

# The narratives behind the numbers: An approach to mixed methods research within the alcohol research field

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## ABSTRACT

**AIM** – This article introduces a conceptual framework for conducting mixed methods within the alcohol research field by suggesting that any data analysis – qualitative or quantitative – is also a narrative or social representation. Theoretically, the paper draws on Andrew Abbott (1997; 1998) and Howard Becker (2007), arguing that three ordered forms of representation are performed in quantitative analyses based on survey studies: The first order of representation refers to how participants respond to or interpret a survey question; the second to the arrangement and interpretation of variables in quantitative analysis and shows that measurements can have networks of meanings and the third to ways of merging quantitative analysis with other material, such as qualitative data. **DATA AND METHOD** – Empirically, the paper illustrates the first order of representation through an analysis of 13 focus group interviews. In these young people discussed selected international survey questions, which later were used in two representative surveys on alcohol and illegal drug use, conducted in 2005 amongst 2 000 15–16-year-olds and in 2008 amongst 5 000 17–19-year-olds. **CONCLUSION** – The article discusses how insights of the first order of representation are useful when researchers wish to carry out the second and third orders of representation.

**KEY WORDS** – mixed methods research, narrative, social representation, surveys, focus group interviews, youth, alcohol.

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## Introduction

Quantitative sociology perceived as narrative is an idea first proposed by Abbott in 1992. The term ‘narrative positivism’ was criticised to such an extent that Abbott (2001) removed it from the subtitle of a later publication. This article re-launches the concept of narrative as the best way

forward for mixed methods research within the alcohol and drug field<sup>1</sup>. I argue that narrative positivism is relevant for combining quantitative and qualitative analysis, two approaches traditionally viewed as sharing more differences than similarities. Narrative positivism brings together

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two elements important for conducting quantitative sociology: (1) that 'social reality is measurable in some acceptable ways' (Abbott 1997, 358) (i.e. positivism) and (2) that at the heart of sociology lies the study of social (inter)action, and that sociology as a discipline is concerned with social relations and social process (i.e. narrative) (Abbott 1998). By narrative, I mean (like Abbott) that underneath any quantitative variable analysis lies a more generic story or process (Abbott 1992, 429), in which agents (human beings), not variables, are 'doing things' in the analysis. If quantitative sociologists both acknowledge and reveal the ambiguity inherent in conducting variable analysis, bridging the gap between the two different sociological disciplines (Bryman 2007) and arriving at a negotiated account of what a mixed method approach can illustrate about a research problem will be easier to achieve.

A common critique of qualitative research is that it tends to '[buy] into the respondent's version and report back what people are telling' (Silverman 2007). However, the same limitations manifest in quantitative research, typically when it reports the percentage of people agreeing (or disagreeing) with a single question, with no reflection on the different narratives or contexts that direct the respondents' answers. Another critique often directed toward qualitative but not quantitative research is that it reports what a selected group of people (i.e. the interviewees whom the researcher was able to recruit) think about a specific research problem (Becker 1996). If the recruiting had taken place in a different setting with another approach, the interviewees would have been different, they might have had oth-

er views, and therefore different findings would have resulted.

The purpose of this article is to illustrate that an equal amount of ambiguity is present in conducting quantitative sociology. The reason is that the same variable (i.e. question) can be interpreted differently, depending on the context, and therefore can lead to a different ordering of the variable analysis, as well as to a different statistical approach. Thus as with qualitative analysis, the same variable used in a different context with a different research purpose and approach can lead to a different result. For example the divorce rate may in one context be interpreted as indicating something about modern family life (e.g. less commitment or more economic independence for women) (Abbott 1997, 362). Yet in another context, that same divorce rate can be interpreted as measuring declining community stability.

According to Abbott, as the narrative constitutes the overarching level for any quantitative analysis, the narrative level lies 'above' the conceptual level. However, the narrative level is rarely made explicit in standard 'causal' quantitative variable analysis. For example most quantitative sociologists would agree that education partly 'causes' occupational prestige. This causal statement constitutes a narrative 'whereby people with much education transform that education into membership in occupation of high social standing' (ibid., 360). Likewise, while most alcohol researchers would agree that heavy episodic drinking (binge drinking) (Herring et al. 2008) indicates risk behaviour (MacLachlen & Smyth 2004; Turrisi et al. 2006; Lange et al. 2002), this statement also represents a narrative whereby peo-

ple, by drinking heavily together, may feel belongingness and show commitment to a group (Demant & Østergaard 2007).

