drinking more easily and for longer. While this supports research presented in Chapter 1 (Bellis et al., 2010; Clapp et al., 2009; Doherty & Roche, 2003; Gruenewald, 2011; Livingston, 2011; Rossow & Norström, 2008; Toomey et al., 2012; Wagenaar et al., 2005; Wahl et al., 2010; World Health Organisation, 2009), it also illustrates why certain action potentials might be taken up. Therefore, increasing off-premise alcohol prices, restricting entry to intoxicated patrons, regulating queues, monitoring alcohol outlet density and reducing on and off premise sales times could reduce problematic consumption.

In Study 1, it was recommended that other opportunities for action than drinking, such as playing on games machines, are incorporated into premises to inhibit alcohol consumption. This contrasts with previous research which suggests that these features promote consumption, by increasing the time spent in premises (Homel & Clark, 1994; Hughes et al., 2012). In Study 2, it appeared that few participants took up alternative action opportunities, unless they were related to drinking. For example, some participants could only dance after drinking, or relied on the physiological effects of consuming food to consume more alcohol. Further research should determine if this is explicitly due to young adult drinkers prioritising drinking, even when there are other action opportunities available. In Study 1, resting drinks upon tables was coded as inhibiting

consumption. Study 2 provided further insight into the subjective meaning that the height, shape and location of these objects had for drinkers. For example, participants described how social norms dictated how tables with food condiments, such as cutlery and placemats, were meant for eating on. Many participants felt uncomfortable drinking on these tables or around those who were eating. In contrast, high tables were viewed only for drinking, as they were too small to comfortably eat upon. This provided further evidence that participants sought out and regulated their behaviour in relation to the normative, widely agreed uses of objects, otherwise known as canonical affordances.

In Study 1 and 2, alcohol-related décor, promotions and marketing were coded as promoting consumption, which supports previous research (Anderson et al., 2009; Babor et al., 2010; de Bruijn, 2012; Gordon et al., 2011; Wagenaar et al., 2005). Participants in Study 2 were surprised at the high frequency of alcohol-related décor and marketing, particularly around the point-of-sale. Many believed this influenced their drinking behaviour without being aware of it. Interestingly, carbonated drinks were viewed as mixers for alcoholic drinks, supporting research which suggests soft drinks promotions might inadvertently affect alcohol consumption (Hughes et al., 2012; Smith et al., 2006). From this evidence, it is recommended that calls for marketing regulations (Jones & Lynch, 2007) are adhered to. Participants were able to use their experiences to recognise different types of establishments and distinguish behaviours conducted within them. Participants tended to associate the décor and furniture of public houses

with their own home, leading them to regulate their behaviour by acting upon canonical affordances. Bars and nightclubs were modern and dimly lit, which participants felt promoted anonymous and uninhibited behaviour, or non-canonical affordances, such as dancing on tables. In Study 1, regulations were coded as inhibiting consumption. However, in Study 2, participants described only adhering to regulation signs when they were noticed, which suggests the novelty of the optical array is important. Some participants described finishing their drinks quickly in order to frequent areas where drinks were prohibited, while others believed regulation signs increased consumption by reminding them of the opportunity to drink.

2.4 Group Subjectivities and Q-Methodology

Chapter 6 presented Study 3, which was a Q-Methodology study that aimed to uncover clusters of subjectivity existing within the relationship between groups of drinkers and their drinking environments, as well as between groups of drinkers. Statements were devised from the alcohol-related affordances identified in Study 1 and 2. Participants sorted these statements in relation to their previous drinking experiences in certain contexts and potential future behaviour. These findings highlighted group patterns of subjectivity in relation to alcohol-related affordances, which had emerged from individual subjectivities. Four factors emerged from the analysis, which reflected four clusters of group subjectivity, or viewpoints regarding what certain types of alcohol-related affordances meant for groups of individuals.

Participants significantly loading onto Factor 1 - Conscious and Compliant consisted of self-reported light, moderate and heavy drinkers who appeared to be conscious of the effects that their relationship with their drinking environment had on their behaviour. These individuals spoke in detail about their experiences. For example, they generally believed longer opening hours, loud music which prevented conversation and having to hold their drinks increased the amount of alcohol they consumed. These participants were happy to comply with these influences, as long as they were able to effect drinking. However, they were unsure about the effects of social factors on their drinking behaviour. When opportunities for effecting drinking were restricted or drinking environments did not meet their expectations, these participants spoke about the action they would take in order to position themselves to effect drinking. Much like in Study 2, expectations appeared to be important for participants and were constructed through experiences individuals had with their environment. For example, when bar access was poor these individuals would purchase multiple drinks at once, but then consume these more quickly than a single drink. As experienced drinkers, these individuals also believed they were able to carry out alternative action opportunities, such as dancing, without changing the rate that they drink. This suggests that individuals often continue carrying out maladaptive or risky behaviours, despite being aware of causes or health risks.

Participants significantly loading onto Factor 2 - Aware and Autonomous were also aware that an individual's relationship with their

drinking environment influences their drinking behaviour. However, unlike the participants significantly loading onto Factor 1, participants significantly loading onto Factor 2 did not think that their own drinking behaviour was influenced by their drinking environments. This group of participants included one individual who regularly socialises in licensed premises but does not drink, as well as light-moderate drinkers. Participants significantly loading onto this factor believed that they were autonomous in their drinking behaviour and were strongly against being influenced by others. This was an important finding, which might have only come across in Study 3 because participants were asked to rank the importance of these features for their drinking behaviour. These individuals were not concerned when the opportunity to consume alcohol was restricted because they often went to these environments to carry out other action opportunities. Importantly, while participants significantly loading onto Factor 1 appeared to moderate their behaviour by assessing affordances for action within drinking environments, those significantly loading onto Factor 2 set drinking goals before entering establishments and then regulated their behaviour by these. This suggests that not all young adult drinkers seek to effect drinking in these settings and that goals must be considered in Ecological terms as something which mediates behaviour. Additionally, future research should focus on testing more non-drinkers to see if they have the same subjective perspectives about these environments.

Participants significantly loading onto Factor 3 - Canonical and Considerate reported themselves to be moderate to heavy drinkers who also

provided detailed accounts of their drinking experiences. Similar to those significantly loading onto Factor 2, those significantly loading onto Factor 3 were also strongly against influence from other individuals and visited premises to carry out other action opportunities than drinking, such as eating, conversing and listening to music. These individuals also set behavioural goals and used these goals to visit premises that offered them desired action opportunities, based on their experiences. Importantly, these individuals seemed to be concerned about the appropriateness of their behaviour for certain settings. For example, these individuals changed the type of drink that they consumed in relation to other opportunities for action, such as eating. They also drank less alcohol in premises with families, or when premises had table service. These individuals spoke about adhering to all regulations in premises, which they felt inhibited their consumption. It appeared that those taking this view regulated their behaviour and ensured it was considerate for the environment they were in. This was done by acting upon appropriate and normative canonical affordances for a given setting. In Study 2, it was suggested that non-canonical affordances are taken up in premises which invite anonymous and uninhibited behaviour. Study 3 suggests that this may also be due to the subjective perspective of certain groups of drinkers, as not everyone seeks out the opportunity to take up non-canonical affordances.

Participants significantly loading onto Factor 4 - Unaware and Unanimous were reportedly moderate drinkers who seemed to be initially unaware of how their relationship with their environment influenced their

behaviour. This meant that they initially found providing reasons for their behaviour difficult, possibly because they had not considered these influences before. It is also possible that this is because their behaviour is influenced without their conscious awareness. However, much like those significantly loading onto Factors 1 and 3, those who significantly loaded onto Factor 4 seemed to believe that their drinking behaviour was influenced by these factors, but had not considered them until reflecting on their drinking experiences within the current study. Importantly, unlike the participants significantly loading onto each of the other factors, participants significantly loading onto Factor 4 believed that their drinking behaviour was strongly influenced by the affordances of others. For example, these individuals viewed their drinking behaviour as unanimous with their peer group and spoke about seeking out action opportunities in order to imitate group drinking behaviour and maintain a shared sense of belonging. Therefore, instead of finding out their own uses for objects in the world, these individuals imitated others in order to find out the canonical function of objects in these contexts.

In Study 2, it was also suggested that participants with less drinking experience sought and acted upon the affordances provided by others. This corresponded with Study 3, as participants significantly loading onto Factor 4 suggested that social affordances were the most important influence on their drinking behaviour. These individuals were the least experienced drinkers in the sample, so it is possible that they take up canonical and non-canonical affordances available to the peer group as they are initially

unaware of how to act in these premises. However, these individuals did not like the thought that their drinking behaviour was influenced without them being aware of it and insisted that they would now change their behaviour after being made aware of these influences. This highlights the importance of educating individuals who are as inexperienced as those significantly loading onto Factor 4, as their drinking behaviour appears to be strongly influenced by alcohol-related affordances.

Drinking environments tend to be designed exclusively for adults, except for some public houses which are open in the daytime and permit children. Therefore, it is difficult to use the affordance taxonomy to understand how the functional significance of these types of environments varies across individuals of different ages. However, these environments do appear to have a developmental dimension in terms of the development of intersubjective knowledge through experience with these contexts which mediates an individual's behaviour. Future research could investigate if the alcohol-related affordances identified in the current research programme are selective, with a larger effect on inexperienced individuals, such as those significantly loading onto Factor 4 in Study 3. This would also indicate whether alcohol-related affordances have a larger effect on drinking behaviour the first time they are perceived and whether this effect degrades due to improved experience, as individuals no longer notice these occurrences or take up related action potentials.

