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Understanding crowd behaviour

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Chapter 2

Crowd Behaviour

The existing literature on crowd behaviour involves a variety of definitions, descriptions, views and explanations. Several of them will be addressed in this chapter to lay the groundwork for the definition, focus and aspects that are considered necessary to proceed in understanding crowd behaviour.

Crowd behaviour is the behaviour that is conducted by individuals who gather in a crowd. However, what is exactly meant when talking about crowds and their behaviour? In everyday life, the word crowd is used to indicate a range of situations that involve an assembly of persons. For example a crowd at a festival, or a crowd on the internet to buy tickets for a concert. Usually, the context in which the word 'crowd' is used indicates what type of group is meant in terms of size, duration, composition, motivation, cohesion and proximity of individuals.

The crowd example in chapter 1 of the beach festival illustrates this meaning through context. Crowd behaviour at the festival is for instance clearly different from crowd behaviour in the shopping street (see the boxes 1-3 examples in chapter 1). In the shopping street the crowd consists of identifiable small groups, each pursuing their unique shopping goals, but all of them have the goal to shop. At the festival different groups can be identified. J* belongs to several of these groups. A small group of companions with whom J* came to the festival. But also a larger group in which J* and others are dancing in front of the stage. The dancers share the way of fulfilling their goal to enjoy music, while the shoppers differ in behaviour to fulfil their goal as they are not all heading for the same shop. The differences between the crowds are hard to catch in a definition as they are situation and time dependent what kind of group is dealt with.

In the field of crowd research there is no consensus on the definition of a crowd. The definitions evolve around the concept of a gathering (Challenger, Clegg, & Robinson, 2009b) accompanied by a description of what binds the individuals in the crowd. To give some examples - "*A crowd is a temporary gathering of individuals who share a common focus of interest*" (Forsyth, 2006). For Reicher (2001) on the other hand, a crowd is only a crowd when "*individuals share a social identity*" (Reicher, 2001). Regardless of the differences in the core of these definitions, they all share the notion of a number of people in the same place at the same time, i.e. a gathering (Lofland, 1985). Most definitions include the concept of a psychological group by adding a

binding between the individuals in a physical crowd, i.e. a social relationship (Forsyth, 2006, p. 4). Depending on the theorist this social relationship is defined as a shared commonality, such as fate, goal, social identity, interaction, structure, influence, interdependence (Forsyth, 2006; Brown, 2000).

In this thesis a definition of a crowd is needed that allows for studying crowd behaviour patterns and the dynamics of these patterns with as little assumptions as possible. The minimal description starts from a notion of a group. A group is defined here as *a set that holds at least two elements*, without any other characteristics being specified. In the context of a crowd a group can be any set of two or more individuals, for instance people that are behaving in the same way can be attributed as a group. To refer to a crowd gives more information about a group of individuals as a crowd involves the co-presence of individuals at a specific physical location. When crowds are addressed by researchers or media this usually involves the rise and change of a psychological group, similarly to the definitions that are used, addressed in previous paragraph. However, a crowd does not necessarily need to be a psychological crowd, moreover it is relevant to capture this process of being part of a psychological group to gain understanding of crowd behaviour. In this thesis the definition for a crowd therefore needs to be able to encapsulate a non-psychological group and thereby deviates from the notion of crowds used by most crowd researchers, as these definitions assume too much about the relationships between individuals, which are exactly the relationships that need to be able to change and emerge during time. To recapitulate, in this thesis a crowd is defined as:

A group of individuals at the same physical location at the same time.

Crowd behaviour during an event can be described in a variety of ways given this definition of a crowd. Take for example the beach festival, described in chapter 1. At the beach festival a lot of behaviours were shown: dancing, drinking, listening to music, the clash between a group of visitors and the police. The event can be described by referring to the behaviour on the site, the interactions and incidents, that occurred within the range of hours during the festival (e.g. the threats, the chase and the counting of the hostile group). But also the warning shots and the fatal shot of the police could be included. Another way to describe the incident at the beach festival, is to place it in a wider frame of violence at events. One could describe the rise of a new trend, for instance a trend of hard-core football fans misbehaving outside the football area. Such a description encapsulates a wider scope. The focus in this thesis specifically lies on the behaviour and interactions as opposed to a focus on trends for instance.

The object of understanding is related to the focus taken in describing crowd behaviour, e.g. on site or a wider scope, placed on a temporal and spatial frame. A simple representation of the resulting matrix is given in figure 2.1 where McPhail (1991) displays the levels on which crowds and social movements have been studied as collective phenomena. The horizontal axis represents the spatial frame, units of space from geographical to political locales (i.e. a geographical site, national, global, communities). Down the vertical axis units of time are represented moving from (split) seconds to a description over years. This study restricts itself to crowd behaviour that occurs within minutes or hours at a specific physical site, to events in which short-term and direct influences on behaviour within the boundaries of the site take place.

