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DOI: <https://doi.org/10.1080/09687637.2017.1284762>

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## Alcohol-related affordances and group subjectivities: A Q-Methodology study

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### Abstract

**Aims:** An Ecological approach to alcohol behaviour focuses on understanding individual–environment transactions, rather than on cognitive antecedents of behaviour. Meaning exists in the interdependence of individuals and their environments, in terms of affordances. Through subjective experience, this study focussed on group viewpoints related to alcohol-related affordances, or opportunities to consume alcohol in shared drinking environments. **Methods:** Forty students with a range of self-reported drinking behaviours participated in a Q-Methodology study, ranking 60 statements along a symmetrical grid. This varied concourse of alcohol-related affordances was obtained from a previous observation study within licenced premises and a photo-elicitation interview study with drinkers. **Findings:** Factor analysis and post-sort interviews revealed four subjective perspectives held by groups about their drinking behaviour: 13 participants were aware of contextual influences, but autonomous in their drinking choices; 12 participants were conscious of influences and compliant to their effects; six participants were unaware of influences, but unanimous with their peers; two participants were concerned about acting appropriately in a context by taking up canonical affordances. **Conclusions:** Grouping subjectivities from a varied concourse of affordances can reveal subjective experience in relation to drinking environments and alcohol behaviour. This conceptual approach for understanding drinking behaviour should be studied further.

### Keywords

Alcohol, addiction, drinking behaviour, peer context, prevention, student, young people, environment, affordance, Q-Methodology

### History

Received 30 May 2016  
Revised 26 November 2016  
Accepted 17 January 2017

### Introduction

Excessive alcohol consumption is harmful to long-term health and has become a major health concern for young people who are most at risk of alcohol related harm (Anderson, Møller, & Galea, 2012; Office for National Statistics, 2014). Prevention efforts have long focussed on moderating the cognitive determinants of consumption behaviour – such as the underlying belief structures, attitudes or intentions – in order to understand the factors involved in an individual's decision to carry out maladaptive, health risk behaviours. A number of mainstream theories, including the Theory of Reasoned Action and Planned Behaviour (Ajzen, 1985), The Theory of Triadic Influence (Flay & Petraitis, 1994) and associated prevention approaches have been found to be lacking, in terms of methods, causality and predictive validity (Michie & Abraham, 2004; Sniehotta, Pesseau, & Araújo-

Soares, 2014; Webb & Sheeran, 2006). These approaches are also limited when it comes to explaining why individuals continue to engage in irrational, non-volitional and unplanned health risk behaviours, such as alcohol misuse.

Dominant approaches for understanding and explaining excessive drinking behaviour might be inadequate because they typically focus on only one part of the puzzle, by trying to identify the specifying cognitive processes (e.g. intentions, beliefs) as antecedents of behaviour. However, changing or moderating intentions in isolation, without accounting for the contexts in which the behaviour is conducted, is unlikely to effectively change behaviour. An alternative position which could be useful to the prevention field is the idea that opportunities for action within certain contexts may largely determine behaviour.

The idea that behaviour might be produced, extended or constrained according to the contexts in which it manifests provides an alternative functional perspective or starting point for behaviour research. Although few studies have built on these ideas to understand health behaviours, some evidence suggests that these ideas could be potentially valuable for prevention. For example, a previous non-participant observational study (Hill, 2014) has illustrated how Gibson's (1979) affordance construct can be used to describe a range of drinking environments by the functional opportunities for action ascribed to environmental characteristics, based on the subjective perspective of an independent observer.

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A subsequent photo-elicitation interview study (Hill, 2014) has also explored the individual subjectivity which exists at the mutuality of drinkers and their drinking environments. Interpretative phenomenological analysis (Smith, Flowers, & Larkin, 2009) was used to access first person drinking experiences and the subjectivity which reflects individual–environment relations. Within this study, participants described available opportunities for consuming alcohol that were and were not present in a range of drinking environments. Individual drinkers highlighted similar functional properties of these environments (affordances) as being related to their alcohol behaviour. This included: bar access, regulations and premise location; social influence from other patrons; sales techniques used by staff; food availability and accessories; entertainment features to dance, listen to or play on; furniture to sit on or put drinks onto; and also lighting, advertisements, promotions, and decor.