3. Limitations and Future Research

In Chapter 4, the limitations of Study 1 were noted in terms of the possibility of bias in the results due to the preconceptions of the investigator. However, the investigator was careful not to select certain features to observe and instead obtained an overall impression of the entire environment. This meant that the investigator ceased to collect data when no new data was arising and a saturation point had been reached. As explained in Chapter 3, it is impossible to detach an individual from their knowledge and this is what provided an insight into alcohol-related affordances from the subjective perspective of an independent observer. Although the time and day was standardised across all observation sessions in Study 1, these observational periods were limited. Repeated visits to premises on different days or for longer, different time periods should be considered for future research. This was not possible in the current research programme due to ethical restrictions and because repeated visits may have potentially drawn attention to the investigator, impairing naturalisation and impeding data collection. Although a broad range of premises were observed, a fully representational range of establishments was not necessary. This is because the form-based labels often used to describe different types of premises (e.g. public house, bar and nightclub) do not always reflect differences in the layout of affordances. Instead, the layout of a range of different environments was compared until no new data arose. More importantly due to available resources, each observed premise was based in South Central England. Future research should investigate whether

there are geographical differences in the layout of affordances and behaviours taken up within different premises.

It is impossible to directly tap into the histories and experiences of individuals within the premises observed in Study 1. Instead, the investigator made inferences about related affordances from observed occurrences and drinking behaviour, based on their own history and experiences. It is possible that observed behaviour might not have been related to the occurrences that were coded by the investigator. In a previous study (e.g. Heft, 1997), the frequency of affordances in an environment was noted by the investigator and then by participants entering the same environment, allowing cases to be compared. Due to the public nature of the environments of interest and ethical restrictions, this was not possible for the current study. Instead, by noting observations about both the environment and behaviour, the investigator was able to conclude, albeit indirectly, that the two were connected. This was also based on previous research by Heft (1988) which devised affordances from accounts of behaviour and environmental descriptions. Additionally, participants in Study 2 viewed photographs of a broad range of unfamiliar licensed premises and drew out similar alcohol-related affordances to Study 1, providing further support for these findings. In Chapter 4, it was suggested that future research could incorporate a range of measures, such as using more than one observer to provide an inter-rater reliability estimate, or obtain measurements of, for example, floor space, bar surfaces or sound decibels to support observational data.

In Chapter 5, it was explained how Study 2 was limited because ethical restrictions meant that participants could not be interviewed in licensed premises. Photo-elicitation interviews provided the best means to present these environments to participants with available resources, but were limited to one modality: vision. Additionally, perceiving a limited number of photographic representations of premises, which were taken by the investigator, had low ecological validity. Using representations of these environments also contrasts with the principles of direct perception, which is rich, unmediated and does not involve representation. However, high quality photographs, particularly those that are fluid and allow participants to move and zoom around entire premises, could reflect snapshots of the optic array similar to the actual array in these environments (Gibson, 1971). For future research, if researchers cannot take participants into the premises themselves, they should consider using multi-modal stimuli containing visual and auditory information, such as photographs with sounds or videos. This was not possible in the current study as sounds and videos would have been difficult to obtain permission for and to de-identify.

When analysing the interviews in Study 2, the investigator also focused on the meaning that drinking environments, the people and objects within them had for participants in terms of affordances. To minimise bias in the resulting themes, the investigator ensured that any coding had arisen from the data and from participant's descriptions as they made sense of and interpreted their experiences. Furthermore, although more females than males took part in this study, the entire participant sample had a wide range of self-categorised drinking behaviours, as was anticipated. Even if the

arising themes in Study 2 were gender specific, an even number of male and female participants took part in Study 3. In this study, participants sorted statements in terms of both agreement and disagreement and the differences between male and female participant sorts would have become apparent in the resulting factors.

In Chapter 6, it was suggested that Study 3 was limited by using statements as representations of licensed premises. However as previously explained, this was not a concern because these statements provided information about available action opportunities in these premises. The Ecological approach suggests that an individual's physical and psychological worlds are mutually connected. Therefore, subjectivity spans the entire relationship and can be used as a window into these experiences. Both Study 2 and Study 3 tapped into this subjectivity, but required participants to reflect on their experiences when picking out meaningful aspects of the photographs, or sorting statements. Despite this, subjectivity was direct in the discourse that participants were having with the researcher and as participants ranked statements on the Q-Methodology grid. As well as making sense of previous experiences, participants described how they would behave if presented with these action opportunities in the future. This allowed for clusters of subjectivity to be identified from participant descriptions in Study 2 and viewpoints from the participant sample in Study 3.

Q-Methodology statements should be concise, should avoid double negatives and only have one proposition. In Study 3, some of the statements had more than one proposition, due to examples being used to assist participants in reflecting on their experiences. Additionally, double negatives were sometimes necessary due to the system applied to the statements (i.e. effect or no-effect on behaviour). Despite this, the statements used in the final Q study were continually reviewed by the supervisory team and went through a comprehensive piloting procedure before the final study was carried out. Additionally, participants were asked how they found the study, with most suggesting that the statements easy to understand and to sort onto the Q-Methodology grid.

Affordances have typically been used to explore and understand individual perception-action relations or simple social behaviours. Therefore, it could be argued that the affordance theory has been extended too widely in this research programme. However, alcohol consumption takes place in complex environments and understanding these types of behaviours requires a multi-disciplinary, mixed-methods approach. One of the primary aims of this research programme was to determine if contemporary ideas about the Ecological approach and affordances could be used to investigate these complex, social, health behaviours. The findings of this research programme illustrate that these ideas can be used in this way and have implications both for prevention and, as will be discussed in Chapter 8, psychology more generally. In order to carry out this research, the investigator has had to overcome issues related to providing a concise

definition of the Ecological theory and affordances; re-defining what is meant by subjectivity; using existing methods to tap into difficult to measure, inherently relational variables; and using mutual, function-based language to overcome problematic dualisms. However, as discussed in Chapter 3, future research may require further conceptual and methodological retooling.

The social nature of drinking contexts, which included the relationship between individuals, appeared to have a profound impact on young adults' drinking behaviour. This included spoken interaction, for example, such as a bartender using an upselling technique to increase the quantity of alcohol purchased. This also included occasions whereby the mere presence of others extended or inhibited opportunities to consume alcohol. For example, when drinking in groups, many individuals felt pressured to keep up with the drinking pace of the group. Therefore, the affordance construct does appear to sit well with existing theories of social influence. For example, it supports the idea that the mere presence of others has a profound influence on behaviour. Additionally, individuals appear to conform to the normative behaviour of the peer group and moderate their behaviour in line with social norms, for example, by seeking out the opportunity to take up canonical affordances. Likewise, those that are less experienced appear to look to others for information about how to act. Further work is required to fully integrate research on social influence with these so-called *social* affordances, in order to account for the diverse nature of social interactions between individuals in these contexts.

Although this research programme focused on young adults, findings may be extendable to older adults. Future research should determine if the alcohol-related affordances identified in this research programme are specific to the subjective perspective of young adults. For example, older adults may seek out alternative action potentials in certain premises, or have different perspectives about these environments. Comparing younger and older adults might also provide an insight into the developmental dimension of alcohol-related affordances. A revised research programme could also look at carrying out each of the three studies in a different country to determine if canonical affordances are culturally-specific. This research could also identify why the United Kingdom has a problem with excessive alcohol consumption (Anderson et al., 2012; Home Office, 2012). For example, this research could determine if there are cultural differences between alcohol-related affordances and the subjective perspectives of individuals and groups of drinkers. It is likely that differences will be found based on different drinking practices and what are defined as canonical affordances in other cultures. This will be based on normative uses of objects, embodied practices and contextual differences. However, an observer doing a cross-cultural replication of Study 1 must be knowledgeable about local practices when observing premises.

4. Affordances Could Be Primed

A number of participants within each study suggested that the features of the environments where they consume alcohol influence their drinking behaviour without them being aware of it. Therefore, a challenge for

researchers is to determine whether individuals are aware of how they behave and how this fits with the idea of Ecological psychology and affordances. One possible solution to this is that affordances, or opportunities for action, could be primed. Priming involves an increased sensitivity to certain stimuli, based on prior experience or exposure to a related stimulus. For example, visual objects are more quickly perceived if individuals have already been exposed to them. This is thought to be because the representation of the object in the brain changes and similar representations are held together and activated at the same time more easily, often unconsciously influencing behaviour. For example, participants should be faster at recognising the word 'sleep' if they have been previously primed with the words 'night', 'bed' and 'clock'. Priming is a new concept as applied to the field of affordances and, although it maintains a representational model of cognition, it may be a theoretically valuable contribution to explain how certain action opportunities arise.

4.2 Visual Displays and Communicating with Others

A promotional poster for alcohol is an indirect visual representation of the object it is promoting. On a basic level, posters afford view-ability and provide the perceiver with information about a product or promotion. However, these might operate differently to other affordances because patrons do not only effect viewing when they are present. These occurrences influence what patrons purchased and drank, without actually affording purchasing and consuming alcohol. Therefore, the author of this chapter suggests that such visual representations may actually *prime* certain

action opportunities, possibly increasing the salience of certain types of affordances (i.e. purchasing and/ or consuming) when they are present. If these types of affordances are repeatedly primed by an occurrence and are complemented by properties of an individual, they may promote certain canonical affordances. This might be because individuals are more susceptible to purchasing and/or consuming alcohol because they are already open to suggestion, leading them to automatically take up these action opportunities, possibly without being consciously aware of it. This may be enhanced by an individual's social perception and behavioural interpretation in certain contexts, or if they seek out affordances that are available to and taken up by others.

Gibson (1971) insisted that the viewing of pictures should be treated differently to perception as it occurs in the real world, because pictures reflect fixed examples of the optic array. However, Gibson suggested that the optic array received from a picture could provide some of the same functional information as the affordances of an object within the environment. Gibson was not clear about how pictorial images could have an effect on behaviour, but suggested this might occur independently of conscious experience. Therefore, a pictorial image of an alcoholic drink, may prime the affordance for drinking behaviour in the same way that viewing a bar would. Viewing these types of images may then enhance the individual's disposition for the canonical affordance for that object, such as consume-ability, for example. Some research supports the idea, as photographs (Riggio et al., 2008) and computerised depictions of objects

and non-objects (Symes, Ellis, & Tucker, 2007) have been successfully used to investigate affordances. It has even been suggested that similar affordances exist in the relationship between individuals and pictorial stimuli, compared to physical stimuli (Albrecht, Blom, & Beckhaus, 2009). However, this might not be the case for all visual displays and may depend on a number of factors. For example, the findings of the current research programme suggest that the novelty of the visual display could be an important factor in influencing behaviour. Additionally, this would also depend on how much functional information the display conveys about the object that it is depicting.