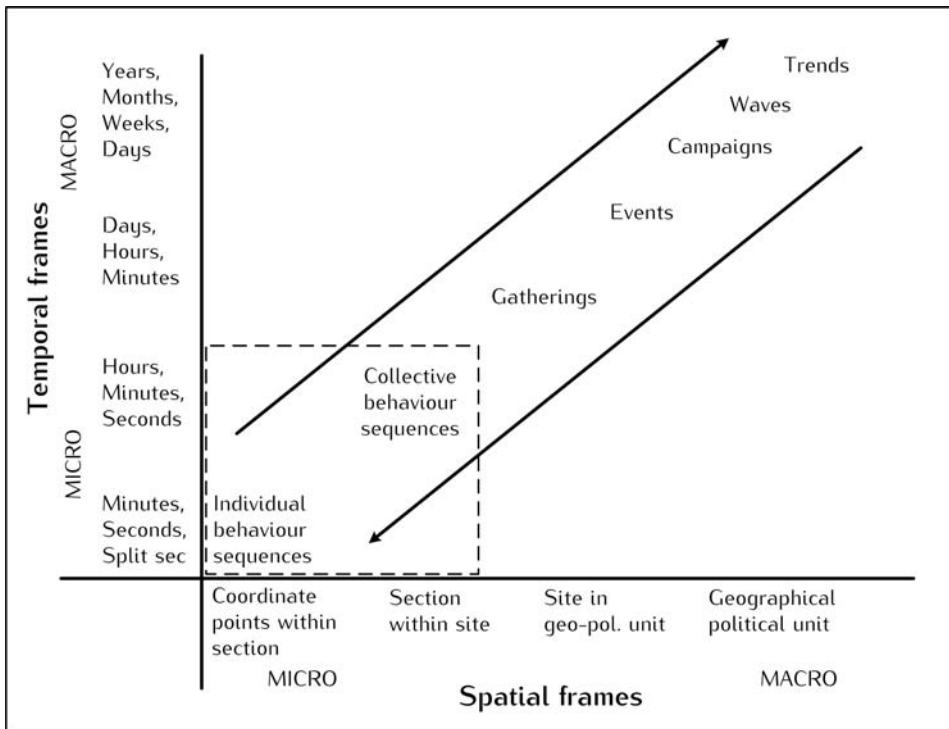


Figure 2.1: The spatial and temporal levels on which group and crowd behaviour can be studied. The focus of this study is indicated by the dotted box. (Source: McPhail (1991, p. 176))

The dotted box in figure 2.1 visualises this focus of short-term direct crowd behaviour. The boundaries resulting from this focus allow for the selection of relevant literature on crowd behaviour.

The following sections describe the evolution in crowd research from the beginnings to its modern foundation. The identification of several myths and insights shapes the new foundation of the field. It is important to be aware of the path this field has taken in the past, as it makes us aware of the intuitive pitfalls that this field is sensitive to. But most importantly, it gives direction in proceeding to gain a better understanding of crowd behaviour by incorporating the role of both group and (internal) individual processes.

2.1 Foundation of crowd behaviour

The field of crowd research is almost as dynamic as the phenomenon itself. Since the 18th century scientists try to explain crowd behaviour with a specific focus on riots. Since then it has gone through some extensive changes, from explanations without (social) context, to descriptions with an empirical base.

The field started off by producing crowd theories without a link to reality (Re-

icher, 2001), creating the so-called myths of *irrationality*, *emotionality*, *suggestibility*, *destructiveness*, *spontaneity*, *anonymity* and *uniformity*. All of these myths evolved around the view of a crowd as extraordinary, requiring a specific explanation. The following period evolved around falsifying these myths by numerous observational studies (Adang, 1998; McPhail, 1991; Couch, 1968; Berk, 1972a, 1972b, 1974b, 1974a). From then on the "extraordinary" was rejected and a new foundation for crowd research was formed.

2.1.1 The 7 myths of the traditional foundation

Crowd research was tainted with misconceptions for a long time. In traditional crowd research, crowd behaviour was regarded as completely different from any non-crowd situation¹. At the base of these myths lie two types of theories: *transformation theories* and *predisposition theories* (McPhail, 1991).

The transformation theories are built on the idea of a *group mind*, coined by Le Bon (LeBon, 1895). Le Bon stated that every individual in a large gathering is transformed into a crowd member. The crowd puts them in the possession of a collective mind, which makes them feel, think, and act quite differently from a situation in which each individual would feel, think, and act, were he in a state of isolation (LeBon, 1895). This group mind theory had a huge impact, it was not only the first psychological theory on crowds, but it also coined crowds as extraordinary. This shaped the general view on crowds as it became a widely accepted explanation for crowd behaviour. The transformation of individuals into a crowd, in terms of the loss of self, formed the base for other theories, such as the still influential deindividuation theories (Festinger, Pepitone, & Newcomb, 1952; Reicher, 2001). These theories focused on describing the process where an individual deindividuates, the process in which people supposedly lose their sense of a socialised individual identity and engage in unsocialised, often antisocial behaviour (Hogg & Vaughan, 2008).

The second stream, the pre-disposition theories, actually explained the same process of showing similar behaviour in a crowd. However, instead of having a notion of a group mind that steers crowd behaviour, the steering force lies on the individual level. The similar innate drives that individuals in a crowd supposedly share, i.e. predispositions, give rise to similar crowd behaviour (Allport, 1924; Miller & Dollard, 1941). Typically, the power of control was transferred from a collective property (group mind) to a similar property for all individuals.

Even though current crowd research considers these theories as outdated, they still tend to pop-up implicitly in other theories, textbooks (Schweingruber & Wohlstein, 2005), or in popular communication about crowds. The myths represent intuitive pitfalls. It is therefore important to be aware of them. In the following, 7 myths are described, adopted from Schweingruber (2005) which is in its turn based on the identification made by McPhail (1991) and Couch (1968):

- Myth of Irrationality : the idea that individuals in a crowd lose rational thought
- Myth of Emotionality : the idea that individuals in a crowd become more emotional

¹It needs to be noted that crowds were seen as an equivalent of riots.



- Myth of Suggestibility : the idea that individuals in a crowd are more likely to obey or imitate
- Myth of Destructiveness : the idea that individuals in a crowd are more likely to act violently
- Myth of Spontaneity : the idea that in a crowd violence occurs more suddenly
- Myth of Anonymity : the idea that individuals in a crowd feel more anonymous
- Myth of Uniformity/Unanimity : the idea that all individuals in a crowd act in the same way

Myth of Irrationality

The myth of irrationality conveys the misconception that people lose the ability to think rationally (Schweingruber & Wohlstein, 2005) when in a crowd. The notion of irrationality is often used when people are not behaving in what is seen as the most effective way to achieve a goal, like fleeing out of a building while not following the emergency exits. However, the effectiveness of behaviour is compared to an ideal way of acting. It thus depends on whoever defines the effective or ideal way how and when the label "irrational" is used.

The irrationality myth is a direct consequence of the traditional crowd theories, based on the group mind and predisposition theories. The control by either a group mind or shared predispositions describe a cognitive shut-down, hence irrationality.