Affordances are opportunities for action that can be taken up by individuals within a certain environment (Gibson, 1979; Prieske, Withagen, Smith, & Zaal, 2015; Rietveld & Kiverstein, 2014). They are unique because they account for aspects of both the environment and those within it, therefore, reflecting the interdependence of an individual to their environment. For example, while a chair may provide individuals of a certain height with flexible limbs the opportunity to sit, it would not provide the same opportunity for action for others without these properties. While Gibson's (1979) original theory did not specifically incorporate the social nature of human behaviour, affordances are inherently social. For example, a chair can also be stood upon, but this action opportunity would only be taken up if the behaviour was deemed to be culturally normative in that specific context. A small number of studies have also suggested that using affordances to investigate individual–environment relations can reveal predictable social action (Marsh, Richardson, & Schmidt, 2009; Townshend & Roberts, 2013). Therefore, such an approach could be useful in explaining the emergence of social action, with implications for preventing health-risk behaviour such as alcohol misuse.

Affordances are directly perceived and have meaning for individuals. This meaning exists in the interdependence of an individual and their environment (Costall, 2001, 2012). When understanding behaviour, the focus is then moved from inside the head to these direct and unmediated relations. The existing dichotomies between internal–external, physical–psychological and objective–subjective are no longer appropriate, as each becomes mutually connected. Therefore, subjectivity is no longer something which is hidden and internal, but is situated and accessible in the relation of an individual to their world. Subjectivity therefore provides researchers with a window into individual drinking experiences, as opportunities for action are taken up by the body and exist through the relationship an individual has with their physical and social environment.

If subjectivity is accessible within the relationship between an individual and their environment, then it must also be present between the transactions of groups of individuals and their environments. For example, individuals act upon canonical, or conventional, meanings of an affordance, based on their history

of experiencing the culturally normative uses of an object in similar contexts (Costall, 2012). 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. As individual drinkers share their drinking environments, groups of individuals carrying out similar behaviours in shared environments may share some form of awareness (Reed, 1990). This shared subjectivity is often referred to as *intersubjectivity* or social knowing and reflects a combined meaning and social knowledge of others (Gallagher, 2005; Good, 2007). Some Q-Methodology work has focussed on the intersubjectivity of social knowing, or accounts of shared experiences. For example, Q-Methodology has been used to understand patient experiences (Wright et al., 2015) and adolescent alcohol consumption (Scott, Baker, Shucksmith, & Kaner, 2014). Therefore, an understanding of drinking contexts and related behaviour could arise from exploring this type of shared awareness.

Q-Methodology (“Q”) was developed by Stephenson (1953) in order to systematically measure subjectivity, or group perspectives on a topic. Despite having a wide ranging application, Q is relatively under-used, but provides a powerful, theoretically grounded approach that can examine consensus and disagreement among members of a group (Watts & Stenner, 2012). In terms of subjectivity, Q is used to identify shared points of view, or patterns of subjectivity in human perceptions and behaviours (Stephenson, 1953). Subjectivity can be systematically analysed as it is communicated operantly, spontaneously emerging as participants sort statements to construct meaning (Brown, 2002; Stephenson, 1953). Q is unique, 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. As Q is qualitative, it sits in the middle of a qualitative–quantitative continuum and can be considered as involving a hybrid of research methods (McKeown & Thomas, 1988; Ramlo & Newman, 2011).

The current study used Q-Methodology to explore patterns of subjectivity that exist within individual–environment relations and between groups of individuals. A focus was on group viewpoints related to alcohol-related affordances, or opportunities to consume alcohol in shared drinking environments.

## Methods

Q-Methodology requires participants to rank a set of statements (the Q-Set) using a fixed ranking technique. This allows participants to express their viewpoint on the statements available in the study.

### The Q-set

The Q-set is a miniature version of the concourse, or degree of communication which surrounds a topic. In the current study, two research-based sources were used to represent both individual and group perspectives related to alcohol-related affordances. These were identified from the final observational categories and main interview themes in two previous studies (Hill, 2014). In this previous research, a saturation point was reached in terms of data obtained, suggesting that