The images used in Study 2 were unfamiliar photographic representations of licensed premises. This could be viewed as an indirect measure of the transactions individuals have with their environments. However, as has been explained, Gibson (1971) has suggested that if pictures provide the same functional information as objects within the environment they could offer the same opportunities for action. Therefore, high quality, dynamic images from a wide range of different drinking environments can be used to replicate the optical array, in order to take participants back to the actual, lived experience. Although this is not the exact pattern of light reflecting off of surfaces as would have been perceived in the exact environment, photographs remain the best available method for capturing environments of interest if participants cannot be interviewed within them. Additionally, tapping into the subjective

perspectives of individuals as they made sense of their experiences provides a current and direct window onto these experiences.

The ideas presented here could explain why participants in Study 2 believed that soft drinks displays and regulation signs promote alcohol consumption and why responsible drinks messages, soft drinks posters, health labels and messages have also been found to increase consumption (Babor et al., 2010; Bellis & Hughes, 2011; Christie et al., 2001; de Bruijn, 2012; Hughes et al., 2012; Miller, 2011). For example, instead of increasing awareness each of these could prime the affordance for drinking. Some studies have even suggested that alcohol health warning labelling could be effective if larger pictorial labels are used instead of verbal labels, much like those currently used on cigarette packaging (Anderson & Baumberg, 2006; Gordon & Jones, 2013; Wilkinson & Room, 2009). However, it is also important to consider that this might actually have the opposite effect on behaviour by priming the affordance to consume alcohol. Similarly, affordances might not only be mediated through visual representations, but also through verbal representations. For example, upselling techniques or comments from peers may not directly afford purchasing or consuming alcohol, but could also prime these affordances for action. This may be particularly strong if the individual cannot view their preferred drink, or is inexperienced or unaware about the type of drinks that are available. Regulation of these types of *primed* affordances is recommended, particularly for those that are situated at the point of sale. Future research should focus on whether affordances prevalent in certain social situations

can be primed. For example, this would determine if certain types of affordances are more likely to be taken up following exposure to these types of occurrences.

4.3 Abstract Constructs and Price

In each of the three studies, patrons often talked about how price can promote or inhibit consumption, which supports previous research (Anderson et al., 2009; Chaloupka et al., 2002; Gallet, 2007; Wagenaar et al., 2005). Price may have been more prevalent to participants in the current research programme because they were aged between 18-30 years and may have a lower income than older adults. Price presents a challenge to the Ecological theory, but it can still be discussed in Ecological terms. When the price of a drink is printed on a promotion, it affords viewing. As has been suggested, this visual display might operate differently to other affordances, as it leads patrons to effect purchasing, without directly affording purchasing. Therefore, the presence of this display could *prime* this action potential, subsequently increasing the salience of these types of affordances. This also applies if price is communicated between individuals. However, if price does not have a relation to the environment, it is not an affordance. In this case, price is otherwise an abstract construct, but it still has meaning for drinkers and their drinking behaviour.

Perception does not just involve perceiving what is directly in front of a person, in terms of first-order experiences (Heft, 2003). Perception also involves reflexivity, perceiving notions, ideas and concepts, as individuals

engage in second-order knowing. For example, this is when individuals might consider alternative action opportunities, such as non-canonical affordances. This information is still directly perceived, but requires individuals to take segments of experience out of the perceptual flow for further examination. In the same way that social norms may lead individuals to act on canonical affordances, price is also the direct perception of a concept relevant to behaviour, which is informed by experience. Price is not the direct perception of a physical attribute, but is embodied in social and cultural practices. Therefore, much like social norms, it forms part of a person's intersubjective knowledge about the world, guiding behaviour in the same way that perceiving an object in the world would.

Each of these studies has provided an insight into the first-order experiences and the subjective perspectives that individuals have about their drinking environments, as well as the intersubjectivity which exists between groups of individuals. Participants also had the opportunity to reflect and make sense of their experiences in terms of second-order knowing. For example, participants significantly loading onto Factor 4 in Study 3 were not previously aware how their drinking environments influenced their drinking behaviour, until they were able to re-examine these influences out of the immediate perceptual flow. This information will now form part of their intersubjective knowledge, or the understanding of the world that they share with others. As has been explained, this is formed through the immediate experiences individuals have with the world and constrains

action opportunities by highlighting affordances that are normative for the context and complement an individual's effectivities.

5. Canonical Affordances Have a Special Status

The three studies in this research programme illustrate the importance of distinguishing between canonical and non-canonical affordances when seeking to understand behaviour. As has been explained, an object can have a range of affordances, but individuals cannot do anything with any object. Canonical affordances are the normative, widely-agreed and conventional use-meanings of objects (Costall, 1995, 2012). Although Gibson did not make this distinction, the author of this chapter also believes that they have a superior status to other types of affordances and could help researchers to understand behaviour. Canonical affordances illustrate how objects within the world are embodied within a social and cultural world full of complex relations. This includes other objects, other people, shared practices and the intersubjective knowing which connects them. Investigating the meaning that different types of drinking environments have for individuals provides an insight into what these environments mean for individuals and groups. This research has illustrated that not every affordance perceived is acted upon and that this is due to a number of complex factors including individual capabilities, development, environmental context, canonical restrictions, expectations and goals. However, Chapter 8 will explain how, instead of guiding behaviour, these expectancies and goals are situated and held in place by experience.

6. Conclusion

Three studies have utilised previously under-used methods to illustrate how drinking behaviour can be extended or restricted by an individual's relationship with their drinking environment. Each of these studies has also explored the different subjective perspectives that alcohol-related affordances have for individuals and groups. These ideas have implications for prevention and have helped to explain findings from previous research. It has been suggested that certain affordances could be primed by objects within the environment or other people without an individual being consciously aware of this. An important distinction has been made between canonical and non-canonical affordances, which could help researchers to better understand drinking behaviour. The next chapter will focus on integrating these ideas into a potential global theory of behaviour using ideas from recent developments in psychology.

CHAPTER 8

Affordances as a Global Theory of Behaviour

A ction-orientated predictive processing …depicts perception, cognition, and action as profoundly unified and, in important respects, continuous.

(Clark, 2013)

1. Introduction

Chapters 4, 5 and 6 presented the findings of this research programme, illustrating how mutual individual-environment relationships both extend and constrain drinking behaviour. A discussion of these results in Chapter 7 suggests that canonical affordances, which are the normative and agreed uses of objects and related practices, are important for drinking behaviour. This intersubjective knowledge about the world is shared among others and obtained through the direct and unmediated transactions that individuals have with it. Through these experiences, individuals form expectations about what different drinking environments afford. This relationship is adaptive, as individuals orient themselves to pick up alcohol-related affordances using their interconnected, multi-modal perceptual systems. Experienced drinkers are able to adapt their behaviour when expected action opportunities are unavailable. Some individuals regulate their behaviour by taking up normative action opportunities, while others

use situated goals. Inexperienced drinkers seek out affordances taken up by others and may be more susceptible to occurrences that unknowingly *prime* alcohol-related affordances. The current chapter will discuss the implications that these findings have for understanding behaviour more generally, with reference to some recent developments in psychology.

2. Knowing About the World

Chapter 1 argued that equal explanatory weighting should be given to both the individual and the environment when attempting to understand drinking behaviour. Chapter 2 proposed that contemporary ideas about Gibson's (1979a) Ecological theory and affordances provide a means to investigate how an individual's relationship with their environment extends or constrains their behaviour. The conceptual and methodological challenges associated with using this perspective to understand drinking behaviour were discussed in Chapter 3. One of the most challenging aspects of this research programme is to understand the findings presented in Chapters 4, 5, 6 and the discussion of results in Chapter 7, in Ecological terms. For example, in order to act upon canonical, alcohol-related affordances, individuals appeared to form intersubjective knowledge about the normative uses of objects in their world and what they afford from experience. This knowledge about the world originates from experiences within the world and is shared among others. Traditionally, this knowledge is believed to be produced through learning and stored internally in memory. In addition to this, the findings of this research programme suggested that individuals appear to regulate and adapt their drinking

behaviour using expectations and goals. However, these have long been considered to be a function of representational structures in the mind.

As explained in Chapter 2, perception is typically believed to rely on the mediation of limited perceptual input, which allows an individual to understand what is being perceived (Bickhard & Terveen, 1995; Chemero, 2009; McArthur & Baron, 1983; Michaels & Carello, 1981). At any one time, individuals are believed to only consciously perceive a limited amount of information from where they are positioned, relying on supplementation from memory to make sense of their experiences (Heft, 1997). This may be why psychology has typically concerned itself with the study of the cognitive structures underlying perception and why environmental factors are often only viewed in terms of how they mediate these processes. However, when taking the Ecological view, as this research programme has done, the relationship between perception and action is continuous (1966, 1979a; Good, 2007). Invariant information is picked up continuously and over time as an individual navigates their world, uniquely specifying available action opportunities for an individual. This means that experience cannot be broken down into individual percepts which are then represented in the mind (Costall, 2012; Dewey, 1941; Gibson, 1966; Holt, 1915; James, 1912; Mace, 1977; Merleau-Ponty, 1945). Instead, knowing about the world is based upon picking up this flow of information within certain contexts, for example licensed premises, while acting within them (Gibson, 1966).