Criticism. The fact is that people in crowds do not behave irrationally, i.e. do not encounter a cognitive shut-down. Actually, the available evidence supports the opposite: individuals behave rationally given the information they have and they pursue goals effectively (Couch, 1968; Adang, 1998). The example of the beach festival in chapter 1 serves as a good illustration of absence of irrationality. The persons who conducted violent behaviour were clearly not in this confrontation by accident - as they stated themselves their intention was to "go loose" (Wanders, 2009, p. 3). A police-officer even reported that a member of the 'hard core football supporters' warned him about a large group knowing about the absence of the riot police, so the police had better leave (Muller et al., 2009, p. 71). Another indication of the absence of irrationality is the count-down of the group rioters at the peak of confrontation while having the police surrounded.

These are just a few examples that show that people who seek the excitement will be present, while others will avoid it. In the case of the beach festival riot at least 99% of those who were present did NOT join the riot. But those who were actively involved did so deliberately. The hostile group at the beach festival pursued their goal to chase and beleague the withdrawing LEOs for some time. This is conscious, deliberate, and even strategic behaviour and as pointed out by Adang (1998): rioters make risk analyses based on the probability to get caught or hurt. In all, there is no good reason to consider the behaviour in a crowd to be irrational².

²However, the statements given by the LEOs shows that the irrationality myth still lives. LEOs stress that the behaviour of the violent group was irrational by stating that they "were undiscerning", not even for warningshots, or that the group was intoxicated of alcohol and drugs etc.

The absence of irrationality can also be found in non-rioting crowds. For example, the usually supposed irrational behaviour of a 'panic' in case of an emergency. People in an emergency are expected to randomly flee, or freeze (Burton, Kates, & White, 1993; Gross, 1990; T.Horlick-Jones & Jones, 1993; Purdom, 1990), which in reality appears to be far from the truth. In buildings people choose the route they know or when not familiar with the building their exit route is the way they entered the building. Although it might not be the most optimal route, this does not imply irrationality or randomness. The optimal route would be to follow the emergency-exit signs as this would be probably faster, shorter and safer. However, the route that a person chooses is the one he is completely sure of to be a successful exit-route, which is often the same route someone came in, which can be considered a risk assessment.

The myth of irrationality is not based on the reality of crowd behaviour, it is derived from biases and prejudices. It is one's own frame of reference that causes them to assign the label of irrationality, to the behaviour of others. During the time that the myth originated, the crowd (the French working class) were seen as irrational because their ideas were not consistent with those of the ruling "authoritative" institutions (the bourgeoisie) (Couch, 1968; Reicher, 2001)

In this thesis the idea of irrationality is rejected. Individuals behave according to the information they have at hand (i.e. humans are information processing systems). Behaviour is chosen³ based on the internal state of an individual, which is affected by the external world. In that sense all behaviour is optimal given the restrictions of a given situation in terms of time, information and physical ability.

Myth of Emotionality

The myth of emotionality conveys the idea that people in a crowd are governed by their emotions, relative to those who are not in a crowd. The underlying implication supposes that being more emotional implies irrationality.

Criticism. The fact that a crowd phenomenon, such as a riot (threat, danger, risk) or a festival (fun, adoration of an idol) incorporates a context that holds strong emotions does not in itself distinguish a crowd context from any other situation (Couch, 1968). Emotions are clearly present in other forms of social interaction as well, imagine the interactions between a husband and wife or between an employer and employee (Turner & Killian, 1987).

The insinuation that emotions cause irrational behaviour is not only false, but rather the opposite is true. Emotions and irrationality are mutually exclusive, as Schweingruber (2005) identifies, e.g. (Aminzade & McAdam, 2002; Goodwin, Jasper, & Polletta, 2001; Massey, 2002). Emotions actually seem to be the necessary component to be able to take rational or logical decisions (Damasio, 1994).

This myth is a typical example of placing everything that concerns a crowd under the label of 'extraordinary'. Le Bon provides a solid example of this by claiming "*Isolated, he may be a cultivated individual; in a crowd is a barbarian, that is a creature acting by instinct.*" (LeBon, 1895, p. 8). In that sense, it is just a small step from the idea of primitive beings more emotional as a negative to irrationality. The identification of emotionality as a myth regards an individual not to be any different inside or

³To choose a behaviour does not imply a conscious act.

outside a crowd. It is the context that differs, but this does not change anything about the cognitive processes inside individuals.

Myth of Suggestibility

The myth of suggestibility claims that especially individuals in a crowd are likely to obey or imitate. Park (1904) coined it: suggestibility. He took over the group mind concept of Le Bon (1895) and focused on the process of losing one's individual consciousness and in particular one's self-consciousness. Suggestibility was described as the phenomenon in which feelings and thoughts of all members move into the same direction. The suggestibility increases not due to physical proximity, but through infection of thoughts and feelings (McPhail, 1991, p. 5-9).

The idea of being infected is adopted also in the *contagion theories* (Forsyth, 2006; Brown, 2000; Baron & Kerr, 2003). The contagion theories describe group behaviour as a disease spreading via individuals infecting each other.

Criticism. There is no evidence that supports the idea that people in a crowd are more obedient than people in other settings. However, if this were true, the crowd would pose no problem for authorities, as the crowd would listen to authorities (Couch, 1968, p. 312). Or to look at it differently, the police or other groups appear to be immune, how does that come about? The concept of suggestibility is completely built on the group mind view on crowd behaviour. The concept of a group mind has been refuted by modern crowd research, making any theoretical refinement derived from the group mind view just as false.

Behaviour in a crowd is too complex to describe it in terms of suggestibility or contagion. The idea implies that all people act in the same way in a crowd, which is not what reality shows (see also the myth of uniformity below). A broad array of behaviours is displayed, that changes over time. To explain patterns of behaviour in which some people seem to imitate or act obediently, a richer description is needed than the adoption of thoughts of feelings. The behaviour choice is moved from the individual to the group mind, however how does this group mind make up his mind? The situational and especially the social context needs to be refined in explaining observed obedience or imitation, as they are relevant in the decision making of humans.