				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.							
				54. Watching television has no effect on how much alcohol I drink.							
		60. The location of advertisements and drinks promotions has no effect on how likely I am to buy them.		44. Having to stand when there are no available seats does not affect how much alcohol I drink.		51. In darker licensed premises the bar is always brightly lit, so it is easy to find.					
		59. I am more likely to buy a drink when the promotions are advertised near the bar area, than if they are elsewhere.		40. The height of the tables in licensed premises has no effect on my drinking behaviour.		46. The layout of the furniture in a licensed premise has no effect on my drinking behaviour.					
		58. Alcohol branding and images within pubs, bars and nightclubs have no effect on my drinking behaviour.		53. I drink less alcohol when watching television, because it distracts me from drinking.		27. I drink more in licensed premises with loud music or sports features, because it is too loud to talk.		35. I drink more when playing pool or darts, because I buy a drink to accompany my game.			
				48. Table service has no effect on my drinking behaviour.							
		55. I often buy drinks from promotions when they look interesting, like cocktails in teapots or fishbowls.		52. My drinking behaviour is not affected by how well-lit and easy to find the bar is.		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		17. I drink less when having a meal because I have to put my drink down to eat.			
				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.		42. Putting my drink down safely on a nearby table or ledge has 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.			
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.		49. Dim lighting in pubs, bars and nightclubs makes me drink more alcohol, because it seems like night time.		45. I drink more alcohol when the furniture is arranged in a 'sociable' manner and everybody is facing each other.		34. I only go on games machines if I already have change and would not buy a drink especially to go on them.		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.		31. I drink less when playing on games machines, because it is something else to do other than drinking.	
		30. Dancing to music has no effect on my drinking behaviour, for example I can drink while dancing.		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.		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.		28. Whether I can talk in a licensed premise has no effect on how much I drink.		8. I will drink what and when I want to, so influence from my friends has no effect on my drinking behaviour	
				21. I drink more when small glasses or bottles are unavailable, because I feel like I have to increase the size of my drink.		24. Having cutlery on the tables or people eating around me would have no effect on my drinking behaviour.		29. I drink less when I dance because it is difficult to hold my drink and dance at the same time.			
37. I drink more quickly when I have to hold my drink because I automatically sip from my glass when I am holding it.		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.		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.		36. Playing pool or darts games does not affect my drinking behaviour.		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.		7. I drink more alcohol when I am with a group of friends, because they expect me to have a drink at all times.	
				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.		18. Eating a meal has 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.		38. Having to hold my drink does not affect how quickly I drink from it.	
25. I tend to drink more alcohol when listening to music.		1. I tend to drink more alcohol in licensed premises that are open later.		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.		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.		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.		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.	
				4. How easily I can access the bar and order a drink has no effect on how much alcohol I drink.		2. How late a licensed premise stays open has no effect on how much alcohol I drink.		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.		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.	
										26. Listening to music has no effect on how much alcohol I drink.	
+5		+4		+3		+2		+1		0	
										-1	
										-2	
										-3	
										-4	
										-5	

Figure 1. Factor array for Factor 1.

data were reflective of the wider concourse of perspectives regarding the functional significance of different drinking environments.

To represent the range of opinion from these previous two studies, the Q-set for the current study was structured using theory-based principles from Fisher's (1937) variance design. Alcohol-related affordances identified by both studies were

grouped together by their function for drinking behaviour (i.e. having an effect/no effect on consumption). The researcher then selected statements for inclusion in the final Q-set by removing duplicates and condensing the set of over a hundred statements to the final set of 60 statements (see Figure 1). The resultant structure involved 10 affordances, with two behavioural levels and four occurrence statements, ensuring

coverage of all alcohol-related affordances identified in the previous two studies.

Each statement covered a distinct affordance for behaviour within a drinking environment, based on the occurrence and effect on consumption. 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 had the most statements and, in previous research, it was concluded that some of these occurrences may also afford purchasing (Hill, 2014). This affordance factor was split into two: view-able and view-able/purchase-able.

### Participants

A convenience sample of 40 Health and Life Science students from Oxford Brookes University was obtained using the University Research Participant Panel. This included 20 males and 20 females aged 18–33 years who socialised in licenced premises. Participants were asked to self-report which drinking type best represented their behaviour on a typical night out from the response sheet (light, moderate or heavy). Participants had a wide range of self-reported drinking behaviours, with two non-drinkers, seven light drinkers, five light–moderate drinkers, 20 moderate drinkers and six moderate–heavy drinkers.

### Ethical approval

This study had full research approval from the Oxford Brookes University Research Ethics Committee (UREC) No. 120660.

### Materials

Participants received a set of randomly numbered cards, on which the Q-items were printed, a Q-Methodology grid (see Figure 1) and a response sheet to record their Q-sort rankings, age, gender and self-reported drinking behaviour.

### Procedure

Participants were asked to read each statement carefully and preliminarily sort each statement into one of three boxed labelled “agree”, “disagree” or “neutral”, based on the *condition of instruction*. As they were reading each statement, participants were asked to think about their recent experiences of consuming alcohol within licenced premises and whether they agreed, disagreed, or were unsure and/or ambivalent that the statement reflected how they would behave.