As behaviour emerges from the on-going transactions an individual has with their environment, remembering does not involve connecting to the representations of previous drinking experiences that are stored in memory, but of directly knowing of, or returning to, past experiences themselves (Merleau-Ponty, 1968; Michaels & Carello, 1981; Shaw et al., 1982). This is one of the most radical principles of the Ecological theory and probably one of the hardest for psychologists to accept. Gibson (1966) suggested that all of the necessary information about the world is available in the environment to be directly picked up when it is required, without mediation. Therefore, this suggests that there is no need to expend energy by further mediating or storing this information, because an individual's interconnected, multi-modal perceptual systems support knowing of past experiences in this way (Barrett, 2011; Michaels & Carello, 1981). However, if memory is not something which individuals hold within their minds to guide behaviour, then it remains unclear what it could be. Barrett (2011) provides one solution, by suggesting that memory is simply a linguistic concept, or another way of describing currently observable behaviour using previous and currently unobservable behaviour. Barrett suggests that it is entirely possible that previous experiences could lead individuals to take up similar behaviour patterns, but it remains difficult to conclude if these behavioural determinants are internally-based cognitive structures. This is also a limitation of many of the social cognition models described in Chapter 1, which also attempt to explain drinking behaviour in terms of unobservable cognitive structures. Instead of being something that individuals have, memory could simply be a property or process of the entire individual-environment system, whereby an individual returns to a

previous perceptual experience in order to know about the present condition of the world. For example, patrons may be able to return to experiences where they have been removed from premises for consuming alcohol in prohibited areas, which might lead them to restrict this behaviour in their current drinking environment.

This might explain how behaviour could occur without memory, but it remains unclear how individuals can directly know about objects that are not currently present, if they are not represented within the brain. First of all, perception is active, so hidden surfaces are often revealed when individuals take action to reveal further information about the world (Gibson, 1979a). For example, when inside licensed premises, individuals can pick up beverage containers to determine their size and shape; walk around premises to find certain doorways; or move toward objects to accurately perceive them, particularly if view-ability is poor. More importantly, individuals know from experience that they can do this to improve what is perceived. Secondly, Heft's (1997, 2003) distinction between first-order experiences and second-order knowing could also shed some light into this. For example, Heft suggests that remembering is not an internal process, but simply describes how knowing about previous experiences with currently non-existing objects in the world influences current behaviour. Taking this view, goals may not be represented in the brain, but could reflect knowing about objects or events that could occur or be created. Likewise, expectations could reflect knowing about certain objects or events that are normally taken up in certain contexts. In turn,

imagining does not require activation of a stored representation, but simply describes knowing about action opportunities for objects or events that do not currently exist. Despite this, it must be remembered that having concepts are no bad thing and do not present an issue for the Ecological theory. For example, the term *affordance*, is also a linguistic concept, but one which allows researchers to form hypotheses about the function of whole, continuous individual-environment relations.

In Ecological terms, the intersubjective knowledge that individuals form from their transactions with the world, both by acting on it and being acted upon by it, is not contained within the head. Instead, this is distributed across the entire individual-environment relation and reflects the *fit* of an individual to their environment (Barrett, 2011; Marsh, Richardson, et al., 2009). As has been discussed in previous chapters, this knowledge supports an individual's behaviour, by informing an individual about their capabilities and orienting them to pick up further information about the current state of the environment, based on these effectivities. For example, in Study 1, patrons were observed to occupy the bar area upon entering licensed premises and situate themselves near this area in order to effect drinking more easily. In Study 2, participants spoke about how important it was to effect drinking, but that certain contexts have poorer bar access, leading them to buy multiple drinks at once, or pre-load before entering premises. Likewise, in Study 3, it was suggested that effecting drinking was not a primary behaviour sought by all patrons and that inexperienced drinkers tend to be less knowledgeable about alcohol-related affordances,

leading them to take up opportunities for action presented to and taken up by others. In each case, an individual's experiences influence their current behaviour and knowledge about the world.

Individuals learn about the world because they have developed, multi-modal perceptual systems, which are sensitive to energy structures and position them to pick up this information (Barrett, 2011). Combining this perceived information with knowledge about effectivities and current environmental occurrences allows individuals to coordinate their current behaviour with patterns of behaviour that they have previously produced. Over time, as individuals become experienced in knowing about their world, it is possible that this information no longer needs to be coupled for behaviour to be produced. This supports the findings of the current research programme, because it explains how certain occurrences in licensed premises could influence behaviour without individuals being consciously aware of it and why the novelty of the visual scene is important. For example, premise regulations may no longer be noticed by patrons, but eye-catching promotions for alcohol may be picked up and viewed by patrons, possibly priming the opportunity for patrons to effect purchasing or drinking. Therefore, when taking the Ecological view, learning from experience, expectations and goals are important for drinking behaviour. However, these are not internally held behavioural determinants, as is typically suggested, but are situated within the relationship between the brain, body and environment.

3. Mutually Connected Individual-Environment Relations

The author of this thesis has used the term individual-environment relations to describe the mutual, interconnected and complementary relationship between individuals and their environments. A challenge for Ecological researchers is to determine what these relations might look like as a working theory which could be used to understand all types of behaviour. This theory would need to address the issue of containment, by combining what are typically assumed as internal, cognitive processes with the body and the supposedly external world. The following section of this chapter will provide a review of some recent developments in psychological theory which are relevant to ideas about Ecological psychology, affordances and the findings of the current research programme. This includes: Two Systems Theory (Kahneman, 2011); Dynamical Systems Theories (Thelen & Smith, 1994); Extended Cognition (Clark, 1998); and Action-Orientated Predictive Processing (Clark, 2013).

3.2 Two Systems Theory

The Two Systems Theory outlined in Kahneman's (2011) book was initially proposed by Kahneman and Tverseky to understand the behaviour choices that people make. According to this theory, there are two systems within the brain. System 1 is fast, automatic, unconscious, continuous, energy-efficient and able to run a number of simultaneous tasks at once. In contrast, System 2 is more limited, slow, energy-consuming, conscious, and only able to process individual tasks, by sorting relevant information and testing hypotheses against prior knowledge. This theory corresponds with

the Ecological view, as System 1 could explain how individuals perceive and act on canonical affordances (Costall, 1995), during their first-order experiences (Heft, 2003) and possibly without being consciously aware of doing so. Similarly, as System 2 can be activated by the individual, it appears to be very similar to second-order knowing, which is reflexive and involves taking up alternative action opportunities if canonical affordances are not available. For example, if the canonical affordance of effecting sitting is unavailable, this might explain why patrons take up non-canonical opportunities to sit on alternative flat surfaces, such as the bar or the floor. This theory provides a comprehensive insight into how behaviour is influenced both with and without an individual being consciously aware of it. However, despite similarities with the Ecological theory, the Two Systems Theory continues to view the brain as the central processor and maintains a representational view of cognition.

The Nudge paradigm (Thaler, Sunstein, & Balz, 2010) combines Behavioural Economics with the Two Systems Theory, to investigate influences on the decisions made by individuals when carrying out harmful or maladaptive behaviours. This approach advocates a form of libertarian paternalism, suggesting that individuals can be unconsciously and subtly *nudged* toward making better behaviour choices. Taking this view, behavioural choices are influenced by many features, but particularly by the complex environments that health-risk behaviours are carried out in. This focuses on the opportunities individuals have to make decisions about behaviours in terms of choice architecture, which can be selective in order

to guide individuals to carry out certain behaviours. This theory provides recommendations for understanding how individuals make behavioural choices and suggests incentives or feedback can be used to change cognitions, in order to subsequently alter behavioural responses. Nudge theory could help researchers to understand how drinking behaviour, or other types of health-risk behaviours, are unconsciously influenced by the environment and possibly without individuals being aware of these causes. As individuals appear to avoid nudges once becoming aware of them, this theory provides support for educating drinkers about alcohol-related nudges in order to reduce alcohol misuse. Additionally, this theory also suggests that the novelty of the visual scene is important, as nudges appear to become less effective over time, when they are no longer noticed. However, not only does it remain unclear exactly how nudging works, but this approach maintains that behaviour is driven by cognitive processes and stimulus-response relations. In order to nudge individuals to make better health choices, nudging also relies on knowing about health-risks in advance, but this is not always possible, particularly for novel or maladaptive behaviours.

3.3 Dynamical Systems Theory

Dynamical Systems Theories explain behaviour in terms of reciprocal, self-organising and continuous individual-environment dynamics, not internal mental representations. Behaviour is believed to emerge through the dynamic coordination of an individual's sensorimotor systems with the environment. These systems are adaptive and use soft assembly to generate change, by coupling and recoupling components of the system to suit the

individual and the immediate environment (Barrett, 2011). In contrast, hard assembly is incompatible with a mutual, relational theory of perception and action, as it suggests cognitive functions exist prior to behaviour and that the system can be broken into component parts. Dynamical Systems Theories could help to explain how affordances are taken up, as individuals exploit environmental resources and, coupled with the dynamics of their body, produce behaviour. Additionally, dynamical systems theories also depict organisms as active navigators of their environments who pick up information about new action potentials in order to carry out new behaviours. This supports the findings of the current research programme, as it suggests that the emergence of behaviour, behavioural variability and the formation of behavioural predictions are all based on the dynamic interplay between an individual's experience, bodily capabilities, their history, knowledge, and the resources of the environments that they inhabit.

A number of researchers have suggested that combining Gibson's (1966, 1979a) Ecological theory with Dynamical Systems approaches could illustrate the dynamic principles which underlie both individual behaviour (Bickhard & Terveen, 1995; Chemero, 2009; Chemero & Turvey, 2007; Heft, 2003; Michaels & Carello, 1981; Shaw & Turvey, 1981; Turvey et al., 1981) and social behaviour (Heft, 2003; Marsh, Johnston, et al., 2009; Marsh, Richardson, et al., 2009). In developmental psychology, dynamical systems theories have also been used to illustrate how new behaviours emerge due to bodily dynamics, instead of brain maturation (2003; Thelen & Smith, 1994). In each case, the system models how an individual exploits

the properties of their environments and their bodily capabilities to produce behaviour. This suggests that the brain does not contain cognitive structures such as knowledge, percepts, experiences or memories because these form part of the entire system. Dynamical systems approaches allow researchers to formulate mathematical models and test behavioural predictions without referring to internal concepts, but often provide little information about the nature of cognition or where it is situated (Chemero, 2009). Additionally, much work focuses on simple, laboratory-based tasks instead of complex real-time, maladaptive social behaviours, such as alcohol consumption in licensed premises (Costall, 2011).