Myth of Destructiveness

The myth of destructiveness claims that people in crowds are more likely to act violently towards other people or property. Crowds are notorious for rioting, i.e. crowds in which some people display aggressive or violent behaviour. Riots can have a big impact on society. People can get hurt or die, feelings of safety are threatened, especially when a specific group is targeted (e.g. a minority in race riots or the bourgeois during the French revolution). This can also occur when a situation is violent that is supposed to be cheerful, such as the football riots or a festival like the one described in chapter 1.

Criticism. Crowds being destructive is an assumption that is easily refuted. The counter evidence found by simply observing crowd behaviour in reality as the occurrence of violence in crowds is rare compared to all crowd events (Eisinger, 1973; McPhail, 1994; Adang, 1998). Violence is not more likely in crowds than in any other situation and violence is not restricted to crowds (Couch, 1968).

The reason for individuals to act violent or aggressively is linked to a current situation, not to the crowd setting itself. It is important to address the relevant context in understanding behaviour and to avoid assumptions like the crowd-aggression link.

Myth of Spontaneity

The myth of spontaneity accounts for the perceived suddenness of violence that occurs in seemingly peaceful crowds. The myth is actually a combination of the destructiveness, and irrationality myths. Spontaneity is connected to violence and in this way the destructive myth is embedded. The perceived suddenness implies a factor of unexpectedness relating to non-normative or undesired behaviour, hence dis-functional rationality.

Criticism. As discussed in the criticism of the irrationality myth, behaviour is well chosen. It serves the goal an individual is pursuing. The point is that not all behaviour has an observable cause. Spontaneity indicates that something is unexpected for an outsider implying that either there was no external cause for the behaviour at hand, or the cause was too subtle or simply was not noticed.

Behaviour, either externally or internally influenced, is selected based on the internal state of a person. The internal state is, of course, affected by the external world, however it does not necessarily need to be the most dominant influence on behaviour. Take for example J*'s behaviour at the beach festival standing in front of the stage. J* is dancing and singing along quite fanatically during a performance for some time, but then suddenly J* walks away from the stage. This sudden change of behaviour is quite unexpected or spontaneous given the recent series of behaviour. However, the fact J* needs to go to the toilet quite urgently makes it less spontaneous. An internal trigger was the dominant factor at that time, which made J* change his behaviour sequence. What is spontaneous or unexpected lies in the eyes of the observer. Taking relevant external and internal context into account, changes the concept of spontaneous behaviour in crowds.

Myth of Anonymity

The myth of anonymity holds that individuals feel anonymous when they are in a crowd. Consequently, the behaviour individuals display is less inhibited and increased anti-normative (Diener, 1980; Zimbardo, 1969). Anonymity is considered a crucial factor in the transformation of individuals into a crowd, i.e. deindividuation (Festinger et al., 1952). Deindividuation is the process by which people lose their sense of a socialised individual identity and engage in unsocialised, and often antisocial behaviour (Hogg & Vaughan, 2008, p. 421). This link between anonymity and deindividuation implies that being in a crowd provides individuals with a cloak of anonymity that diffuses personal responsibility for the consequence of their actions (Zimbardo, 1969; Cannavale, Scarr, & Pepitone, 1970; Diener, 1977, 1980; Prentice-Dunn & Rogers, 1989).

Criticism. No strong support can be found for the anonymity myth, actually the opposite effect is encountered. The subjects in the experiments that formed the basis for the deindividuation theory were in fact more likely to act according to the norms when they were supposedly 'deindividuated' (Postmes, Spears, & Lea, 1998) instead



of the other way around. Even the pioneering researchers of the deindividuation theory found contradicting results (Diener, 1976; Zimbardo, 1969). In addition, observational studies show that people in a crowd assemble with friends or family (Aveni, 1977; McPhail, 1991, 1994) which leaves them far from being anonymous. Actually, they are more likely to act collectively than anonymous individuals are (Neal, 1994). The fact that individuals avoid to be recognised by the LEO's when performing a punishable act is part of risk-reducing behaviour. On the other hand being seen by your friends while doing so, can be status-enhancing. Thus anonymity begs the question: "Anonymous to whom?".

People do not lose their sense of self in a group. The behaviour that is displayed is part of human decision making in achieving the goals a person strives for, e.g. avoiding punishment or bolstering status. The dominant role of the social context, e.g. friends, is blurred by the bias of the observer. Behaviour is labelled as irrational because the observer's norms did not apply to this situation, however the norms that matter are those that are relevant for the person in the context. Instead of comparing a behaviour with the norms applicable for a given setting, the observer compares a behaviour with their own norms. The debunking of this myth emphasises the role of the social context in crowd. In addition, it reaffirms the importance of integrating the individual level to understand behaviour.

Myth of Uniformity

The myth of uniformity claims that every individual in a crowd is continuously performing exactly the same behaviour (McPhail, 1991, p. 71). Even though both the transformation as well as the pre-disposition theories differ in their approach, both theories assumed uniformity in crowd behaviour and attempted to explain it (McPhail, 1991, p. 71).

Criticism. This was one of the first myths to be falsified by simply observing real crowd phenomena. *"...it laid the groundwork for a fundamental breakthrough in describing and explaining crowds and collective behaviour"* (McPhail, 1991, p. 89). Turner & Killian (1987) coined this myth as the *'illusion of uniformity'*. Crowd behaviour is a heterogeneous and changeable phenomenon that in specific moments, people may engage in collective action (e.g. applauding, a Mexican wave, or praying). However, in most circumstances the behaviour shown is quite diverse. This myth illustrates the effect of mixing up the way we talk about crowds (i.e. the most striking behaviour), and what actually happens in a crowd.