Replacing the word 'causal' with 'narrative' reveals the multiplicity in quantitative research, even though some may argue that accepting ambiguity in quantitative alcohol research would make that research unformalizable. As the purpose and premise of quantitative research is to find patterns and regularities, conducting quantitative research is best done by collecting as little but as precise information from as many people as possible. Abbott (1992; 1997) argues it is exactly by accepting the networks of meanings inherent in ambiguity that we as researchers are provided with the evidence of the multiple meaningful character of social life, but that social life is always measurable in some capacity.

Becker (2007), like Abbott, also thinks structurally about ambiguity. He argues that statistical tables, in-depth or focus group interviews, historical narratives and even documentary photography all constitute social representations of 'how society works'. But he also argues that any representation of how society works is only a partial representation: as something is always left out, a representation always calls for interpretation. A hindrance to developing mixed method research is the issue of how to combine two very different interpretations of quantitative and qualitative analyses of the same research problem. I propose the narrative level as an approach for arriving at a 'negotiated account of what they mean together' (Bryman 2007, 21) and for how to ensure that two partial representations such as quantitative and qualitative analysis together show more

than the sum of their parts (Becker 2007; Morgan 2007).

This article develops a conceptual framework for uncovering the narratives underlying numbers generated from standard alcohol survey questions measuring young people's consumption of alcohol and applies this knowledge for the purposes of mixed method research. In developing this framework, I draw on Abbott (1992; 1997; 1998), Becker (1996; 2007) and Kritzer (1996). I use the word 'representation' because it refers to the overarching narrative structure. I combine the word 'representation' with three different ordered forms of interpretation that are conducted in quantitative sociology. The first order of representation concerns the construction of survey questions and the ways in which participants respond to particular questions (Kritzer 1996). The second order of representation concerns the choice of the statistical analysis and of what variables to include or exclude (Kritzer 1996). The third order of representation occurs in connecting the interpretation of the statistical result to other research material such as qualitative data.<sup>2</sup>

The point of developing a conceptual framework for conducting the first, second and third orders of representation are to reveal how the narrative level pervades all forms of representation. After formulating this framework, I first illustrate the narrative level in the first order of representation by analysing how young people aged 14 to 19 answer standard alcohol questions in 13 focus group interviews. Second, I use the insights from the first order of representation to question the relationship between the indicators – the standard alcohol measurements – and its concepts. By

drawing on earlier articles, I illustrate how these standard alcohol measurements have networks of meaning and therefore can be used as both dependent and independent variables in research aiming at explaining why young Danes have the highest level of heavy episodic drinking amongst young people in Europe (Hibell et al. 2004).

### Ambiguity

According to Abbott (1997) ambiguity is inscribed into a conceptual level, one that he breaks down into a *higher* and a *lower* level (Abbott 1997, 363). The *higher* conceptual level refers to the relationship between a *concept* (for example class) and the *indicator* (e.g. income). The *lower* level refers to the interrelationships between indicators. For the higher level Abbott argues for both a syntactic and semantic relationship between a concept and an indicator. For the lower conceptual level Abbott primarily argues for a syntactic relationship between the indicators. At the higher conceptual level, the *syntactic* level defines how one concept relates to another concept (e.g. that gender comes before class). The *semantic* level refers to how concepts and indicators relate (e.g. that class is measured by income). At the *lower* level, the syntactic relationship refers to the ordering of the different indicators.

Ambiguity applies to both the higher and the lower conceptual levels. It shows that a narrative level, often not made explicit, lies 'above' the conceptual level in defining the 'causal' relationship between a concept and indicator(s) and the ordering of concepts-to-concepts and indicators-to-indicators. While scholars generally accept that a concept can have many indicators, they less often discuss how one indicator

can have multiple meanings depending on the context. That 'one indicator signifies more than one concept' (ibid: 364), is captured by the term *semantic ambiguity*: For example the number of years spent in school is often interpreted as a predictor of occupational achievement. But time spent in schools can also mean more time becoming familiar with the school system or time spent off the streets. In the context of criminality schooling also indicates less time available for committing crimes and thereby diminishing the chances of having a criminal record. If young people have no criminal record, they stand a better chance of staying for a longer time in the educational system. Therefore no criminal record could also be interpreted as increasing the number of years spent in an educational system. Because one indicator can be tied to many different concepts, semantic ambiguity shows the flaws in assuming a one-to-one relationship between concept and indicator(s).