For the final sort, participants ranked the statements on the bipolar, quasi-normal distributed Q Methodology grid, which ranged from –5 (strongly disagree) to +5 (strongly agree). As this was a fixed distribution task, participants were asked to adhere to the distribution provided by placing only one statement into each position on the grid. Participants then recorded statement positions onto the response sheet provided. During the post-sort interviews, participants were asked about statements placed at the extreme ends of the grid;

those that stood out for them; those that were easier and harder to sort; and where they thought their neutral area was on the grid.

### Analysis

The Q-Methodology analysis involved factor analysis, correlation, factor rotation and the calculation of factor scores, which allowed the researcher to investigate how participants' viewpoints clustered together, based on how they sorted the Q-Set. PQ Method software (Schmolck & Atkinson, 1992) was used to categorise participants with similar points of view onto factors, as well as revealing consensus or disagreement among the different viewpoints.

Brown's (1986) centroid method of factor analysis was used to extract the factors and categorise participants with similar viewpoints into factors. Factors were retained when they explained a high amount of variance, had eigenvalues over 1.00 and at least two significant factor loadings at the 0.01 level. This satisfied the commonly accepted Kaiser–Guttman criterion and Humphrey's rule for factor significance (Brown, 1980). A four factor solution explained 47% of statistical variance. The correlation matrix indicated that most of the factors did not correlate well, which suggested that most of the factors represented separate clusters of group subjectivities, or perspectives (Brown, 1986).

Varimax rotation was then used to increase the correlation of each participant's Q-sort onto a factor. PQ Method software then flagged Q-sorts which were significantly highly correlated with each factor and this was adjusted to include only clean loadings of 0.43 significance or higher, using:  $SE = 1/(\sqrt{N})$ , whereby SE represents the standard error and  $N$  represents the number of statements in the Q-set. Pure factor loadings, or factor exemplars, included participants who had significant loadings above 0.43 on only one of the four factors.

PQ Method then created four sets of normalised z-scores for each factor, each containing all of the 60 statements in rank order. This was used to create a representative Q-sort grid for each factor, ranging from –5 (strongly disagree) to +5 (strongly agree) and represented a hypothetical sort for an individual who would fully load upon that factor. Factor arrays depicted the column positions of statements within this representative Q-sort grid and Figure 1 illustrates the factor array for viewpoint 1, for each of the 60 items.

The post-sort interviews were recorded and these qualitative data were used in-line with the statistical output, in order to further understand the rationale for participants' placement of statements and the meaning that each factor had for participants. Interview transcripts were divided into the four factor categories, then transcripts of significant factor loaders were searched for instances where participants discussed distinguishing statements. Similarities and differences in responses to these statements were then identified. A selection of these statements from the interviews was then presented with the quantitative data and the distinguishing statements.

The z-scores, factor arrays, distinguishing statements and qualitative interview data helped to interpret, and name the

four factors. For each factor, particular attention was given to the statements that received the highest positive and negative *z*-scores, as these represented the *most agree* and *most disagree* side of the grid, respectively. The resultant findings were also reviewed by a Q-Methodology expert and the quotes presented below were extracted from the post-sort interviews of exemplar sorts.

## Results

### Viewpoint 1: conscious and compliant

Twelve participants had significant positive loadings onto Factor 1, including 11 females and one male participant, aged 18–23. This included participants with a range of self-reported drinking behaviours, including three light drinkers, one light–moderate drinker, five moderate drinkers and three moderate–heavy drinkers.

Based on the Q-sorts, individuals significantly loading onto this factor strongly agreed that they are not influenced by bar staff (communicate-with-ability, Statement 12), but that they drink more alcohol when having to hold their drink (put-on-ability, Statement 37), listening to music (listen-to-ability, Statement 25) and when access to alcohol is improved by longer opening hours (access-ability, Statement 1).

