

# Organisational responses to alleged scientific misconduct: Sensemaking, sensegiving, and sensehiding

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## Abstract

While a substantive literature has emerged on the prevalence, causes, and consequences of scientific misconduct, little is known about the organisational perspective in cases of (alleged) misconduct. We address this knowledge gap by employing a comparative case study approach to describe and assess the handling of four cases of alleged misconduct by their university, respectively in the Netherlands and Norway. We propose a theoretical model that explains how organisational responses to misconduct emerge and evolve as iterations of the processes of sensemaking, sensegiving, and sensehiding. In addition, we link these iterations to a set of background premises that nurture the organisational responses and to the responses' outcomes and consequences. We conclude that several aspects of the organisational responses hinder effective learning processes within organisations and their members. Our analysis provides fruitful heuristics for organisations to reflect on, or plan their response strategies to allow for optimal learning.

**Key words:** scientific integrity; scientific misconduct; organisational responses; sensemaking; sensegiving

## 1. Introduction

Several high-profile cases of misconduct have since the 1980s attracted substantial attention to the conduct and functioning of science (Guston 1999). Ever since, science has witnessed an apparent increase in the number of, sometimes spectacular, cases of scientific misconduct. Scientists and science policymakers increasingly express concern about the effective functioning of the scientific enterprise (Fanelli et al. 2015, 2017; Wagner and Bates 2016; Hesselmann et al. 2017).

Whereas it was once thought that misconduct in science could hardly exist due to science's self-regulating mechanisms, scientists and policymakers alike have currently expressed their concern about the apparent frequency of reported cases of misconduct, which by some are considered only the 'tip of the iceberg' (Fanelli 2009; Hiney 2015; Bozeman and Youtie 2016). This concern has led to a now substantial amount of literature on the determinants, consequences, costs, and incidence of misconduct in science. In addition, the European concept of misconduct in science has been expressed more refined, now frequently encompassing not only the core misdoings in science—fabrication, falsification, plagiarism (FFP)—but also including a variety of more subtle forms of potentially detrimental behaviour under the heading of *Questionable Research*

*Practices (QRP)* (Steneck 2006; Penders et al. 2009; Horbach and Halfman 2017). Commonly, these latter practices are considered more injurious to the scientific enterprise, due to their apparent wide spread nature and systemic causes, such as pressure to publish and lack of social control (Martinson et al. 2005; Bouter et al. 2016).

The growing concern over scientific misconduct has led to a substantial amount of research on the incidence, causes and patterns of misconduct (Hackett 1994; Vaughan 2002; Faria 2014, 2015). However, while scholars increasingly acknowledge the importance for organisations to provide a healthy working climate that fosters research integrity (Martinson et al. 2013), little is known about how universities and research organisations respond to cases of alleged misconduct. Researchers have a great deal of autonomy in their work, through the notion of 'academic freedom'; yet, researchers are also employees, and they work in formal organisational surroundings, where universities, as employers, have responsibilities to act in situations of alleged misconduct. Even though we know at least implicitly that universities have such obligations, we lack knowledge on how they respond to alleged scientific misconduct and why they respond as they do. Even though some studies have addressed the issue of responses to scientific misconduct empirically

(Mazur 1989; Steneck 1994; Bonito et al. 2012) much uncertainty still exists about the specific mechanisms at play as well as their consequences (Ben-Yehuda and Oliver-Lumerman 2017). In addition, previous studies on responses to alleged misconduct have been predominantly empirical in nature and have so far failed to add sufficient theoretical knowledge.

To address part of this knowledge gap, we use a comparative case-study approach to describe and assess the way in which four cases of alleged misconduct have been handled by their respective universities—two cases in the Netherlands and two cases in Norway. We have two main objectives: First to empirically explore and describe the four influential cases of alleged misconduct, including the response processes and the outcomes of the cases. Secondly, we aim to explain the reasons and rationale of mechanisms at the base of these processes and outcomes. We do so by adopting the concepts of organisational sensemaking, sensegiving, and sensehiding (Weick 1995; Gangloff 2014; Degn 2018), which address how organisations experience surprising events—such as alleged misconduct—and seek to restore status quo in the aftermath of the events. On the basis of our analysis, we propose a theoretical model that depicts organisational responses to misconduct as iterations between these three forms of social processes. We thus aim to contribute to knowledge about research misconduct by highlighting the impact of organisational behaviour on understandings and assessments of alleged misconduct.