Semantic ambiguity produces what Abbott calls a 'network of meaning', which means that while in one quantitative study a variable (e.g. heavy episodic drinking) may be interpreted as an outcome of risk behaviour (MacLachlen & Smyth 2004; Turrisi et al. 2006; Lange et al. 2002), in another study that same variable may be interpreted as expressing a sense of community and belonging to a specific youth group (Guise & Gill 2007; Demant & Østergaard 2007). The multiple meaning arises from the different contexts and purposes of the studies. In the context of public health, understanding extreme drinking is important because heavy episodic drinking measures the acquisition of an unhealthy lifestyle that the narrative knowl-

edge tells us causes health problems in later life (Room et al. 2005; Oesterle et al. 2004). Conversely, in the context of formulating sociological insight into how young people establish friendships and construct identity, understanding heavy episodic drinking is important because it symbolises commitment to partying with friends, thereby establishing a sense of community and coherence in young people's everyday life (Demant & Østergaard 2007). Thus when semantic ambiguity exists between a concept and an indicator, it is often followed by what Abbott (1997, 363) calls '*syntactic ambiguity*': that an indicator considered an independent variable in one study can be considered a dependent variable in another.

When the same indicator (e.g. heavy episodic drinking) can indicate many different things within the same field of research, context is paramount. Another problem is therefore what Abbott calls *contextual ambiguity*. Because the same variable is interpreted as having a different meaning, it 'may be linked to one set of variables in one study, but quite a different set in others' (ibid., 364). Thus the concept of contextual ambiguity shows that 'an indicator is lumped as part of different groups of indicators (concepts of meaning) in different studies' (ibid., 364).

I use Abbott's concepts of semantic, syntactic and contextual ambiguity as a conceptual framework for discussing ambiguity in quantitative alcohol studies and reflecting in particular on how insights from the first order of representation can be used for conducting the second and third orders of representation within the field of alcohol research.

## Social representation

To outline what I mean by representation, I turn to Becker (2007) because he formulates four concepts – *selection*, *translation*, *arrangement*, and *interpretation* – that describe the process of making a social representation. While I use these four concepts for analysing how young people answer standard alcohol questions in focus group interviews, I also apply them to how to conduct the second and third orders of representation.

*Selection*, according to Becker, means that any representation 'always and necessarily leaves out elements of reality' (ibid., 21). Every representation has a beginning and an end, and therefore it does not show what happens after the representation no longer reports about social life. *Translation* means that the makers of the representations turn certain elements into another set of elements. For example in surveys, words (i.e. interviews) are turned into numbers, and in ethnographic research observations are turned into field notes. *Arrangement* means that all the 'disordered' elements are ordered into a narrative with a certain order and logic or, in some cases (implicitly or explicitly), with a notion of causality. It resembles Abbott's argument that there is a syntactic relationship between concepts and indicators, and a specific ordering of indicators in a statistical analysis (Abbott 1992; 1997). *Interpretation* means that both makers and users of the representation interpret it. During this process the overarching narrative level becomes important in making sense of what a particular partial representation tells us about how society works (Becker 2007, 26).

Becker's definition of how a social rep-

resentation is constructed, and Abbott's argument that a narrative level defines and orders quantitative data analysis, form the starting point of my analysis. I analyze the first order of representation of three standard alcohol questions often used in surveys: (1) 'on how many occasions (if any) have you had any alcoholic beverage to drink', (2) 'on how many occasions (if any) have you been drunk from drinking alcohol beverages', and (3) 'thinking back over the last 30 days, how many times (if any) have you had five or more drinks in a row'; A drink is a glass of wine (ca 15 cl), a bottle or can of beer (ca 50 cl), a short glass of spirits (ca 5 cl), or a mixed drink. (Hibell et al. 2004; 2009, 406) (for using the same method on individual interviews see Midanik & Hines 1991 or Strunin 2001). I first examine how these survey questions *select*, *transfer* and *arrange* young people's multiple drinking patterns into a specific orderly sequence. Second, I discuss how to take the multiple meanings associated with standard alcohol questions into account in the second and third orders of representation.

### **Pre-testing of survey questions in focus group interviews**

Most scholars agree that in quantitative sociology, pre-testing of survey questions – which I call the 'first order of representation' – is indispensable (Presser et al. 2004) for reducing item non-response and measurement errors and increasing the response rate. If questions are unclear and lack consistent meanings, they can influence these factors, thereby causing serious consequences for the validity of the survey data (Smith 1987). However, despite this scholarly agreement, until recently

we have had very little guidance about pre-testing methods in books and articles. Furthermore, published survey reports or journal articles, in which the methods and results of a pre-test are mentioned or even reflected on during the analysis of quantitative data, are rare.