In chapter 1 the example provided indicates that a riot occurred during the beach festival. Some people engaged in aggressive or violent behaviour, in fact just 200-300 of the approximately 25.000 visitors did so. Similar accounts are given in the systematic observational field study of crowd events by Adang (1998, 2010). These studies indicate that of the events in which violence occurred, always less than 10% (usually no more than 1%) of the crowd was actually involved in violent behaviour (Adang, 1998; Schreiber & Adang, 2008a). The other 90% (to 99%) made other choices, e.g. passively watching, encouraging the rioters by cheering, or literally walking along with the rioters (Adang, 1998; Schreiber & Adang, 2008b).

Acknowledging uniformity as a myth changed the object of explanation. It forces to make explicit what it is subject of study and furthermore to take the dynamics

and heterogeneity of the individuals in a crowd into account. In this thesis, crowds are studied by focusing on the group level patterns of the behaviour that emerges. To be more specific, these patterns are clusters of individuals who (temporarily) behave in a similar way, or to use McPhail's definition: *collective-behaviour-in-common*, i.e. "when two or more persons engage in the same behaviour at the same time" (McPhail, 1991, p. 44), with the additional constraint that they are in each others physical vicinity, i.e. form a cluster. Furthermore, the heterogeneity of the crowd is stressed. Heterogeneity refers to the differences within a crowd, either in terms of behaviour, or individual distribution (sex, age, number of friends present, etc). Every individual has their own unique local surrounding, but also a unique internal setting that affects interpretation of what is perceived and this plays an important role in the behaviour a person will or will not exhibit.

2.1.2 A Reflection on the myths


The developments in crowd research are valuable as they convey a few important lessons that will influence future research: crowd behaviour is not a unique state of behaving, it is important to avoid intuitive pitfalls, there is a need for scientific rigour in studying crowds and a multi-disciplinary, integrative approach is crucial.

First, crowd behaviour is not extraordinary. To regard crowd behaviour as non-extraordinary, theories that describe human behaviour can now be used. The rejection of the existence of a group mind stressed the individual level as the level of behaviour generation. The focus on individuals in a crowd changes the way behaviour is explained. The individuals are the ones that are affected. Individuals are necessarily part of an explanation of crowd behaviour patterns, such as collective action. This forces a shift in focus towards individual level behaviour dynamics with behaviour patterns at group level.

The second lesson teaches us to avoid pitfalls, such as applying too narrow a focus, or neglecting the role of the context. Crowd phenomena encompass a wide range of events and behaviour. Due to the tendency to readily focus on the perceived extreme or striking elements (e.g. riots and evacuations), and regard them as representative of crowd behaviour in general, a too simplistic explanation is applied to explain the whole range of crowd events. In addition to a limited focus on extreme crowd settings, the explanations provided have also been tainted by a tendency to overestimate the influence of personality, but neglecting situational influences (fundamental attribution error (Fiske & Taylor, 1991)).

The third lesson teaches us that a suitable method is needed to gain more understanding of crowd behaviour. Crowd research especially needs strictness in the use of a scientific methods to avoid a continuation of misconceptions. "Science is a conversation between rigour and imagination." (Abbott, 2003, p. 1). To use Abbott's metaphors: the interchange is key between method and intuition, traditional crowd theory was having a monologue in imagination. Hence the resulting myths that shaped a view on crowds for years without empirical referent.

The fourth and last lesson involves the need for clarity. Crowd research and practice is full of concepts that are used in a variety of ways as it spans over disciplines. Take for example the fact that there is not one general agreed definition of crowds (Challenger et al., 2009b). To be able to work in a multi-disciplinary and integrative



way, it is necessary to be clear about the meaning of concepts to be able to discuss and interpret each other's work without being held back by ambiguity. To support communication and integration, clarity is needed in the concepts that are used, e.g. by being explicit about the level(s) of description and definitions that are used.

2.1.3 The modern foundation of crowd behaviour

The iterative process of theorising, criticising, detecting misconceptions, and gathering empirical data over the past three decades have made specific what crowds are not. But the developments have also resulted in new descriptions of crowd phenomena, and more clarity with regard to definitions and levels of analysis. Based on this knowledge three important insights are formulated that represent the modern view on crowd behaviour in this thesis:

- Crowd behaviour is generated by individuals
- Crowd behaviour is context dependent
- Crowd behaviour is dynamic

Crowd behaviour is generated by individuals

Behaviour in a crowd is generated by the individuals in it. To understand crowd behaviour, the group level needs to be related to the individual level. Rejecting the idea of a crowd mind emphasizes the focus on the individual in a crowd, instead of on the crowd as a whole. This implies that the behavioural patterns that arise at a group level cannot be explained solely in terms of group level descriptions; as the behaviour arises on the individual level.

This insight leads to an individual-driven perspective. To describe an individual in a crowd context relevant theories and factors need to be incorporated that describe individual behaviour and individual information processing. Each individual responds and is affected in its own unique way, resulting in a heterogeneous crowd.

Crowd behaviour is context dependent

Every situation and individual is unique, and so is the behaviour that is generated by an individual in a certain situation. Behaviour occur in a context and (perceptions of) external stimuli (in interaction with internal factors) affect individual choices in any given context. For example, the crowd at a beach party may behave differently depending on the weather, the music being played, the presence of police, or the what happened at a previous festival. It is important to incorporate the relevant situational factors to understand the behaviour patterns at any given moment. Both the physical and social context are important in crowd behaviour, and it should be stressed that crowd behaviour is a social phenomenon. The social context is part of situation dependency in general, however it is stressed here as it is an important source of influence on behaviour. The traditional "extraordinary" view on crowds which developed from the concept of group mind, resulted in explanations which separate the crowds from their social context (Reicher, 2001). In a crowd individuals are surrounded by acquaintances, friends or family (Aveni, 1977; McPhail, 1991, 1994). This implies

that individuals in a crowd are sensitive to their co-crowd members. Behaviour in a crowd is not a simple social reflex, it is an active product of the interaction of an individual with its social environment (Couch, 1968). In understanding crowd behaviour the social setting is part of the crowd context that needs to be taken into account.