3.4 Extended Cognition

Clark and Chalmers' (1998) theory of Extended Cognition also suggests that cognition extends out of the mind, into the body and through the world. This encompasses objects within the environment, such as calendars and diaries which support memory, and even writing and language, which are viewed as products of extended cognition. Much like Dynamical Systems Theories, Extended Cognition also depicts active, internal and external relations as equally responsible for behaviour. This approach is useful for understanding how the environment could influence behaviour, without an individual being consciously aware of it. For example, due to the coupling of individuals to their environments, environmental occurrences such as alcohol-related décor or poster promotions for soft drinks might unknowingly increase alcoholic drinking behaviour. However, much like the Two Systems Approaches, Extended

Cognition also takes a representational model of cognition, which maintains the problematic dualisms that have been outlined in Chapter 3. This makes the approach wholly incompatible with the Ecological theory.

3.5 Action-Orientated Predictive Processing

Action-Orientated Predictive Processing has since been proposed by Clark (2013) as a contemporary unified theory of perception and action. Taking this view, Bayesian theory is used as an analogy of how the brain receives information, produces an error report based on predictions and then produces behaviour. Properties of an individual are related to properties of the environment in terms of Bayesian priors, or in other words, expectations. The entire system is sensitive to incoming information, which it continually maps against expectation criteria. In terms of the Ecological view, this could suggest that when there are no discrepancies between expectations and current action opportunities, individuals automatically act upon available canonical affordances and no further cognitive mediation is required. Therefore, environmental objects are as expected and individuals have the capabilities to take up the behaviour. For example, licensed premises have unoccupied seats which allow patrons to effect sitting. When action opportunities within a particular environment are not consistent with prior expectations, individuals are motivated to change their behaviour or their expectations in order to reduce any prediction error. In this case, individuals may engage in a second-order knowing or reflexivity. For example, in *vertical drinking establishments,* patrons may actively seek out any flat surface

which will support their body weight and allow them to effect sitting. Not only does a predictive-processing approach provide implications for how affordances are created and why certain affordances are taken up (Dennett, 2013), but it also provides an insight into the mechanisms through which experiences within shared social contexts, including conventions and shared practices, lead to expectations (Paton, Skewes, Frith, & Hohwy, 2013). Importantly, this theory is consistent with ideas about direct perception, as it suggests that perception and action are motivated by reducing prediction error and selecting predictable sensory inputs from the unchanging, invariant information available in the world.

Much like the Two Systems and Dynamical Systems Theory, Action-Orientated Predictive Processing also implicates two systems, one that unconsciously processes perceptual information, automatically producing action and one reflective system which only activates when the world does not meet prior expectations. This approach also suggests that there is a complex interplay between brain, body and world, avoids the use of representations and explains how information from other perceptual systems can be used to produce behaviour. However, while perception might be action-orientated, Clark presents a problem by describing the theory as a unified theory of the mind. This suggests that cognition is an online control system, based on internal Bayesian priors (Anderson & Chemero, 2013). Not only does this theory resort back to problematic dualisms, but it remains unclear if perception is direct, or mediated by these priors, where the mind is situated, and if cognition extends out of the head.

Clark (2013) does admit the theory is limited and requires some development before being tested as a theory of behaviour. This is important, because not only does this theory help explain how affordances are constructed and taken up, but it supports the findings of the current research programme by suggesting that experiences, expectations and goals are crucial for drinking behaviour.

4. Implications for Social Cognition Models

Many of the existing social cognition models outlined in Chapter 1 assume an individual holds intentions, attitudes and beliefs, then close participants off from the world in order to illustrate that these are held by individuals. Instead of understanding the functional conditions which have led to that behaviour occurring, this involves simply naming the observed behaviour using pre-determined concepts (Barrett, 2011; Dewey & Bentley, 1949). By focusing on one part of this relationship, researchers are likely to find that these so-called cognitive structures exist, but it is not surprising when this does not lead to accurate predictions of behaviour. For example, by providing drinkers with questionnaires about their intentions to drink alcohol, researchers are likely to conclude that these intentions exist, but controlling these intentions may not prevent excessive alcohol consumption. Additionally, this might explain why there is an intention-behaviour gap that is more prominent for health-risk behaviours and why individuals continue to conduct maladaptive behaviours despite being aware of health risks (Webb & Sheeran, 2006). This is because focusing on psychological determinants largely neglects environmental determinants, when

maladaptive behaviour-conducive environments might be just as detrimental to behaviour. Additionally, nudging individuals to make better health choices may be ineffective because a focus is on internally held cognitive structures. For example, rearranging bar areas to highlight soft drinks may *nudge* patrons to purchase and consume more soft drinks. However, instead of focusing on how this changes internally-held goals to drink alcohol, researchers should focus on how action opportunities are extended or constrained by manipulating the environment in this way.

It is also important to remember that, as discussed in Chapter 2, the underlying principles of existing social cognition models and the Ecological theory are different. Therefore, they can only be compared in terms of these principles because they have different foci, ask different questions and will provide different answers. For example, many social cognition models are based upon a representational model of cognition. Therefore, intentions, goals, expectations, self-efficacy, norms and learning from experience are all believed to be internal, cognitively mediated and determine behaviour. It is not possible to simply add environmental features to existing social cognition models because, from a representational viewpoint, the environment is external, yet represented internally before influencing behaviour. In contrast, the Ecological theory views perception and action as mutually connected, without creating boundaries between internal and external processes. As perception is direct and unmediated, this theory has no need for mental representations. Instead, experiences, goals, expectations, effectivities and norms are all situated within the interplay

between brain, body and world. This does not mean that behaviour scientists and prevention researchers need to start again, as many of the social cognition models reviewed in Chapter 1 predict some variance in behaviour. Existing social cognition theories of behaviour illustrate what works from a particular viewpoint. However, this may be improved by revisiting the context that behaviour is carried out in and by favouring a position that does not separate an individual from their environment.

5. Affordances as a Global Theory of Behaviour

The author of this chapter will now use these contributions to provide the foundations for a global theory of behaviour which focuses on mutually connected individual-environment relations in terms of affordances. This proposed theory takes perception to be direct, action-orientated and individuals to be active perceivers who navigate their worlds to pick up information. Behaviour emerges from these relations in two ways. In everyday behaviour, through first-order experiences, individuals automatically and unconsciously perceive and take up many different canonical affordances for action. This involves the dynamic, soft assembly of sensorimotor systems when environmental occurrences support an action and an organism possesses the capabilities to take it up. As has been suggested by this research programme, individuals can carry out behaviours simultaneously without looking or paying attention to them, due to previous experiences and repeated coupling of these relations over time. During this every day functioning, individual differences in behaviour are based upon effectivities, including an individual's development, as well as the

intersubjective knowledge they have from experience, which includes culturally normative action opportunities and an individual's history of taking up similar affordances, or patterns of behaviour in related settings.

When every day functioning is interrupted, for example, when available affordances in an environment are not consistent with experience, an individual encounters a novel environment, or attempts to regulate their behaviour in relation to behavioural goals, individuals might engage in second-order knowing. As Heft (1997, 2003) suggested, this involves taking directly perceived information out of the continual flow between brain, body and world for further analysis. Following this, individuals can take action to manipulate the environment and improve the action opportunities available to them, adapt their behaviour by taking up non-canonical affordances, or take up affordances that are acted on by others if they are unsure of how to act. Importantly, when referring to the ongoing, unbreakable, functional nature of these relations, researchers using affordances to understand behaviour should avoid the use of linear or closed terms which relate to problematic dualisms. This includes referring to the relationship as a system, or describing top-down or bottom-up processes.

This theory does not deny internal cognitive mechanisms exist, but instead broadens existing definitions by suggesting cognition spans the entire brain, body, environment relationship. When understanding behaviour, particularly health behaviours, researchers should not look to internal cognitive systems which mediate, display and store perceptual

input. Instead, each part of the brain, body, environment relationship has equal explanatory power. When taking this view, researchers should focus on studying the affordances taken up by individuals with different effectivities, developmental capabilities, body structures and histories, in certain environments that are subject to Ecological laws. As this research programme has shown, certain affordances manifest to individuals and, as individuals take up affordances, they create meaning and use this to shape their future behaviour (Barrett, 2011). Therefore, when understanding behaviour, researchers should focus on the meaning which emerges from the transactions that individuals have with objects and other individuals within certain settings.

When taking the Ecological view, causality exists at the transactions of individuals with their environments, not in the brain. Therefore, it remains unclear what role the brain has when adopting this proposed global theory of behaviour. One solution for this has already been touched upon in Chapter 2. This suggests that, instead of determining behaviour, the brain facilitates the orientation of an individual's refined multi-modal perceptual systems for information pick-up, while maintaining the optimal conditions for individual-environment transactions (Marsh, Johnston, et al., 2009; van Dijk et al., 2008). Barrett (2011) explains how, because it is typically assumed that the brain has priority and that behaviour is determined by higher-level processing, these concepts are then internalised and are believed to guide everything that individuals do. Therefore, through many years of behaving with objects and other people in the world, it is possible

that individuals form concepts such as intentions, attitudes, norms and values. In other words, behaviour could actually precede the brain (Marsh, Johnston, et al., 2009). These ideas not only have potentially substantial implications for the underlying principles of psychology, but also for existing social cognition models which attempt to explain health behaviour using psychological determinants alone.

6. Affordances Provide a Valuable Theory of Behaviour

The Ecological regulation of alcohol consumption is a complex issue and using affordances to investigate other complex health behaviours will be challenging. Not only is it difficult using ecologically valid methods to measure relational variables within dynamic relationships, but Ecological researchers have to address a number of conceptual issues before incorporating these ideas into a research paradigm. It could be construed that, due to the relational nature of the variables of interest, the Ecological theory is no different to representational theories of cognition, because these relations also cannot be directly measured or observed. For example, it could be construed to be just as hard to disprove that perception is direct and unmediated, as it is indirect and inferential. Likewise, it is not possible to determine that subjectivity or cognition does indeed span the brain, body and environment. Therefore, the Ecological theory could also be construed to be subject to the Psychologist's Fallacy (James, 1890; Michaels & Carello, 1981), by taking mutual individual-environment relations to be both the subject of study as well as where the answers to research questions lie.