I present an example of how focus group interviews were applied to capture the first order representation of three standard alcohol measurement questions (Bloor et al. 2001). Thirteen focus group interviews with 7–8 young people in each group were conducted (n = 100). In 2005 the young people were 14–16 years old and the interviews were conducted in secondary schools. In 2008 the young people were 17–19 years old and the interviews were conducted in high schools. The interviews were mixed gender groups and in total 50 boys and 50 girls participated in the focus group interviews. All the interviews were videotaped and fully transcribed.

The procedure for testing commonly used alcohol measurements in focus group interviews, was that the respondents were handed one question on a piece of paper and asked to answer it in writing first (Presser et al. 2004). After completion, the moderator would guide the discussion by drawing on cognitive interview techniques such as 'think-aloud' and 'verbal protocols' (Willis 1999; Stax 2003). The 'think-aloud' technique entails the respondents' explanations of what they were thinking when answering the questions. The purpose is to establish whether they were unsure about or could more easily relate to specific terms, e.g. intoxicated (Da.: *beruset*) versus drunk (Da.: *fuld*), because *fuld* most resembled their everyday language. The technique of 'verbal prob-

ing' is used for asking the respondents more sub-specific questions, e.g. interpretation probe ('what does this concept "intoxicated" mean to you?'), paraphrasing ('can you repeat the questions in your own words?'), recall probe ('how did you arrive at the estimate that you have been drunk five times within the last month?'), specific probe ('why do you disagree with the following statement: "young people drink alcohol in order to lose control"?'), or general probe ('How did you arrive at that answer? Was it easy or difficult to answer?'). These interview techniques are developed for interviewing respondents individually. Because they were used in a focus group interview – a social setting that emphasises social interaction (Bloor et al. 2001) – the different sub-techniques were hard to distinguish from one another. However, with each question, the moderator of the focus group interview was prepared to cover different aspects of the above variant sub-techniques, which she or he then asked either as a follow-up or immediately after the respondents had completed the handout with the selected question.

### The first order of representation of standard alcohol survey questions

The first example of the first order of representation occurred following a ques-

tion used in the European School Survey Project on Alcohol and Other Drugs (ESPAD) (Hibell et al. 2004) (see figure 1); 'On how many occasions (if any) have you had any alcohol beverage to drink?' The young people have to report a number for 'lifetime', for the previous 12 months and for the previous 30 days. The following shows the excerpt of the immediate reaction to the question by some of the 14–15-year-olds:

Troels: Wow, in your entire life!!  
 Allan: ... That's damned many!  
 Anna: Well, okay, I don't have a damned clue! [laughing]  
 Henriette: You don't?  
 Anna: No, [laughter and then ironically] 2 times!!  
 [They all talk at once, mainly about how they tasted alcohol when they were younger]  
 Merete: If it's just something with alcohol in it, then, damn, that's a lot!  
 Allan: Yes, like cider [laughs]  
 Anna: In a year, less than 40 times, I don't think so!  
 Henriette: Is it also, if you've just sipped some wine [looks at moderator]?  
 Moderator: I don't know [smiles]  
 Merete: That's what it says, doesn't it!!  
 Anna: Allan, then think about your summer holiday, then [a lot of them talk]  
 Jens: Okay, all right, that's right, damn....  
 Allan: Within the last 30 days?  
 Anna: I've written 20–39  
 Allan: 20–39???

**Figure 1:** ESPAD question 1999  
 On how many occasions (if any) have you had any alcoholic beverage to drink?

	0	1–2	3–5	6–9	10–19	20–39	40+
In your lifetime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During the last 12 months	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
During the last 30 days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Anna: Oops, damn that's a month, I think I'll just cross out 10–19

Allan: [laughs] 6–9??

Anna: But this month there has just been the confirmation party and the party on 'Blue Monday'<sup>3</sup> and stuff

(Focus group interview, 2005:  
4 girls and 4 boys aged 14–15)

This excerpt reveals how constructing a coherent answer is complicated by the many different answer categories referring to the same main question. For example Anna, in her eagerness to reach the high numbers, does not read the last question properly. Moreover, to select a single number that captures their drinking frequency, the young people turn to the different social settings in which they may or may not have been drinking. The more experienced drinkers (such as Anna, Jens and Merete) immediately construct a narrative referring to their recent holiday and weekend events (i.e. confirmation party). As Anna says, when asked about how she can count the number of drinking occasions during the last month: 'You just have to think about how many parties you have been to, and then you kind of calculate it from there'. Thus, for the alcohol-experienced young people, to select, transfer and order their drinking narrative, the reference point is when they go to parties. But for Henriette, who in other parts of the interview indicates that she has had less alcohol experience, the reference point is sipping wine – most likely with her parents at home or at a family party. She therefore selects a different narrative to match the higher numbers of the alcohol-experienced young people. Although some of the more experienced drinkers may also (sometimes) drink alcohol with their parents, their narrative

is constructed only in reference to partying with friends. Thus to be able to translate their unstructured and unorganised drinking narrative into the order and format for which these standard alcohol measurement questions call, the young people select the dominating context in which their drinking takes place.