Crowd behaviour is dynamic

Behaviour in a crowd continuously changes. These dynamics are the consequence of the role of situational influences over time. In that sense, crowd behaviour is a complex system with a multitude of potentially interconnected factors that play a role. The interactions between the individuals give rise to the emerging behaviour patterns in a crowd. The behavioural patterns themselves also affect individuals, and thus, the behaviour they display, a case of downward causation.

A snapshot of a crowd freezes a singular moment and does not capture the events leading to this moment. Every time-step represents a unique picture. It is important to incorporate the underlying processes or preceding events to be able to understand how and why a certain behaviour pattern arises. The changes over time (i.e. the dynamics) are not just a typical characteristic of crowd phenomena: they are an essential element to take into account when aiming to understand behavioural patterns in a crowd.

2.2 Existing models based on the modern foundation

Below the current models that are based on the modern foundation will be dealt with. They all assume individuals to behave and they all incorporate the role of the (social) context and the dynamic nature of the phenomenon. All these models focus on describing disorder.

2.2.1 Flashpoint model

The flashpoint model (Waddington, Jones, & Critcher, 1989) explains the circumstances under which public disorder is likely to break out or fails to "ignite" with use of a general framework (Waddington, 2007). The general framework integrates relevant factors by attributing them to a level of analysis and explains from each level how likely disorder is. The model incorporates six interdependent levels of analyses: structural, political/ideological, cultural, contextual, situational and interactional. Each level describes a relation between disorder and relevant factors. The factors range from global contextual factors (macro) to face-to-face interaction (micro) factors. For instance macro factors defined on the structural level, such as material inequality is related to collective grievances or resentment in society. In terms of the interactional level, the direct interactions between groups are taken into account to explain potential disorder. The "flashpoints" represent incidents that may spark off disorder, each level functions as a situational indicator whether an incident may function as a flashpoint.

The model has been used to describe a variety of public order events. It is flexible in dealing with different types of disorder, losing situational detail (Waddington, 2007). Even though the authors consider their model as an explanatory framework,



the model has been subject to substantial criticism on this point (Schreiber, 2010). The main point of criticism is directed to the explanations that do not cover the mobilisation phase of disorder; the self organisation of crowds and police; and the riots without an external trigger or a delayed response to an external trigger (Otten, Boin, & van der Torre, 2001; Waddington, 2007).

In line with modern insights, the model goes through great lengths to incorporate the role of situation dependency within the general framework. By separating levels of analyses multiple factors are integrated side by side. The levels include the role of social context. However, both the role of individuals and the dynamic aspects are not incorporated. The interactional level focuses on group interaction as opposed to interaction between individuals (belonging to a group). With regard to the dynamic element, the sequence of flashpoints or a delayed response cannot be explained using the model. The main contributions of the flashpoints model are the effective way of dealing with a complex phenomenon by distinguishing between different levels of analysis, the situation-dependency and the approach to provide a general explanation for disorder.

2.2.2 ESIM model

The Elaborated Social Identity Model (ESIM) (Reicher, 1996, 1997, 2001; Drury & Reicher, 1999; Stott & Drury, 1999; Stott & Reicher, 1998) is a social psychological explanation of crowd behaviour that incorporates group interactions, e.g. the police versus the crowd. ESIM describes crowd behaviour based on the way people perceive themselves as group members, in terms of their social identity (Tajfel, 1981) and self-categorisation (Turner & Killian, 1987; Turner, Oakes, Haslam, & McGarty, 1994)⁴. These processes of social identity and self-categorisation explain how a person that feels like a football supporter, will act as a football supporter. To specify this, when categorising oneself in a certain membership type, the (perceived) norms and thoughts of what is appropriate, given a the prototypical group member, shapes the behaviour that is shown.

According to the model, collective action, i.e. action in common, can only take place when members share (or perceive themselves to share) a common social identity. The perception of group characteristics and norms changes over time this is regarded as social change (Reicher, 1996; Drury. & Reicher, 2000).

The ESIM model is used to explain public (dis)order. Crowd behaviour is reflected by the social identity of its members in a variety of contexts, e.g. football (Stott & Reicher, 1998), student demonstrations (Reicher, 1996), political demonstrations (Drury & Reicher, 1999) and environmental protests (Drury & Reicher, 2005) in England and Scotland. In addition to the strong focus on the social context, the dynamic component of a crowd event is also incorporated in the model by stressing that crowd events can lead to social change, via re-categorisation of social identity. Disorder is described in terms of asymmetric relationships between groups, implying that differing perceptions of the same social context are held by the two groups, which can lead to an increased negative tension between the groups (e.g. us versus them). This can for instance be caused by an intervention by the police that is regarded as inappropriate

⁴Self-categorisation is the process that describes the way we categorise ourselves as member of a particular group.

by the public. When a relationship between groups (e.g. police and demonstrators) becomes asymmetric (Stott & Drury, 2000) a re-categorisation of group membership and the appropriate norms can, for instance, lead to a situation in which violence is regarded as appropriate.

The ESIM model has made a valuable contribution in explaining public disorder (Stott, Adang, Livingstone, & Schreiber, 2007, 2008). In a study by Schreiber (2010) the ESIM model was applied to a (non-British) cultural context. This study confirmed the explanatory value for most instances of crowd violence. Schreiber points out that all but the cases of spontaneous violence (i.e. violence without a clear external trigger), could be explained in terms of group relations. Explaining for the cases of 'spontaneous violence' would be a potential next step in refining the existing model.

The model is one of the best explanations currently available on processes underlying crowd behaviour. It has a strong focus on disorder and the social context. Although it confirms the importance of the social context, the role of other situational factors are not taken into account as much. These might be relevant when the behaviour under explanation is different from disorder. In addition, the focus lies on the interaction between groups, where the in-group interactions could also be relevant. Similar to the flashpoint model, the individual level is not really included.