In the post-sort interviews, those significantly loading onto Factor 1 spoke about being aware of how their relationship with their drinking context increases their alcohol consumption. For example, most believed not being able to put their drink down increased consumption:

“I notice that if I have a drink in my hand the straws always in my mouth, you know I can’t stop. . . I wanna finish it more quickly. . . I will just drink it in one second.” *Female aged 20, self-reported moderate drinker*

“You’re automatically drinking it. . . you’d go through drinks really quite fast.” *Female aged 20, self-reported moderate drinker.*

Many spoke about how loud music inhibited other opportunities for action:

“I drink more in licensed premises with loud music because it is too loud to talk.” *Female aged 20, self-reported moderate drinker.*

Participants agreed that dancing to music does not influence their behaviour, as they could easily effect drinking and dancing at the same time (dance-to-ability, Statement 30):

“I always dance with my drink, I don’t need to put it down.” *Female aged 18, self-reported light drinker.*

These individuals strongly disagreed that holding their drink (put-on-ability, Statement 38) and listening to music has no effect on their drinking behaviour (listen-to-ability, Statement 26), or that they drink less when holding a drink while dancing, because it is difficult to do both (dance-to-ability, Statement 29). Participants also disagreed that dimly lit bars and nightclubs have no effect on their drinking behaviour (view-ability, Statement 50). While conscious of

contextual influences on their behaviour, they believed they were not influenced by the response of bar staff (communicate-with-ability, Statement 11) or other types of social affordances:

“I’m not really bothered about their reaction.” *Male aged 23, self-reported moderate-heavy drinker.*

“Peer pressure doesn’t really play a role anymore; I don’t really know anyone who would pressure someone else into drinking.” *Female aged 20, self-reported moderate drinker.*

The distinguishing consensus and disagreement statements differentiated the view of those significantly loading onto Factor 1 from any other factor. Unlike others, these participants consciously took action when access to alcohol was limited. For example, they strongly agreed that they 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). This was supported by the post-sort interviews:

“The bar was so busy, I waited like about half an hour. . . when I’d finally got there, I just ordered as many drinks as I wanted and then I didn’t have to go back.” *Female aged 19, self-reported light-medium drinker.*

Additionally, as well as being conscious that they drank more when alcohol is available for longer periods of time, participants appeared to use alcohol to extend their period of stay within premises:

“I’d have to like fuel myself to last for longer. . .” *Female aged 20, self-reported moderate drinker.*

Those taking the view of Factor 1 were conscious of contextual and social influences on behaviour, and appeared to actively comply with contextual influences, as long as they enabled them to effect drinking.

### Viewpoint 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 self-reported non-drinker who socialises in licenced premises, four self-reported light drinkers, three self-reported light–moderate drinkers and five self-reported moderate drinkers.

Based on the Q-sorts, these individuals strongly agreed that their behaviour is not affected by the reaction of or sales techniques used by bar staff (communicate-with-ability, Statements 12 and 10), or by drink positioning, as they ask if they cannot see something they wish to consume (consume-ability, Statement 16). They also do not feel inclined to buy discounted or promoted drinks (consume-ability, Statement 14) and strongly agreed that they drink what and when they want, as they are not influenced by friends (communicate-with-ability, Statement 8).

During the post sort interviews, these participants appeared to be aware that certain factors may influence the drinking behaviour of others. However, unlike those significantly

loading onto Factor 1, these participants were certain that they were not influenced:

“I’m not affected. . . Mine’s about quality not quantity.” *Female aged 24, self-reported light drinker.*

“I’m not gonna just buy an alcoholic drink just to save money.” *Male aged 23, self-reported non-drinker.*

These individuals spoke about drinking what and when they wanted to:

“I go to the bar with an idea of what I want to get. . . I always find it very frustrating, say for instance when I go to a bar and they go ‘oh do you want this as well?’” *Male aged 18, self-reported moderate drinker.*

“I will drink what I want when I want, but you get rushed to be served ‘cos they will wanna be serving the people that are buying the proper drinks.” *Male aged 23, self-reported non-drinker.*

During the post sort interviews, these individuals placed great emphasis on how communicate-able affordances do not affect their behaviour:

“I never feel pushed by my friends. . . I can drink whatever I want!” *Female aged 19, self-reported light-moderate drinker.*

These individuals were aware that communicating with bar staff could provide opportunities for increasing consumption, but were strongly against these influences:

“Last year I decided to do a month without alcohol and I found that I didn’t really care what the staff um thought. I’d ask for a coke and they would say ‘okay with vodka?’ and I’d just say ‘no just coke.’” *Male aged 20, self-reported light drinker.*

“It’s their job to, to give me what I want and they shouldn’t judge me. It’s my decision.” *Female aged 19, self-reported light-moderate drinker.*

These individuals strongly disagreed that they feel embarrassed ordering soft drinks in case bar staff respond negatively (communicate-with-ability, Statement 11) or that they accepted drinks when sales techniques are used on them (communicate-with-ability, Statement 9). They also disagreed 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 make them want to drink more (view-ability/purchase-ability, Statement 57).