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While some of these questions cannot be fully answered by this thesis, it is important to remember that what is being presented here is another means of thinking about the world, which has been formulated from the shortcomings of existing psychological theories. The questions above only arise when taking theories of representation to be the norm. However, if the Ecological theory were to be the standard case, it remains unclear why there is a need for extra concepts, inference and mediation if all that is needed to act in the world is available in front of an individual. Likewise, if all boundaries are removed, it appears unclear why psychological processes are depicted as contained within the head, or why knowledge formed about the world is bracketed by researchers when they are attempting to understand experiences within it. Nothing presented here has been new or ground breaking, but is simply a refinement of existing theories which, once combined, can make way for new ways of understanding behaviour. These ideas do challenge the very foundations that psychology rests upon, but that does not make them any less valuable or important. Instead, researchers should welcome change and continue to question commonly accepted principles.

It is also possible that Gibson's Ecological theory might not have gained momentum because change is naturally resisted in science. Like Gibson, Kuhn (1962) made a break with traditional ways of thinking by defining scientific progress as something broken up by alternating scientific revolutions. For Kuhn, change represents qualitatively different changes to current scientific paradigms which are made up of dominant theories, beliefs

and methods. Like many of the philosophers who sought to overcome prevailing dichotomies, Kuhn also believed existing scientific progress was limited. For example, despite changes to the field, scientists continue to use familiar methods to address slightly different concepts underneath the same overarching main theory. Anomalies are removed from results and findings that do not confirm hypotheses are either explained away or not published. This echoes Gibson's (1966) concerns about psychology which led, in part, to the Ecological theory being developed. The Ecological theory may be challenging and might also be susceptible to some of these problems, but it is as adaptive as the perceivers that it portrays. This is because it attempts to challenge overarching theories in psychology and address longstanding shortcomings. At the time, Gibson's Ecological theory did not have a place in psychology, but researchers are starting to realise the value it has. It is important to remember that many great theories are often met with similar scepticism; take for example Darwin's natural selection or Einstein's theory of relativity.

Gibson's Ecological theory and affordances provide researchers with a coherent and integrated theory of perception and action. This allows researchers to produce testable hypotheses and explanations for behaviour, without needing to refer to internal representations or concepts. This approach invites psychology to re-visit the environment and bring the brain, body and world back together again, by looking beyond the individual and re-evaluating the context in which behaviour occurs. As a global theory of behaviour, these ideas could provide a more cohesive theoretical overview

for behavioural determinants for a range of health behaviours. For example, this could include e-cigarette advertisements; cigarette packaging; 'no smoking' signs; food labelling; supermarket product placement; and the uptake of community gym equipment or health programmes. This is not a simple task, as changing the environment can be difficult and a multi-faceted approach may be required for complex behaviours which take place in a range of settings. Researchers must now go on to determine if these ideas can better solve problems about how individuals perceive and act in the world than existing theories.

7. Conclusion

This research programme has illustrated how prevention efforts for maladaptive health-risk behaviours, such as alcohol misuse, may be more relevant and effective if the focus was moved from inside the head to dynamic, individual-environment transactions. The current chapter has suggested that affordances could also be viewed as a global theory of behaviour to understand a range of complex health behaviour. As new methods are being developed, researchers should move away from the laboratory and focus on understanding complex behaviours in mutual, Ecological terms. This will require psychologists to forge valuable inter-disciplinary connections with architects, biologists, geographers, physicists and philosophers in order to carry out Ecological research. More importantly, by banishing the dualisms that have previously limited scientific discovery, this work will allow the Ecological theory to become a viable contender to traditional psychological approaches of perception and

action. This paves the way for these ideas to challenge how researchers currently understand behaviour and prevent harms in society.

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APPENDICES

Appendix A: Ethical Approval Letters

Professor David Foxcroft
Director of Studies
Department of Social Work and Public Health
Faculty of Health and Life Sciences
Oxford Brookes University
Marston Road Site

OXFORD BROOKES UNIVERSITY

21 February 2012

Dear Professor Foxcroft

UREC Registration No: 120602

Environmental and contextual features that are relevant to adult drinking behaviour: a non-participant observational study in licensed premises

Thank you for your letter dated 14 February 2012 outlining your response to the points raised in my previous letter about the PhD study of your research student **Kimberley Hill,** and attaching the revised E2U form. I am pleased to inform you that, on this basis, I have given Chair's Approval for the study to begin.

The UREC approval period for this study is two years from the date of this letter, so 21 February 2014. If you need the approval to be extended please do contact me nearer the time of expiry.

In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the study in a year's time. If the study is completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

Yours sincerely

Professor Alistair Fitt
Acting Chair of the University Research Ethics Committee

cc Dr Michael Pillling, Second Supervisor – Department of Psychology
    Kimberley Hill, Research Student
    Hazel Abbott, Research Ethics Officer
    Jill Organ, Graduate Office
    Louise Wood, UREC Administrator

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Professor David Foxcroft
Director of Studies
Department of Psychology, Social Work and Public Health
Faculty of Health and Life Sciences
Oxford Brookes University
Marston Road Site

OXFORD BROOKES UNIVERSITY

7 November 2012

Dear Professor Foxcroft

UREC Registration No: 120660

Environmental and contextual features that are relevant to adult drinking behaviour: photo-elicitation interviews and Q-Methodology

Thank you for the email of 17 October outlining the response to the points raised in my previous letter about the PhD study of your research student **Kimberley Hill,** and attaching the revised documents. I am pleased to inform you that, on this basis, I have given Chair's Approval for the study to begin.

The UREC approval period for this study is two years from the date of this letter, so 7 November 2014. If you need the approval to be extended please do contact me nearer the time of expiry.

In order to monitor studies approved by the University Research Ethics Committee, we will ask you to provide a (very brief) report on the conduct and conclusions of the study in a year's time. If the study is completed in less than a year, could you please contact me and I will send you the appropriate guidelines for the report.

Yours sincerely

Hazel Abbott

Chair of the University Research Ethics Committee

cc   Michael Pilling, Second Supervisor
     Kimberley Hill, Research Student
     Jill Organ, Graduate Office
     Louise Wood, UREC Administrator

Appendix B: Study 1 - Observation Coding Sheet

(Filled out as affordances and behaviour are observed)

Establishment Characteristics   *(completed before entry if possible)*

Type: *(circle)*   Public House   Bar   Nightclub

Other:…………………………..

Location:………………………………..

Location Type: *(circle all that apply)*   Village   Town   City

Layout: *(circle all that are applicable)*   Tables   Chairs   Ledges

                        Dancefloor   Games   Other:…………..

Date of Visit: ……………   Time of Visit:………………

Visit Number:……………

Number of bars:……………   Number of Visible bar staff:…………

Patron Characteristics

Mean age of patrons…………………………

Rough Gender ratio:………………………….

Capacity: *(if known)*……………   Rough Patron Estimate:………

Environmental and Contextual Features

External Entrance-Level Affordances and Behaviour: *(i.e. accessible to all, visible*

security, ID shown, cost of drinks, queue, advertisements, lights, and promoters outside of venue / many patrons

entering and exiting? security behaviour, behaviour of individuals showing ID, behaviour of paying patrons,

behaviour of queuing patrons, behaviour of promoters)
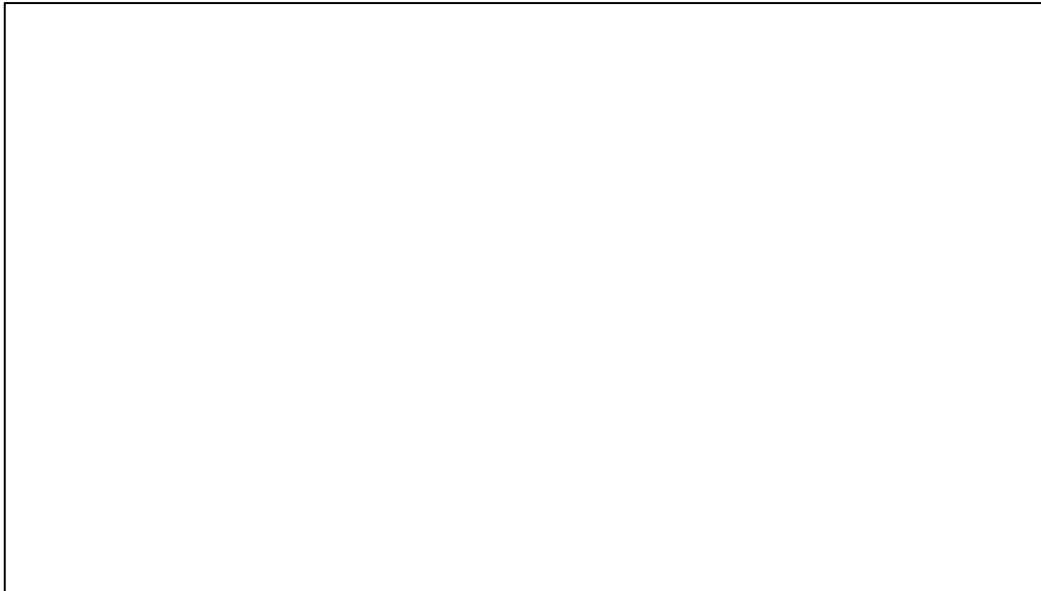
Internal Bar-Level Affordances and Behaviour: *(i.e. serving practices (upselling,*

promoting or discouraging drinking), number of bar staff, rate of service, pricing, promotions (alcohol or non-

alcoholic), food, how busy bar is/ snacks available, drinking behaviour of those being served and standing at the

bar, behaviour of bar staff towards those who appear intoxicated/ policies in place etc.)

Internal Environmental-Level Affordances and Behaviour: *(i.e. loud music, area for*

dancing, tables and chairs, menus, serving staff away from bar area, monitoring staff, visible security,

temperature, crowding, noise levels, cleanliness, ventilation and lighting, drinking behaviour of dancers, drinking

behaviour of those seated, menus, drinking behaviours of those approached by serving staff away from the bar

area, intoxication levels of patrons, how many drinks patrons had at once or at closing times.)