2.2.3 The initiation-escalation model of collective violence

The initiation-escalation model of Adang(2010, 1998, 1991, 1990) maps the initiation of violence based on a systematic observation study of protest and football events. The observational studies are part of the stream that debunked the myths, and thus, part of the formation of the modern foundation. In this model the observation studies form the ingredients for the explanation of the initiation and escalation of collective violence. First, by describing the behaviour and events involving initiation and escalation. Second, by analysing the phenomenon from an interaction perspective, making explicit that violence cannot be understood without looking at the interaction of at least two parties that are always involved.

Given that crowd behaviour is a difficult domain to perform empirical research, Adang (2010, 1998) shows that it is possible to conduct meaningful structured observations. These observations provided evidence for the absence of irrationality in the behaviour individuals show. Rather, people behave in a way that is meaningful for themselves. No uniformity is observable, i.e. not everybody acts in exactly the same way. Individuals differ, their local situation differs and thus make individual choices based on what they know, resulting in heterogeneous crowd behaviour. Adang refers to (van der Valk & Linckens, 1988; Harrington, 1968; van den Brug, 1986) to argue that being in a crowd does not make a person more violent than outside the crowd.

The observations describe what really happens in a crowd. This did not only help to debunk myths, it also provided a description of the initiation of violence and escalation. A distinction is made between two ways in which collective violence is initiated⁵: violence that has a clear identifiable trigger (response to the external situation, i.e. reactive) on the one hand and violence that does not have this trigger, which makes it seem spontaneous. The last type of violence, without a clear trigger, was almost exclusively performed by adolescent or young adult males.

⁵Collective violence implies multiple people (> 2) in a crowd that are engaged in violent behaviour.



The escalation of collective violence, i.e. more people getting involved, is explained by (a combination of) two different mechanisms: *risk perception* and the existence of the *us versus them* perception (antagonism) between groups. Risk perception involves a mechanism that describes potential escalation based on the risks/opportunity that is perceived. Especially young adult males have the tendency to take more risks and to be violent, an expression of 'the young male syndrome' (Wilson & Daly, 1985). These young males actively seek out opportunities to confront rival groups and they reduce (their perception of) risks by being together and acting with their mates.

The other mechanism, the 'us versus them' antagonism, reflects group relations. The 'us versus them' mechanism involves the perception of one's own group (the in-group) relative to another group (the out-group). For example, when going to a sport event different supporter groups are celebrating the fact that it was an exciting match results in a 'we - we' situation. Another setting could be that different supporter groups are acting provocatively towards each other and an 'us versus them' setting is created. Both situations create different group dynamics, which determine the way behaviour is interpreted and responded to. These group dynamics are explained in terms of group relations and social identity changes in a escalating or de-escalating way, corresponding with the ESIM model.

The model stresses a contextual approach in understanding escalation and led to several practical messages, specifically to avoid frictions between groups. In contrast to most models, this model stays close to the real phenomenon. This makes it a strong model as it covers both violence with and without a trigger.

2.2.4 A reflection

The developments in crowd research have caused a huge shift in theorising, but also had practical consequences. Current models take the stance that crowds are social phenomena, they explain public (dis)order in that sense. The awareness of the role of context, of the dynamics involved, and of social mechanisms appeared to be successful. The research has its impact on policing, for instance, the use of individual targeted interventions as opposed to group interventions, which contributes to a 'we - we' relation between LEO's and the public. The practical impact is also reflected in the way the research done as it is conducted in collaboration with police and police research institutes (Schreiber, 2010). This win-win situation is a source of validation for the existing models and has led to decreased violence around matches throughout Europe.

To reflect over the current models a few things can be noticed. The models share a specific focus on disorder and share an type of explanation of disorder in which the social context is most dominant. The absence of testable theories that generate systematic knowledge of crowd behaviour may also be noticed.

Concerning the specific focus of modern crowd research, most work concerns public disorder and lies in the domain of football and protests. In this thesis it is regarded as crucial to gain a general understanding of underlying processes of group dynamics, not only of specific outcomes like violence or disorder. Even with a focus on violence, the processes leading up to disorder should be included to achieve a more complete understanding. The group processes that underlie violence are assumed to underlie

any form of behaviour in a crowd including grabbing a beer with friends.

The insight that crowds are social phenomena is emphasised by the explanatory power current models have. However, crowd behaviour is not solely influenced by the social context. Individuals in a crowd are situated in a physical world that affect behaviour, for instance, when moving more slowly to cross a street when it is crowded. But also the role of the internal world of an individual plays a crucial role in behaving. The model of Adang already indicates that some indices of violence are not externally visible, they are internally triggered (i.e. the lower risk perception of young men). Furthermore, given an external factor, the way an individual is affected can differ from one person to the other. The inclusion of the internal world of an individual will result in more details about why a behaviour is chosen at a given moment in time.

The role of both the external and internal world defines a situation for an individual. The insight of situation dependency thus involves both the physical and social context, as well as the internal state of an individual. For a broad and complex field, such as crowd behaviour where a multitude of factors are interconnected (e.g. individual, group, interaction, social, physical), it is impossible to understand what is going on without crossing the borders of multiple scientific fields. To say it differently: one should act as if there are no borders, just options what to include or exclude.

Although the modern generation of models delivers an empirically based description of crowd behaviour and provides a socio-psychological explanation for disorder, most of the components of the models are not directly testable. To proceed in validating explanations, the field of crowd research is severely limited. It is practically impossible to perform experiments and test a theory or explanation. Behaviour in crowds is not only dynamic, the multitude of factors that play a role and are interconnected are hard to control for. Performing experiments on crowds would result in data that are unreliable or hard to validate. Importantly, it would lead to a situation with many ethical concerns, in which the safety of subjects cannot be guaranteed.