## 2. Theoretical framework

### 2.1. Scientific misconduct

Debates over scientific misconduct are not new to science. For decades, scholars have been interested in the phenomenon, which, over the years, has gradually shifted from being a discussion on ‘fraud’ to one of integrity, misconduct, and ethics (Ben-Yehuda and Oliver-Lumerman 2017; Horbach and Halfman 2017). Within this debate, scientists and policymakers alike have distinguished between behaviours which are related to scientific integrity and those which are not: plagiarism usually is related to integrity, ‘self-plagiarism’ sometimes is, and behaviours such as harassment or financial fraud usually are not. Even among those behaviours classified as misconduct, scholars distinguish between more or less severe practices. Manipulating data or tweaking statistics is considered particularly harmful in biomedical sciences and human services fields, with potentially life-threatening consequences (Montgomery and Oliver 2017). Alternatively, plagiarism, duplication, and text recycling is considered more severe in the humanities, because ‘the wording is the essence of the novelty’ (Chrousos et al. 2012). In addition, classifying certain behaviour as misconduct or QRP allowed scientists to analyse the prevalence and causes of such behaviour, both in general terms as well as in specific research areas. Although much uncertainty still exists, some QRP’s are expected to occur in substantial extent (John et al. 2012; Horbach and Halfman 2017), whereas the core sins of science, FFP, are thought to be less common (Fanelli 2009).

The definition of misconduct has been anything but static. Norms and guidelines have shifted over the years as a result of institutional and organisational pressures (Montgomery and Oliver 2009), shifting power relations (Martin 1992), and novel detection abilities (Callahan 2017). In the light of this shifting organisational landscape, with novel actors articulating and standardising norms and guidelines, it is of particular interest how universities, at the centre of these discussions, respond to cases of alleged misconduct (Montgomery and Oliver 2009).

### 2.2. Organisational causes for misconduct

In order to study responses to misconduct in science, we distinguish three layers of the academic system that influence the emergence of misconduct: the environment of institutions (macro-level), organisational characteristics (meso-level), and the understandings and practices of individuals (micro-level). Although these three levels of analysis are often held separate, the literature shows that the social origin of non-conformative behaviour is in the connections between them (Hackett 1994; Vaughan 2002; Faria 2015). Two of the layers, the research environment and the individual behaviour of its practitioners, have received ample attention in the literature on scientific integrity and misconduct, leading to discussion about the ‘publish-or-perish’ dictum and analyses of psychological and demographical characteristics of suspected fraudsters (Anderson et al. 2007; Fanelli et al. 2015, 2017). However, the role of research organisations, including their characteristics and responsibilities, has only marginally been addressed.

Being notably absent in the discussion and analysis of misconduct in science, organisational characteristics have been widely studied in the context of other forms of misconduct, such as white-collar crime, corruption, financial fraud, and medical errors (Vaughan 1999; Thurman 2001; Ashforth et al. 2008; Greve et al. 2010; Murphy and Dacin 2011; Trinkle et al. 2017). These studies demonstrate the influence of institutional characteristics on the occurrence of dubious behaviour and outline the ways in which the micro-, meso-, and macro-levels interact to provide incentives, opportunities, and motives for such behaviour. Among others, the literature highlights the importance of (the lack of) social control. Traditionally, science is characterised by a high extent of social control, which manifests itself through mechanisms such as peer review, reproducibility studies, collaborative work and numerous external oversight and regulating platforms and institutions (Collins 1968; Montgomery and Oliver 2009; Leahey and Montgomery 2011). It has long been claimed that these mechanisms contribute to the self-regulating nature of science, that is, that science naturally ‘has’ integrity (Merton 1973; Zuckerman 1977). However, due to the growth of and increased competition in science, social control is thought to be under threat (Zuckerman 1984). This is considered one of the main explanatory factors for the occurrence of scientific misconduct (Vaughan 2002; Faria 2015). In order to understand the occurrence of organisational misconduct, other factors have also been studied. They include the presence of regulatory frameworks, the extent to which organisations are hierarchically structured, and the perceived level of managerial pressure on individual scholars (Zuckerman 1977; Vaughan 1999, 2002; Greve et al. 2010; Murphy and Dacin 2011).