The distinguishing consensus and disagreement statements differentiated the view of those significantly loading onto Factor 2 from any other factor. These participants strongly disagreed that alcohol-related affordances influenced their drinking behaviour. For example, in contrast to participants significantly loading onto Factor 1, they were not concerned about inhibited consumption opportunities:

“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.” *Female aged 18, self-reported light drinker.*

“I just buy one drink at a time and if I cannot reach the bar then I’ll wait.” *Male aged 20, self-reported light drinker.*

Those taking the view of Factor 2 appeared to be aware of contextual and social factors influencing others but, unlike those significantly loading on Factor 1, did not consciously act on them, because they were very much autonomous in their own drinking decisions.

### Viewpoint 3: canonical and considerate

Two male participants significantly loaded onto Factor 3, one was a self-reported moderate drinker aged 18 and the other a self-reported moderate–heavy drinker aged 27. This was a bipolar factor as one participant was a significant positive loader onto this factor, whereas the other was a significant negative loader onto this factor. Negative loaders have a representative sort that is a mirror image from those with significant positive loadings onto the same factor (Ramlo, 2011). Following an exploratory re-run of the analysis, this factor was retained as one factor, as it captured a theoretically important perspective, had only two significant loaders and accounted for 5% variability in the final solution. Additionally, it was not split into two factors as both the quantitative and qualitative data suggested that participants identified similar occurrences as important for their drinking behaviour, but disagreed on the effect that these occurrences had on their consumption.

Based on the Q-sorts, the significant positive loader strongly agreed 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 participant also strongly agreed that they drink less in places with cutlery on tables (grasp-ability, Statement 23), if they are prohibited from drinking in certain areas (access-ability, Statement 5) and drink more when the volume in the premise is too loud to talk (listen-to-ability, Statement 27).

The significant loader on this factor 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. This participant also disagreed that they drink more when influenced by friends (communicate-with-ability, Statement 7).

Both participants were adept observers of their environments and aware of what should be done in them. Both worked in licenced establishments, which allowed them to talk about their experiences in detail:

“I work in a bar. . . it’s so automatic to walk up to the bar. . . no prior thinking. . . you can see their eyes wandering, so there is definitely cues, but. . . people would still have an inkling of whether they wanted an alcoholic drink or a soft drink.” *Male aged 27, self-reported moderate-heavy drinker.*

Both participants agreed on the importance of context and the types of occurrences that were meaningful for them, but differences between sorts appeared to be due to the *effect* part of these statements, or the reasons given for behaviour. For example, the significant positive loader spoke about occurrences which they associated with drinking behaviour, such as music:

“Music just gets everyone excited and tends to like kick start the drinking process.” *Male aged 18, self-reported moderate drinker.*

In contrast, the significant negative loader also considered these occurrences outside of on-premise drinking contexts. For example, they did not think that music generally leads them to drink more, but that the premises they choose to drink in tended to have these types of occurrences, which lead them to disagree with the *effect* part of the statement:

“I listen to a lot of music at home and I don’t, don’t drink there...they correlate...there is music out in places I choose to drink alcohol in...it’s not particularly the music that makes me drink.” *Male aged 27, self-reported moderate-heavy drinker.*

Both participants spoke at length about acting appropriately in a given context, based on their social knowledge of normative and context-dependent behaviour. Interestingly, this included adapting their drinking behaviour so that it is appropriate for their environment:

“Eating doesn’t make me drink any more or any less...I would drink different things, it would be in context...I would change the type of alcohol that I drank.” *Male aged 27, self-reported moderate-heavy drinker.*

“If it’s a, in an environment where people like families are eating I would tend to not drink at all...I will tend to just order something relatively basic, whereas if I went to a bar I would tend to buy something a bit more...strong.” *Male aged 18, self-reported moderate drinker.*

The distinguishing consensus and disagreement statements helped to further differentiate the view of those significantly loading onto Factor 3 from any other factor. Unlike other participants, those significantly loading onto Factor 3 acted appropriately for the context, believing rules and regulations strongly influenced their behaviour (access-ability, Statement 5). This was supported by the post-sort interviews:

“I smoke, so you’re not allowed to take glasses outside...but I end up drinking a lot more...I’ll end up downing that drink...then come back inside and then immediately go buy another drink, whereas if I could take the drink with me I’d sip it slower.” *Male aged 27, self-reported moderate-heavy drinker.*

“It’s just the environment again...it’s just [about] moderation”. *Male aged 18, self-reported moderate drinker.*

Those taking the view of Factor 3 were adept observers of their environment and regulated their behaviour by context. These individuals both made sure their behaviour was considerate by taking up canonical affordances, even when

action opportunities might be limited. However, both had qualitatively different reasons for why these features affected their behaviour.