Survey literature makes clear that measurements defined by a specific time frame are very sensitive to specific occasions (e.g. Del Boca & Darkes 2003). Some researchers, like Shiner et al. (1997), have questioned whether 'measures of lifetime use' are a useful way of estimating the prevalence of alcohol and drug use amongst young people. Similarly, we see in the previous excerpt how difficult young people find constructing a meaningful drinking narrative that can be translated and arranged into lifetime usage. The same difficulties apply to when young people are asked to estimate lifetime drunkenness:

Moderator: What if it had said 'How many times have you been intoxicated during your whole life?'

Janus: Oh, you don't know that, do you?

Rune: It is not like you are counting each time – well, perhaps the first time one was drunk – one may say, Nah, how funny now I've been drunk – but not after a while – when you are used to it.

Moderator: But what about if the question had been 'How many times have you been intoxicated within the last 14 days?' Do you count that?

Rune: No, that you just know!

Janus: I surely hope that you know that...

Moderator: What about the last 30 days?

Janus: Yes, you just count the number of weekends – so Friday and Saturday – and then you add it up.

(Focus group interview 2005:  
4 boys and 4 girls aged 14–15)



As with answering the question on lifetime and the previous months' alcohol consumption, thinking of specific (week-end) time events assists the young people in selecting an answer category. But in slight contrast to earlier lifetime or previous year of alcohol consumption, the 14–15-year-olds believe that 'one' ought to be aware of shorter intervals (14 or 30 days) of intoxication. As the young people suggest 30 days as the limit for achieving an accurate answer, this pattern resembles that in other studies (Del Boca & Darkes 2003; Greenfield 2000).

Three years later, the same standard alcohol survey questions were presented in focus group interviews amongst a group of 18–19-year-olds, the new target group for the representative national survey (see also Järvinen et al. 2010). When the same question (see figure 1) was presented the following reaction occurred in one group:

Anna: Now, I'm asking a silly question again.

Drinking 'alcohol', is that the amount of alcohol it takes to get drunk or is it just like drinking one beer?

Lise: If it says 'containing alcohol', I guess it also refers to just drinking a glass of wine?

Anna: What happened last weekend?

Sofie: Have there been any holidays within the last 30 days?

Hanne: Easter.

Else: Couldn't you ask days instead of occasions?

Anna: Does occasion only mean once during that day?

Mette: No, occasion means at how many occasions – that is at a party with a friend etc.

Anna: So what happens if you first drink in the morning and then again in the evening?

Annemette: Like celebrating someone's 18th birthday in the morning.<sup>4</sup>

Anna: Yes, exactly.

Sofie: Or if one meets up after school, drinks one beer and then meets later in the evening?

Mette: Then it's two occasions!

(Focus group interview 2008:  
9 girls and 2 boys aged 17–18)

At age 18–19, there is no change in how the young people select, translate and arrange their frequent number of drinking, as they still link it to the context of going out to party. Nonetheless, a few details in the narrative have changed. First, when shown the question, none of the young people display immediate excitement by saying: 'Wow – in your entire life'. These 18–19-year-olds are not eager to reach a higher number of drinking occasions and, similarly, nobody in the group indicates being new to drinking.<sup>5</sup>

Second, the 18–19-year-olds have a different problem with selecting and rearranging their multiple drinking narratives into the answer categories, because one single number for one occasion cannot capture their sometimes drinking alcohol at least twice a day. When Mette suggests that such drinking should count as two occasions, her suggestion complicates the group's process of calculating the number of occasions even further.

The first order of representation of heavy episodic drinking (defined as having had five or more drinks on one occasion) was also captured in the focus group interviews with 17–19-year-olds. The expectation was that 17–19-year-olds would have a better understanding of how to calculate units of drinks than 14–16-year-olds (Scott 2000; Haraldsen & Dale 2002; Lintonen & Rimpelä 2001). However, as the following excerpt shows, this expectation was not met:

Moderator: Do you remember how many units of alcohol you have been drinking?

Everybody: Not at all!

Anna: I don't think many count this today?

Lise: It is more bottles.

Dorte: You can't remember it the day after!

Moderator: What could we ask? Count bottles instead of units of alcohol?

Lise: Bottles – either bottles of beer, vodka or gin.