### 2.3. Organisational responses to research misconduct:

#### A sensemaking perspective

On top of the above, there is also an extensive literature that has focused on organisational responses to misconduct, albeit that this literature has only marginally focussed on the academic or scientific context. In this literature, a central theory is that of organisational sensemaking (Gioia and Chittipeddi 1991; Weick 1995; Weick et al. 2005; Gangloff 2014), which highlights how organisations experience and respond to extraordinary events such as accidents, crises, or, in our context, alleged misconduct. It comprises three interrelated concepts of sensemaking, sensegiving, and sensehiding.

The concept of sensemaking has been described as ‘the ongoing retrospective development of plausible images that rationalise what

people are doing' (Weick 1995; Weick et al. 2005). Violations of commonly held expectations of acceptable or 'normal' behaviour create a discrepancy that demands organisations—such as universities—to attach meaning to these events (Weick et al. 2005; Gangloff 2014), thereby answering the basic questions of 'what does this [incident] mean?' and 'what should I [or we] do next?' (Gangloff 2014). Rather than focusing on isolated responses, sensemaking involves a 'continued redrafting of an emerging story so that it becomes more comprehensive' (Weick et al. 2005; van Vuuren 2012). In the light of misconduct, sensemaking serves as a primary mechanism to establish a common understanding of appropriate behaviour (Palazzo 2007; Greve et al. 2010).

Sensemaking is not solely an individual endeavour occurring in a vacuum of personal interpretations. On the contrary, actors, both individuals as well as organisations, may use strategic actions aimed at influencing, nudging, or forcing others to make sense in a particular way. This is called 'sensegiving' and refers to attempts to guide the 'meaning construction of others toward a preferred redefinition of organisational reality' (Gioia and Chittipeddi 1991; van Vuuren 2012). As such, sensegiving operates in a reciprocal relationship with sensemaking (Rouleau 2005; Gangloff 2014). For example, in cases of alleged misconduct, organisations might implicitly or explicitly engage in practices of sensegiving to exploit the information asymmetry between the organisation and outside spectators, thus shaping external evaluations of the discussed research practices into desirable directions.

Two main forms of sensegiving have been outlined—explanatory framing (i.e., what the organisation says) and corrective action (i.e., what the organisation does) (Williams and Benford 2000; Gangloff 2014). Giving sense through explanatory framing occurs by concentrating information through highlighting some aspects or punctuating certain clues (Williams and Benford 2000). Examples include the actors stating to have 'no other choices', or stressing the fact that no uncommon deviation from common practices has occurred. Secondly, sensegiving through corrective actions involves intentions to prevent repetition of the non-conforming behaviour (Maitlis and Lawrence 2007; Monin et al. 2013). Examples may include the execution of certain sanctions, the establishment of new procedures or the installation of new equipment. Overall, a consistency between the explanatory framing and corrective action, that is, 'walking the talk'—has been documented as most effective in order to restore relationships with external stakeholders (Gangloff 2015).

Constitutive of the practice of sensegiving, is the notion of 'sensehiding' (van Vuuren 2012; Monin et al. 2013). By performing activities of sensegiving, one inevitably engages in processes of distorting and manipulating images through holding back particular aspects or cues. By leaving out these specific aspects, an actor aims to create a favourable image or meaning. In such cases, it is of primary interest to whom such image or meaning is favourable. Employing the organisation's status over those of individual participants involved in the case of alleged misconduct, the practice of sensehiding might be a particularly effective way of influencing (public) perceptions in the aftermath of the case (Gangloff 2014).

In our analysis, we use the sensemaking, sensegiving, and sensehiding concepts to answer the question of how organisations respond to alleged cases of scientific misconduct. We see the three concepts as interrelated and mutually constitutive. We thus examine the extent to which the concepts, which have predominantly been applied in management studies of organisational misconduct, apply in an academic setting. Examples of central themes that we expect to be relevant also in organisational sensemaking of scientific

misconduct includes the types of behaviour that are 'made sense of' in the first place; the discrepancy between formal statements and actual practice in organisations' responses to the alleged misconduct (MacLean and Behnam 2010; Degn 2018); and the tendency to reduce reputational damage rather than facilitating effective learning practices (Coombs 2007; Davies and Olmedo-Cifuentes 2016). Thereby we address the knowledge gap concerning how cases of alleged scientific misconduct are responded to and we extend the theory of sensemaking as a response to misconduct to the setting of universities.