#### Viewpoint 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-reported themselves as moderate drinkers.

Based on the Q-sorts, significant positive loaders onto this factor strongly agreed 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). These participants believed they drink what they like and are not influenced by promotions (view-ability/purchase-ability, Statement 56) or sales techniques (communicate-with-ability, Statement 12). However, they strongly agreed that they are influenced by their friends, who expect them to have a drink at all times (communicate-with-ability, Statement 7).

These participants strongly disagreed that not being able to put down their drink (put-on-ability, Statement 38), dancing to music (dance-to-ability, Statement 30), influence from friends (communicate-with-ability, Statement 8) and buying then holding many drinks at once (grasp-ability, Statement 20) had no effect on their drinking behaviour. They also strongly disagreed that they buy drinks from promotions when they look novel or interesting (view-ability/purchase-ability, Statement 55).

The distinguishing consensus and disagreement statements differentiate the view of those significantly loading onto Factor 4 from the other factors. Those taking the viewpoint of Factor 1 spoke about consciously pre-drinking, or buying many drinks at once when access to alcohol was limited. In contrast, individuals significantly loading onto Factor 4 had not considered these types of influences before and initially found it difficult to explain their behaviour:

“I’ve never really thought about that when having a drink.” *Male aged 19, self-reported moderate drinker.*

“Very interesting, I’ve never seen anything like this before.” *Female aged 29, self-reported moderate drinker.*

In contrast to all of the other factors, these participants strongly agreed that they drink more when influenced by friends (communicate-with-ability, Statement 7) and accept offers used by bar staff, even if it is for more alcohol than they wanted (communicate-with-ability, Statement 9). This was supported in the post-sort interviews, as many felt that communicating with others was one of the largest influences on their drinking behaviour:

“You often feel influenced, they’ll do rounds and then you have to do a round, you can’t really skip out, sometimes you won’t actually have a choice...Even if you say ‘no’, you end up with a drink in your hand.” *Male aged 19, self-reported moderate drinker.*

“It’s a social pressure...like socially conditioning a habit.” *Female aged 29, self-reported moderate drinker.*



Participants spoke about the shared sense of belonging they felt in relation to their drinking groups and how the opportunities they took up to effect drinking had to be unanimous with the group behaviour:

“How many of your friends are drinking [is important], ‘cos if one of them’s like saying ‘no I can’t drink’... then you’re probably more likely to go ‘actually neither do I’, but if most of your friends are drinking then... yeah, let’s all go out and get completely smashed.” *Female aged 19, self-reported moderate drinker.*

Those taking the view of Factor 4 appeared initially unaware of influences on their drinking behaviour, but took the view that their drinking behaviour was unanimous with the social group in which it was conducted.

### Consensus 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 loading onto each of the different 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 (viewability/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. 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) had on their 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 knowingly experienced issues with glass availability.

### Discussion

The current study aimed to use Q-Methodology (Stephenson, 1953) to explore patterns of subjectivity that exist within the relation between individual drinkers and their drinking environments, as well as between individuals. A focus was on group viewpoints related to alcohol-related affordances (e.g. Hill, 2014), which reflected opportunities to consume alcohol in shared drinking environments. Four patterns of subjectivity, or viewpoints were revealed as participants sorted statements in relation to one another. These clusters of viewpoints, or group subjectivities, emerged operantly in the analysis from individual subjectivities (e.g. Brown, 2002; Stephenson, 1953) and represented four different ways of talking about alcohol-related affordances. These factors are not clear distinctions between different personalities or drinking types, but are functional differences in perspectives about drinking environments and drinking behaviour.

Many participants were conscious of the influence that their relationship with their drinking environment had on their behaviour, but compliant when it promoted consumption opportunities. As experienced drinkers with a range of self-reported drinking behaviours (light–moderate–heavy), significant Factor 1 loaders were aware of alcohol-related harms, but determined to seek out consumption opportunities. This further supports the idea that certain environmental occurrences are conducive to increased consumption (Hill, 2014) and that some drinkers actively seek out consumption opportunities, regardless of harms. This may explain the limited effectiveness often associated with educational prevention approaches to reduce alcohol misuse (Anderson et al., 2012). Additionally, as a heavily female dominated factor, this highlights the importance of focussing on the drinking behaviours of young adult females, despite research suggesting that young adult males are most at risk of alcohol-related harm (Office for National Statistics, 2014).