2.3 Conclusion

The overview of the literature shows how for a long time crowds and the behaviour displayed in crowds were regarded as extraordinary, requiring special explanations. Current crowd research has done away with many myths and unfounded speculations and brought crowd research back into the realm of the ordinary. The last two decades of empirical observational studies have shown that behaviour in crowds is not irrational, emotional, suggestible, destructive, spontaneous, anonymous or uniform and that the same types of rules apply within crowds that govern behaviour outside of crowd situations. Several insights are especially crucial for an understanding of crowd behaviour. First, when a crowd gathers at a physical location whatever happens and whatever patterns become visible is generated by the individuals present. Second, behaviour is situation dependent, meaning that the behaviour displayed at any point in time is dependent on the current context and internal state of the individuals concerned. Context includes the social context, which is regarded as an important source of influence in crowds. Third, crowd behaviour is a dynamic phenomenon, and this dynamic aspect cannot be overlooked when trying to understand behaviour at a certain point in time. Although the current models in crowd research, based on these



insights, have made a great contribution to improve crowd management, they have their limitations: they focus on explaining disorder, usually restrict themselves to a socio-psychological perspective and, most importantly, they are limited in their ability to generate testable theories.

The limitations indicate that a broad approach in terms of scope and focus is needed to increase understanding of crowd behaviour in general. Therefore, it is necessary to have a broader look than a specific behaviour such as violence. The broadness need not apply only to the focus on behaviour in general, it is also meant to apply to situation dependency. The modern models stress the role of the social context by using a socio-psychological approach, this thesis advocates for the incorporation of the external context as well as the internal state of individuals. The external context includes both the physical and social aspects of the environment. Such an approach necessitates input from multiple disciplines to account for the role of physical and social factors on behaviour. Concerning the internal state an individual is regarded as a cognitive system. This makes it necessary to include aspects of human information processing and decision making into any explanation. An integration of relevant knowledge from both social and cognitive sciences is therefore required.

The insight that individuals in a crowd generate behaviour as opposed to the group (e.g. group mind) is the core of modern theories. However, this insight is not sufficiently reflected in the role individuals have in these theories. This thesis aims to restore the individual to its rightful place: the need for a multi-level study is stressed and the role of the individual is given the attention and descriptive richness that is needed to be able to understand crowd behaviour patterns.

2.3.1 Multi-level approach

Crowd behaviour is the behaviour of individuals in a crowd. It is a group level description of what a group is doing. Usually the most striking behaviour is used to describe crowd behaviour, such as aggressive behaviour or clusters of similar behaviour. It is important to realise that this description is an ascription. Groups and thus crowds are (literally) not behaving, the individuals in it behave, which is actually one of the recent perspectives in crowd research (see section 2.1.3).

Here the choice is made to explicitly talk about behaviour of individuals that belong to a group, not about behaviour performed by the whole crowd, unless every single individual performs it, e.g. as in an applause or line-dance. On the other hand, terms such as coordination, cohesion, synchronicity are used to describe an aggregate of group behaviour, or a state that can only be detected at the group level. In describing these kinds of group attributes words that imply a crowd as an individual unit are avoided as they tend to assign the human properties to a group.

As pointed out in the reflection of the myths (see section 2.1.2) there is a tendency to have false intuitions about what human crowd behaviour is. Consequently, ambiguity in concepts and theories may arise. For means of clarity as well as to better deal with the multitude of factors, a clear separation of levels and awareness of the level at which one is operating is crucial. In this study three levels are distinguished, the inter-individual (group), the individual (behavioural) and the intra-individual (cognitive) level.

The inter-individual - group level is the level at which patterns of crowd behaviour

are observed. The patterns are the emergent⁶ products or an aggregate description of a set of individuals as a whole.

The individual - behavioural level is the level at which behaviour of individuals arises and is observed. Behaviour is the external outcome of the internal decision making of an individual, affected by its internal and external state.

The intra-individual - cognitive level concerns the internal world of an individual. Both the bodily and mental state of an individual interact with the external world via perception (external affects internal) and behaviour (internal effects external).

The distinction between the levels is also necessary to gain understanding of crowd behaviour dynamics. On a group level, behaviour patterns arise that originate from the behaviour of the individuals composing a group. This emergent product can only be understood by relating the individual level with the group level. The same can be noted the other way around, behaviour might arise from the individual level, but is influenced by the other levels too. Take for example the role of downward causation, i.e. group level patterns such as being part of a culture, group, or just observing an out-group, affects the behaviour of an individual. Behaviour cannot be understood without distinguishing between the different levels of description and their mutual relations. Throughout this thesis these levels will be referred to as the group, individual and cognitive level.

2.3.2 Individual as cognitive system

One of the major insights of modern crowd theory is that crowd behaviour emerges from individual behaviour, which means that individuals behave. A group does not behave, but an individual can find himself in a group context that has a specific influence on the behaviour the individual displays. Traditional crowd theories drove out cognition from the individuals in a crowd, as Le Bon literally talks about: "...disappearance of brain activity." (LeBon, 1895, p 1.). The modern foundation disregards this view of 'absence of cognitive activity'. However, current explanations do not incorporate the role of cognition, i.e. the way information is processed and behaviour is selected given a current internal state of an individual.

Observable behaviour in itself will not explain crowd behaviour patterns, as the behaviour on the individual level cannot be explained in itself either. To use J* once more as an example: at a certain point he is walking towards the bar. From the outside it is clear that he is walking and heading towards the bar, however it is not possible to say *why* he is moving towards the bar. Is he thirsty? He might as well just be joining his thirsty friend for social reasons.

To understand why and how behaviour and behaviour patterns arise a description of the internal world of an individual needs to be included. This thesis will do just that and trace how an individual gets affected by his current situation (externally and internally).

⁶In emergent phenomena, patterns are typically visible on group level that are not predictable from the individual level components. The complex interplay of the individuals gives rise to these patterns. The rise of new properties on group level, i.e. the behaviour clusters that cannot be explained from the individual level processes that cause them is called emergence (Humphreys, 2006).



Given the list of requirements identified in this chapter a general, integrative, multi-disciplinary approach that will describe individual behaviour from a cognitive system perspective a model is developed. As part of the approach in this thesis to provide for both needs of theory and methodology (simulation), the following chapter will describe crowd behaviour in which individuals are situated represented in the CROSS model. In this model, not only the role of the social context is acknowledged, but also the importance of the internal and external context of an individual is stressed (i.e. situatedness).