Promotional-Level Affordances and Behaviour: *(add the observed effect of these on*

drinking behaviour)

(circle) Yes No If 'Yes' Type: *(circle)* Food Drink Other*:……*

(Add here a description of all affordances linked to promotions)
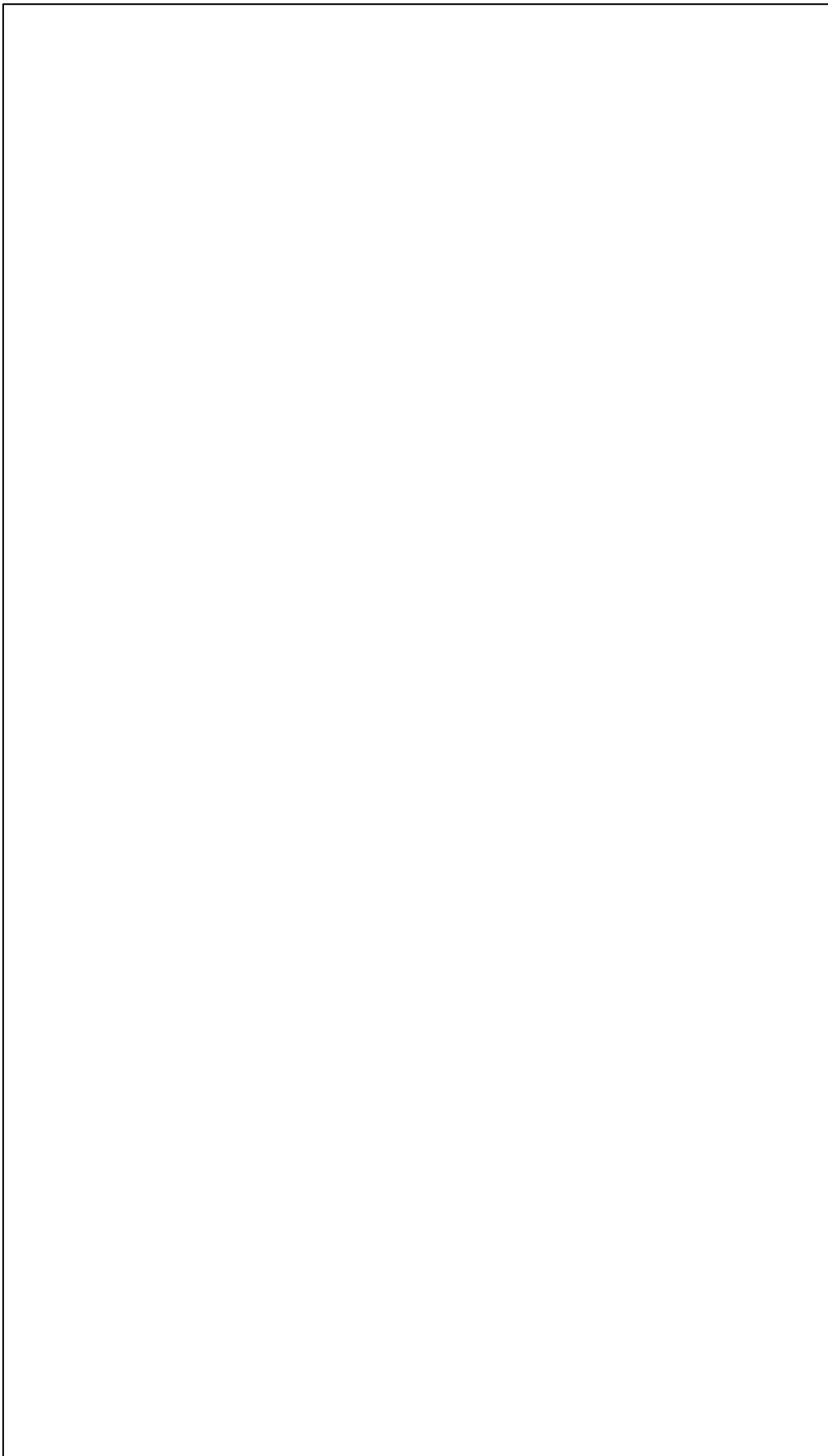
Entertainment-Level Affordances and Behaviour: (*add the observed effect of this on*

drinking behaviour)

 (circle)   Yes   No, If 'Yes' Type: *(circle)* Games   Sport Music Other:……...

(Add here a description of all affordances linked to entertainment (e.g. televisions with sport, pool tables, music

type, dance floor etc…)

Further comments:

Rough Sketch of Environment:

Appendix C: Study 2 - Photo-Elicitation Interview Example

Example Instructions: "This study is focusing on opportunities for drinking alcohol that are and are not present in licensed premises, based on aspects of the environment and how it is organised.

This is an example here, so for each photograph, I will ask you to explain to me firstly what you can see. You might say here it looks like the restaurant

area of a public house, with tables and chairs, all laid out for food, with cutlery, placemats, wine glasses and menus. This is the form of the photo.

Next, I will ask you about the function this has for your drinking behaviour. I will ask you to please talk me through any aspects of the environment, or the arrangement of the environment that are meaningful to your drinking behaviour. Please focus on any opportunities for drinking more or less alcohol based on your experiences of being in similar environments. For instance, you could say if you were to walk into this premise you might take a seat and pick up the menu to order some food, but because there are wine glasses on the table, there is an opportunity for you to drink and you will be more likely to have a drink with your meal. In contrast, you could say that, although the glasses provide you with the opportunity to drink, this would not affect your consumption as you do not generally drink with a meal. You can move around the photographs like this and zoom in or out by panning like this.

At the end of the interview I will also ask you if there are any aspects that are important to your drinking behaviour which were not represented by these photographs. It would be helpful if you could think of these as we are going through the photographs."

Appendix D: Study 3 - Q-Methodology List of Statements

1. I tend to drink more alcohol in licensed premises that are open later.

2. How late a licensed premise stays open has no effect on how much alcohol I drink.

3. I drink more alcohol if the bar is busy, because I buy more drinks at once in case I cannot get to the bar again.

4. How easily I can access the bar and order a drink has no effect on how much alcohol I drink.

5. I drink less alcohol if I am not allowed to drink in certain areas, such as outside or on the dance floor.

6. I do not tend to notice when drinks are not allowed in certain areas, such as outside or on the dance floor, so this does not affect my drinking behaviour.

7. I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.

8. I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour.

9. When the bar staff try to sell me drinks I often accept the offer, even if it is for more alcohol than I wanted.

10. I refuse to be influenced by the bar staff when they are trying to sell me drinks, so they have no effect on my drinking behaviour.

11. I feel embarrassed ordering soft drinks, because the bar staff might judge me and respond negatively to my order.

12. I am not affected by the reaction of the bar staff to my drinks order, so I will order what I want to drink.

13. I tend to order alcohol instead of soft drinks in licensed premises, because there are always more promotions and discounted prices on display for alcohol than soft drinks.

14. I do not feel inclined to have to buy discounted or promoted drinks and would ask about prices for other types of drinks, including soft drinks.

15. I order alcohol because I notice it first at the top of the bar and soft drinks are often hidden underneath in the fridges.

16. Where certain drinks are positioned behind the bar has no effect on what I order, because if I cannot see something I want I will ask for it.

17. I drink less when having a meal because I have to put my drink down to eat.

18. Eating a meal has no effect on my drinking behaviour.

19. When buying multiple drinks at once I drink them more quickly than I would normally, because I cannot hold all of them at the same time.

20. Buying many drinks at once does not affect how quickly I drink them, because I will find somewhere to put them down and will drink them at a normal pace.

21. I drink more when small glasses or bottles are unavailable, because I feel like I have to increase the size of my drink.

22. The limited availability of small glasses or bottles would not affect my drinking behaviour, because I would not increase the size of my drink or I would change my order.

23. I drink less in licensed premises with cutlery on the tables, because it feels like an eating environment and I would not want people drinking heavily near me while I was eating.

24. Having cutlery on the tables or people eating around me would have no effect on my drinking behaviour.

25. I tend to drink more alcohol when listening to music.

26. Listening to music has no effect on how much alcohol I drink.

27. I drink more in licensed premises with loud music or sports features, because it is too loud to talk.

28. Whether I can talk in a licensed premise has no effect on how much I drink.

29. I drink less when I dance because it is difficult to hold my drink and dance at the same time.

30. Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.

31. I drink less when playing on games machines, because it is something else to do other than drinking.

32. Playing on games machines has no effect on my drinking behaviour, because I will typically not drink at all or my friends would buy me drinks and I will drink while playing.

33. I tend to buy a drink so I can use the change to go on games machines.

34. I only go on games machines if I already have change and would not buy a drink especially to go on them.

35. I drink more when playing pool or darts, because I buy a drink to accompany my game.

36. Playing pool or darts games does not affect my drinking behaviour.

37. I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.

38. Having to hold my drink does not affect how quickly I drink from it.

39. I tend to drink rather than eat on higher, narrow tables, because there is only enough room to put drinks down and not enough room to comfortably eat on them.

40. The height of the tables in licensed premises has no effect on my drinking behaviour.

41. I drink less when I can put my drink down safely on a nearby table or ledge, because I can take my time to drink it.

42. Putting my drink down safely on a nearby table or ledge has no effect on my drinking behaviour.

43. I drink less alcohol when there is nowhere to sit down and I have to stand.

44. Having to stand when there are no available seats does not affect how much alcohol I drink.

45. I drink more alcohol when the furniture is arranged in a 'sociable' manner and everybody is facing each other.

46. The layout of the furniture in a licensed premise has no effect on my drinking behaviour.

47. I drink less alcohol if I am assigned a table to sit on and there is table service, because it appears more strict and orderly.