Lotte: It can be hard to remember, how much one is drinking – it also depends on how much one has eaten! I think there should also be a question on whether one has been completely wasted.

(Focus group interview 2008:  
6 girls and 4 boys aged 17–18)

The narrative underlying answering how many units one has drunk is constructed with reference to both the past and the present. First, Anna says that counting what they are drinking might have been in their interest in the past, when they were all learning how to drink and how to behave when intoxicated (Østergaard 2009). But now, it is not individual glasses but bottles that they drink, indicating an increase in the amount of alcohol they are consuming – a pattern matching the survey result (Østergaard et al. 2010). Thus selecting, transferring and arranging their narrative to answer a question about their consumption of units is very difficult, even for 18–19-year-olds. In contrast, and as other studies have revealed (Lintonen & Rimpelä 2001; Midanik 1999), young people can more easily specify how intoxicated they felt, i.e. whether they were completely 'wasted' or perhaps just slightly intoxicated. But, as Lotte says, intoxication level also depends on other factors, such as food consumption.

## **From the first to the second and third orders of representation**

How young people in focus groups construct what Becker calls a social representation of alcohol consumption becomes apparent when they answer standard alcohol measurements questions. They select or focus on a very specific and limited period of their everyday life in which their alcohol consumption is taking place (i.e. partying with friends). When translating this social setting into a specific number represented by the answer categories, they have to accept that the question leaves no room for extraneous details (e.g. that they sometimes – and particularly when older – drink twice on one occasion or one day). When they have accepted that the question cannot – and is not intended to – capture the complexity of their drinking pattern, they order the number in comparison to how the other group members might or might not be drinking. This comparison (or competition) results in a specific arrangement, which researchers later use to categorise young people into high or low (health) risk takers (LaBrie et al. 2007; Kuntsche et al. 2004).

The answers to young people's frequency of drinking and drunkenness within the alcohol health-related field are most often used as indicators of risk behaviour that researchers seek to explain by using a number of independent variables (MacLachlen & Smyth 2004; Turrisi et al. 2006; Lange et al. 2002). However, my analysis of the first order of representation conducted in focus group interviews suggests that questions of standard alcohol measurements have multiple meanings. Two examples of this will be presented below.

The first narrative, prevalent mainly

when the young people are aged 14–16, demonstrates how the young people are very eager to show high numbers for drinking alcohol, to such a degree that one girl tries to argue that sipping wine qualifies as equal to the clearly more extended and heavy drinking pattern of drinking to intoxication. Thus the ‘experienced’ versus the less ‘experienced’ alcohol drinkers at age 14–16 construct very different narratives when choosing an answer. But this difference nearly disappears by age 17–19, when all the young people consider themselves experienced drinkers: they no longer count their units of alcohol and draw a line between drinking only a beer and drinking to intoxication. An analysis of the first order of representation therefore suggests that drinking heavily is an act of learning.

This finding is similar to a finding in an earlier mixed methods article, ‘Learning to become an alcohol user’ (Østergaard 2009). Separate analyses of independently collected qualitative material led to young people being categorised into different stages for learning to become alcohol users: abstainer, novice, occasional, or regular user. The categorisation was based on the young people’s answers to how often they, within the previous 30 days, had engaged in heavy episodic drinking. Amongst those who said zero times, information about whether they had ever drunk one unit of alcohol was also used for identifying them as abstainers. Their level of alcohol experience was then used for examining their perception of alcohol intoxicated behaviour and performance of ‘controlled loss of control’ (Measham & Brain 2005).

I introduce ‘Learning to become an alcohol user’ here because it exemplifies

semantic ambiguity leading to syntactic ambiguity. An indicator – ‘heavy episodic drinking’ – which from a public health perspective is normally considered a dependent variable is in a different context that focuses on learning abilities, considered an independent variable. Syntactic ambiguity is therefore embedded in context ambiguity because when the context of the proposed analysis changes from an interest in finding ‘causal’ factors, which can explain young people’s high level of alcohol consumption, to a focus on how their level of alcohol experience changes their perception of intoxicated behaviour, the indicator can change position and thus meaning. Hence the first order of representation of standard alcohol questions could have been used to suggest how the second order of representation of these standard alcohol measurements questions are to be carried out. Because ‘Learning to become an alcohol user’ used Becker’s (1953) famous article ‘Becoming a marijuana user’ as its theoretical starting point, quantitative and qualitative material was directly embedded (Creswell & Plano Clark 2007) into one another in illustrating the learning steps young people take in order to become experienced drinkers. The theoretical argument and the initial analysis of the qualitative material therefore called for accepting that the standard alcohol measurement – heavy episodic drinking has a network of meanings.