A similarly large number of participants were aware of social and contextual influences on their drinking behaviour, but did not think that they were influenced by these. Participants significantly loading onto Factor 2 included self-reported non-drinkers and light–moderate drinkers who spoke about regulating their behaviour using set drinking goals. These individuals were not concerned when the opportunity to consume alcohol was restricted, because they sought out other action opportunities in drinking contexts. This provides some support for approaches which focus on individual cognitive processes as behaviour determinants (e.g. Ajzen, 1985; Flay & Petraitis, 1994), but suggests that research should consider both individually and environmentally situated goals. Additionally, this implies that not all young adult drinkers seek to effect drinking in these settings and further work should focus on uncovering the subjective perspectives of self-reported non-drinkers who socialise in these environments.

The self-reported moderate–heavy drinkers significantly loading onto Factor 3 had bipolar views about the causes of their drinking behaviour and used different sorting strategies, but were both concerned about acting in accordance with the drinking environment. This further highlights the importance of understanding canonical affordances in context (e.g. Costall, 2012). For example, these individuals regulated their behaviour by acting upon appropriate and normative canonical action opportunities for a given setting but, unlike others, did not seek out additional consumption opportunities. These expert environmental observers also visited premises to carry out non-alcohol related action opportunities, which further supports recommendations for ensuring these are available in premises (e.g. Hill, 2014).

A smaller number of self-reported moderate drinkers were initially unaware of how environmental occurrences might influence their drinking behaviour, but believed themselves to be highly influenced by interacting with others. Participants significantly loading onto Factor 4 found providing reasons for their behaviour difficult, possibly due to not having considered these types of influences before. These individuals sought out action opportunities in order to imitate group drinking behaviour and maintain a shared

sense of belonging, which has been supported by previous research (Livingstone, Young, & Manstead, 2011). Therefore, instead of finding out their own uses for objects within the world, these individuals aimed to uncover canonical object functions, based on a shared social knowledge about normative group behaviours in drinking contexts (Gallagher, 2005; Good, 2007; Reed, 1990). Many insisted that they would now change their behaviour after the study, but further work would be required to determine any long term behavioural impact.

Asking participants to reflect on their drinking experiences may appear to be an indirect means of tapping into individual–environment relationships. However, access to subjectivity was immediate during the sorting process and in the discourse that participants had with the researcher. This allowed participants to make sense of their experiences and how they would behave if presented with these action opportunities in the future. It is possible that behaviour might be mediated automatically on a largely non-conscious level (e.g. Clark, 2013; Kahneman, 2011), or that drinkers construct ad hoc explanations as they do not know why they behave as they do. This remains a challenge for researchers adopting an Ecological approach to understand complex health-risk behaviours away from environments where the behaviour is carried out. Additionally, the results of the current study may not relate to the perspectives of a wider range of drinkers, due to the use of convenience sampling and self-reported drinking behaviour data.

To the authors' knowledge, this is the first study that utilises affordances and Q-Methodology to investigate the relationship between drinkers and their drinking environments. When combined with two previous studies, including a non-participant observational audit of drinking spaces and photo-elicitation interviews with individual drinkers (Hill, 2014), identified alcohol-related affordances and occurrences from the current study could be used to inform the design of on-licensed premises where alcohol is normally consumed, with a view to preventing misuse. It is important to remember that Q-Methodology aims to uncover available perspectives, instead of determining how many people subscribe to a certain point of view (Brown, 1996). Further work may be required, as the prevalence of these factors in the general population may be higher and the results from this study may not be immediately generalisable to a wider population of drinkers.

## Conclusions

Understanding how behaviour might be produced, extended or constrained according to the contexts in which it manifests could provide a new starting point for prevention research. The affordance construct (Gibson, 1979) provides a means to understand the meaning that these environments have for drinkers and how this is shared by groups. Q-Methodology studies like this have the potential to enable a more sophisticated investigation of individual perceptions and behaviour, particularly in relation to drinking contexts and drinking behaviour. These insights could have implications for preventing other health risk behaviours and for future research.

## Declaration of interest

This research was funded by the Oxford Brookes Doctoral Training Programme in Children and Young People.

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