48. Table service has no effect on my drinking behaviour.

49. Dim lighting in pubs, bars and nightclubs makes me drink more alcohol, because it seems like night time.

50. Dimly lit pubs, bars and nightclubs have no effect on my drinking behaviour.

51. In darker licensed premises the bar is always brightly lit, so it is easy to find.

52. My drinking behaviour is not affected by how well-lit and easy to find the bar is.

53. I drink less alcohol when watching television, because it distracts me from drinking.

54. Watching television has no effect on how much alcohol I drink.

55. I often buy drinks from promotions when they look interesting, like cocktails in teapots or fishbowls.

56. I tend to only order drinks that I like, so promotions for interesting looking drinks tend to have no effect on my drinking behaviour.

57. Alcohol branding and images are everywhere in pubs, bars and nightclubs and make me want to drink more.

58. Alcohol branding and images within pubs, bars and nightclubs have no effect on my drinking behaviour.

59. I am more likely to buy a drink when the promotions are advertised near the bar area, than if they are elsewhere.

60. The location of advertisements and drinks promotions has no effect on how likely I am to buy them.

GLOSSARY OF TERMS

A

Affordance – A construct coined by Gibson to represent opportunities for action that can be taken up in an environment by an individual.

Alcohol-Related Affordances – Action opportunities which are related to the consumption of alcohol.

Ambient Optic Array – The structure or arrangement of light from a point of observation.

Artefacts – A product of human manipulation that is more prominent for the members of the culture where the object is from.

B

Behaviourism – Psychological approach which focuses on understanding behaviour in terms of observable responses or behavioural outcomes made by the body to external, environmental stimuli.

Bracketing – A method often used in qualitative research to set aside all existing knowledge, biases or beliefs related to the phenomenon of study.

C

Canonical Affordances – These are the direct, conventional and normative uses of objects within certain contexts.

Cognition – Typically defined as mental processes, including an individual's values, attitudes, expectancies and intentions. In Ecological

terms, cognition is not contained within the head, but spans the entire individual-environment system.

Cognitive Neuroscience – A branch of psychology concerned with brain functioning and how internal memory structures, such as patterns of neural firing, are related to perception and action in the world.

Cognitive Psychology – This is concerned with cognitive processes and the physiological underpinnings of behaviour.

Concourse – The communication surrounding a topic in everyday discourse which represents the opinion held by a range of different individuals.

Constructivism – An approach which takes knowledge to be constructed. For example, if perception is taken to be impoverished, a perceiver can only understand the world by combining individually meaningless sensations within the brain.

D

Direct perception – An approach presented by Gibson which reflects the direct and unmediated perception of information about the world through experience.

Dispositions – Properties of individuals or their environments.

Double Hermeneutic – A method of interpretation which requires the researcher to make sense of a participant's experience, as the participant is making sense of it.

Dualism – The separation of two parts, for example, the psychological and the physical.

E

Ecological Laws – Also defined as natural laws, these are the conditions which hold light patterns in place, or the physical conditions required for an affordance.

Ecological Optics – Defined by Gibson as the study of the interaction between light and objects in the world.

Ecological Psychology – A branch of psychology associated with Gibson and his followers, which focuses on direct perception and affordances.

Ecological Validity – This refers to how generalisable the findings of a research study are to real-world occurrences.

Econiche – Aspects of the environment which have significance for a particular culture.

Effectivity – An individual's capability to take up an available action opportunity.

Embodied, Embedded Cognition (EEC) – An approach to cognition which focuses on how the brain is embodied within the body and the body is embedded within a physical and social world.

Environmental Determinants – Attributing causes of behaviour to the environment.

Epistemology – The study and theory of knowledge.

Establishment Theory – A terms used by Fodor and Pylyshyn to describe the traditional representational, information-processing approach to cognition.

Ethnography – The scientific study of others within a particular culture or setting, with a focus on behaviour, social norms and customs.

Existential Phenomenology – An approach associated with Merleau-Ponty which focuses on an individual's experience at a certain place and time.

Explained Variance – This is often used to illustrate the explanatory power of a theory. For example, the efficacy of many social cognition models is based on effect size, or proportion of variance that the model explains in behaviour.

F

First-Order – A person's immediate experience of perceiving what is directly in front of them.

Form-Based Taxonomy – Often refers to the name of something, instead of the meaning or function that it has for an individual.

Functionalism – A branch of psychology concerned with the holistic function of events.

Functional Significance – This term is used to describe the meaning that an object in the world has for the behaviour of an individual.

Functional Taxonomy – A way of categorising the environment that highlights the functional significance it has for an individual.

G

Gestalt – A branch of psychology concerned with whole events or patterns.

H

Homogenous Sampling – This is a purposeful sampling strategy, whereby participants with similar demographics or experiences are selected to take part in a study.

Hypothetico-Deductive – This relates to the method of testing hypotheses, to determine whether they are false or can be supported.

I

Idealism – A school of thought which suggests perceived objects are only a product of the mind and the world is mentally created.

Idiographic – A process of analysis whereby the investigator initially analyses the value of every case in its own terms.

Indirect Perception – Typically, perception is believed to be indirect, representational and requires mediation. The Ecological approach suggests that perception is direct, non-representational and unmediated.

Inferential – A process involving inference.

Information – Typically, information is believed to be located in the mind, manipulated and transformed by mental processes. The Ecological approach suggests that information is available in environment to be picked up by a perceiver.

Information Processing – Typically defined as the process of perceiving, processing and storing information about the world, in order to produce a response.

Interaction – A term often used in physical science to illustrate how elements in a relationship can be broken down into fixed, independent parts.

Interpretative Phenomenological Analysis – A method of analysis associated with Smith and colleagues, which allows for an investigation into how individuals understand their personal and social world.

Intersubjective Knowledge – This describes knowledge about the world which is formed through experience and shared among others.

Invariant Information – Persisting or invariant information of the ambient optic array which is specific to an environmental feature

N

Naturalisation – Observing subjects in their natural environment with no outside influence.

Network of relations – This phrase reflects the layout of affordances in an environment.

Non-Canonical Affordances – These are unconventional opportunities for action that are often taken out of the perceptual flow for further inspection.

O

Objective – Typically taken to represent facts about the world which are unaffected by subjective feelings or opinions. The Ecological theory

suggests that full objectivity is not attainable because objects have meaning for individuals.

Occurrence – An event or existence of an object in the world under certain conditions.

Ontology – Concerned with the nature of existence.

Operant Subjectivity – Spontaneously emerging subjectivity which can be systematically analysed in a Q-Methodology study.

Optic Flow – A term introduced by Gibson to reflect the motion of perceived objects and surfaces as a perceiver navigates their world.

Outlet Density – This reflects the concentration of licensed premises in one area.

P

P-Set – This is the sample of participants in a Q-Methodology study.

Percept – A thing that is perceived.

Perceptual Errors – The misperception of the environment or an object within it.

Perceptual Systems – An individual's multi-modal sensory and motor systems which pick up a range of information about the world.

Phenomenology – An approach which focuses on direct experience as the source of all knowledge.

Phenomenological Reduction – A term used to describe the process of bracketing oneself from preconceptions, in order to perceive an experience without interference.

Photo Elicitation Interview – An interview tool often used to explore the meaning that participants place on certain events or environments. Participants are often asked questions about each photograph or asked to describe what a series of photographs mean to them.

Point-of-Sale – The place where items can be purchased.

Positivist – Knowledge obtained from observable experience, often associated with the physical sciences.

Pragmatism – A branch of philosophy which relates to a logical way of solving problems.

Pre-Loading – The process of consuming large quantities of alcohol before visiting premises.

Priming – An increased sensitivity to certain stimuli, based on prior experience or exposure to a related stimulus. For example, visual objects are more quickly perceived if individuals have already been exposed to them.

Psychological Determinants – Attributing causes of behaviour to internal, brain-based processes.

Psychologist's Fallacy – The phenomenon whereby a researcher conflates their own standpoint with that of the subject they are researching.

Pub-Hopping – Moving from one licensed premise to another in short space of time.

Q

Q-Methodology – A research tool associated with Stephenson which allows researchers to use pre-defined structures to uncover and display subjectivity around a topic.

Q-Set – A representative miniature version of the concourse, often presented as a set of statements in a Q-Methodology study.

Quali-quantological – A hybrid of qualitative and quantitative research methods.

R

Realism – An interest in the real world, as opposed to abstract constructs.

Relational – The way in which two or more things are connected, for example, an individual to their environment.

Representationalism – An assumption in psychology, whereby an understanding of the real world is only obtained through the manipulation of internal mental representations which correspond to the external world.

Representations – Used to describe internal entities which carry representational content, or internal brain-based patterns of activity.

S

Second-Order – Experiences which involve reflexivity, perceiving notions, ideas and concepts, or knowing. This could also be when individuals

consider taking up alternative action opportunities, such as non-canonical affordances.

Situated – Something which exists at the relation of an individual to their world.

Social Affordances – Affordances related to social behaviours.

Social Cognition Models – These models are used to understand how cognitive processes lead individuals to carry out certain social behaviours.

Specificity – The Ecological properties of an environmental object that are uniquely related to a perceiver through invariant light patterns.

Stratification by Gender – A purposeful sampling strategy which ensures that an identical number of male and female participants take part in a study.

Structuralism – An approach which focuses on breaking down the unobservable, internal, subjective mental workings of the brain.

Subjectivism – An approach which takes mental activity to be the only true fact of experience.

Subjectivity – Typically used to describe the experiences, beliefs and desires of an individual. Re-defined in this research project as something not hidden and internal, but situated within and accessible at the relation of an individual to their world.

T

Transaction – A term used to describe the complete, ongoing process of connected things and events in the world.

Two Minds Problem – A philosophical issue, whereby two individuals directly viewing the same object view the exact same information at the same time. This is incompatible with the Ecological theory, as what is perceived is unique to an observer.

U

Upselling Techniques – These techniques are often used in the consumer industry to increase sales. For example, this might include offering a customer a larger size of an item that they have ordered, or suggesting another item to go with an order.

V

Variance Design – This is the theoretical-based structure which is applied to a Q-Methodology concourse.

Variant Information – Changing perspective information in a visual scene.

Vertical Drinking Establishment – This term is used to describe drinking environments with no furniture, whereby patrons have to stand. These premises often have limited alternative opportunities for action than drinking.