The second narrative level that becomes apparent when young people answer standard alcohol measurement questions in focus group interviews is the social setting (Douglas 2003). Both qualitative (Harrison 1970; Christiansen et al. 2002; Garvey 2005) and quantitative research (Demers et

al. 2002; Engels et al. 1999; Greenfield & Room 1997) have closely examined the social setting of young people's alcohol consumption. Quantitative alcohol research commonly analyses how different social settings may influence young people's level of alcohol consumption. However, one could also propose the reverse relationship, that drinking alcohol influences how a social setting is established and defined.

One of my earlier co-authored articles best exemplifies this reverse relationship (Demant & Østergaard 2007). In it, a separate analysis of the qualitative material (focus group interviews) suggested that heavy alcohol consumption plays a key role in 'zoning' (Lincoln 2005), that is, transforming physical spaces (usually the parents' dining room) into the appropriate party atmosphere, in which acts, very different from everyday life (Gusfield 2003), are socially acceptable. The result from the qualitative analysis was used for constructing a quantitative 'correlation model' (Creswell & Plano Clark 2007, 67), whereby young people's level of alcohol consumption was perceived as affecting their rating of the success of the party. The quantitative part of the article confirmed how drinking a lot of alcohol collectively could zone the parents dining room, whereas the qualitative part in particular demonstrated how drinking collectively is vital for young Danes to communicate that they are committed to the party and their friends. Embedding quantitative and qualitative analyses with one another resulted in third order of representation of why young Danes drink so heavily.

Using protocol analysis for pre-testing survey questions is not new (Presser et al. 2004), and during the 1990s it was suc-

cessfully applied within alcohol survey research (Midanik & Hines 1991; Raitasalo et al. 2005). When standard alcohol measurement questions were tested amongst 29 alcohol-drinking adults, researchers found that the dominant strategy for answering the questions was anchoring and adjustment, i.e. 'initial recall or response concerning frequency or quantity of alcohol consumption followed by reasonable-ness assessments, further recall and adjustments' (Midanik & Hines 1991, 248). As one interviewee explains: 'The most I ever really have on one occasion is two or three, I don't like to go past that, I mean... I went past that on a few occasions, but usually two or three a night and then I stop. The most would have been three' (ibid., 250).

When standard alcohol questions are pre-tested in focus group settings, the same process takes place, but within a group dynamic. The process of recall and adjustment is done collectively, as the group members discuss and challenge one another's answers. At the same time they reflect on and debate how they can best possible transfer and arrange their multiple and unordered everyday life narratives into a single number. The social judgment or the legitimate answer (i.e. social desirability) is more often defined by the group dynamic than by the moderator (interviewer), and therefore pre-testing survey questions in focus group interviews can, to a higher degree, avoid being shaped by the interviewer's prejudice. This critique is often directed at cognitive interview techniques when they are used for pre-testing survey questions in one-on-one interviews (Presser et al. 2004). Although, young people's answers to standard alcohol questions may also be influenced by the group

dynamic, particularly by the opinions of respondents who dominate the debate and discussion (Bloor et al. 2001), the prevailing perspective defined by the group itself – in the present group setting – may be closer to the opinions and practice the young people meet in their everyday life (Demant 2006).

However, using focus group interviews to achieve the first order of representation also has its limitations. Firstly, the young people should not think or feel the interview is a test. If a vibrant and open atmosphere is not created within the first 15 minutes of an interview (e.g. by suggesting an initial discussion about a non-sensitive topic), young people can find it very difficult to engage in an open debate over survey questions on a piece of paper. Secondly, the time necessary for arranging the focus group interviews is a costly affair.

## Conclusion

In following Abbott's argument that over-arching any quantitative analysis is a narrative, and by drawing on Becker's argument that any sociological method is a partial social representation, I have outlined the concepts of the first, second and third orders of representation as the best way forward for conducting mixed methods alcohol research. The first order of representation refers to the construction of survey questions (i.e. measurements) and how participants respond to survey questions by selecting, transferring, arranging and interpreting their everyday lives into an ordered narrative or partial representation, for which the measurement requires. The second order of representation concerns how measurements are ordered for statistical analysis, i.e. the narrative structuring

the 'causal' relationship between concepts and indicators, and how the context of the analysis defines measurements as either explanatory or explained variables. The third order of representation refers to combining the quantitative sociological result with other material such as qualitative data analysis and how merging two partial representations (quantitative and qualitative) of a research problem creates insights otherwise unattainable. Mapping the first order of representation, by using cognitive interview techniques in focus group interviews, can apply to both an exploratory and an explanatory mixed method research design. Researchers can use both the second and third orders of representation when merging, embedding or connecting quantitative and qualitative research material (Creswell & Plano Clark 2007).

The first order of representation of standard alcohol measurement questions discussed in the focus group interviews revealed how the dominant narrative is selecting, translating and arranging the social setting in which the drinking has taken place. The young people are thus able to draw a connection between their otherwise unordered everyday (party) life and a single number. At age 14–16, they select one drinking occasion or day as their point of reference. At age 17–19, their drinking activities are no longer confined to just one occasion but instead can include multiple occasions during one day, thereby making it difficult to give precise or correct answers to the survey question. Similarly, the 17–19-year-olds are not good at remembering how much alcohol they consume when going out.

The narratives the young people draw on when answering the three standard

alcohol questions clearly illustrate how the purpose of these three questions is to collect information about young people's general drinking pattern without the inclusion of any other details. Because the purpose of quantitative analysis, as Abbott argues, is to achieve general regularities, extraneous details must be left out. The young people thus have no option of answering 'sometimes I drink twice a day', 'drinking to intoxication varies from month to month', or even 'I can't remember' or 'I don't know'. While the answers to such questions would provide a more accurate picture of young people's drinking patterns, from a statistical perspective these answer categories are not attractive. For statistical purpose a best guess would be preferred. But if youngster's answers to the three standard alcohol questions constitute a best guess, it is even more vital that, when interpreting the results of statistical analyses, researchers understand that the 'answers' are guesses, not only when they use the measurements but also when they interpret them.

Protocol analysis may be a better tool for pointing out problems with survey questions than for fixing them (Presser et al. 2004). After all the flaws associated with a question have been pointed out, researchers need to take a step back and remember that the purpose of quantitative research is to collect a little information from a lot of people, because otherwise general regularities cannot be identified. However, alcohol researchers can benefit from thinking about the multiple meanings of standard alcohol measurement questions. As I have shown, combining focus group interviews with cognitive interview techniques is a useful qualitative method for revealing

the multiple meanings behind standard alcohol questions: the ambiguity becomes so obvious that it can foster new ways of thinking about how to interpret and order these standard alcohol measurements for quantitative variable analysis. Moreover, if the traditional semantic (and therefore also syntactic) relationship between indicator and concept is reversed, combining quantitative material on young people's drinking with qualitative material becomes easier. Thus a third order of representation can be achieved.

Testing standard alcohol measurement in focus group interviews is not the only way to disclose the network of meanings that are often associated with concepts and indicators. Conducting separate analyses of qualitative data material is another possibility. As qualitative and quantitative analyses certainly are two different methods, they sometimes yield different results. But when they do, the research aim should be to communicate the multiplicity of meaning. As Bryman (2007) has suggested, one of the hindrances to further developing mixed methods has been the metaphor of triangulation, which implies that the results should be mutually reinforcing. This approach allows little room for a 'negotiated account of what they mean together', and therefore combining qualitative and quantitative methods can never result in more than the sum of its parts. As I have argued, the best way forward for mixed methods alcohol research is to accept Becker's point of view that combining two partial forms of representation (i.e. quantitative and qualitative approaches) does not necessarily result in a more 'true' form of representations. What combining the two does is to actually con-

struct a third form of representation that is more than the sum of its two parts, because only by using the two approaches simultaneously can researchers achieve such knowledge and insights.

**Declaration of interest** None.

## NOTES

- 1 The title of the paper is indebted to the conference title 'Narratives and Numbers' held in 2007 at the Centre for Research on Socio-Cultural Change, Manchester University, illustrating the still-growing interest in combining quantitative and qualitative approaches amongst sociologists and health researchers (Tashakkori & Creswell 2007; Creswell & Plano Clark 2007).
- 2 The idea of conducting the first, second and third orders of representation was first devised in Østergaard 2008.
- 3 Blue Monday is the first Monday after the confirmation party, which is a Christian ritual whereby young people confirm their religious beliefs. On Blue Monday young

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people are on leave from school, and usually the entire class meets to spend the day doing fun activities such as canoeing.

- 4 In Denmark, young people's 18th birthdays are often celebrated with a party held very early in the morning. Usually classmates arrive one hour before going to high school to celebrate while eating breakfast. Alcoholic beverages such as bitters are often served during this rite of passage into adulthood (Gusfield 2003; Sande 2002).
- 5 This pattern is matched by results from the survey, as 92% of 17–19 year-olds have been intoxicated at least once (Østergaard et al. 2010).

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