### 3. Methodology

#### 3.1. Selection of cases

In our analysis, we adopt a comparative case study design (Eisenhardt and Graebner 2007; Yin 2013) to assess the four cases of alleged misconduct. The cases were theoretically sampled to extend extant theory based on different characteristics. First, the cases were chosen from two different countries, the Netherlands and Norway. Both countries have relatively well-established procedures regarding research integrity and scientific misconduct; they may in fact be regarded as forerunners in the field of scientific integrity policy within Europe. This is witnessed among others by the existence of a legal framework regarding scientific misconduct in Norway, defining misconduct in legal terms and outlining sanctions for transgressing those. At the time of selecting our cases (early 2016), Norway was the only European country to have such legislation defining misconduct and its sanctionability, even though this was not yet enforced when one of the described cases took place. Later, other countries, including Denmark, also introduced national legal frameworks regarding research misconduct. Another example demonstrating Norway's and the Netherlands' proactive stance regarding research integrity is the existence of a national committee on scientific integrity (LOWI) and explicit guidelines regarding transparency concerning cases of alleged misconduct in the Netherlands. However, similar initiatives were taken elsewhere as well, including in Denmark, the UK, and Croatia. Furthermore, both countries provide publicly available information on these and other cases of alleged misconduct. For example, in the Netherlands, the national association of universities collects anonymised case reports on alleged cases of scientific misconduct that were handled by institutional integrity committees. All Dutch universities are obliged to participate in this and annually send in their reports. The same holds true for Norwegian research institutes since the installation of the new legislative framework. This relative openness about organisational handlings of alleged cases of misconduct in both countries allowed us to perform detailed case studies.

Secondly, from each country, we selected one 'black-and-white' case of relatively clear instances of misconduct, and one case within the 'grey' area of scientific integrity's spectrum. This selection thus involved a theoretical distinction between FFP in the black-and-white cases and forms of QRP in the grey area cases. Furthermore, the black-and-white case involved high-profile academics (and universities) as well as extensive media coverage, whereas the grey area case have involved more 'average' scientists with a lower academic status and have generally stayed under the radar of public and media attention. In so doing, the theoretical sampling enables us to extend our findings across national contexts and types of misconduct. Due to privacy issues and constraints, we are cannot reveal the identities of the directly involved or any of our interviewees in the 'grey' cases.

### 3.2. Data collection

The data used in the analysis are publicly available documents, supplemented with interviews (see [Appendix Table A1](#)). The documents include the official allegations; investigation reports both from local and national authorities (universities and national bodies on research integrity); newspaper articles; and public letters and statements by the involved parties.

The document analysis was complemented by nine face-to-face and five telephone interviews with actors involved. In all cases, attempts were made to interview the accused, but all declined or simply did not respond to our repeated invitations. The interviews were conducted in Dutch and Norwegian respectively, lasted for approximately 1 h and were tape-recorded upon interviewee approval to allow for detailed analysis. The interviewees in both Norway and the Netherlands were given the opportunity to comment on drafts of the case analyses and all agreed to the manuscript's final draft. The interviews have been anonymised and the interviewees will not be identified in this article.

We used content analysis ([Krippendorff and Bock 2009](#)) to establish the narrative of the cases. We did so by reading the publicly available documents and identifying involved actors; form and origin of the allegation; official processing of the allegation; conclusions of official procedure; and responses to the allegation and conclusions of official procedure. Information from the interviewees were used to complement and triangulate information from the available documents as well as to illustrate personal consequences and viewpoints from involved actors. Interview reports were coded along the above topics, that is, actors, allegation, processing, conclusions, and responses. In the interview reports, we also searched for commonalities and differences in rationales and motives of involved actors to act in the ways they did. The comparative nature of the case study approach manifests itself in this latter aspect.

By sampling cases from a diverse background we aimed to find commonalities and differences in their structure and the motives of the involved actors, thus engaging in 'asymmetrical comparison' ([Krause 2016](#)). This has helped us provide a detailed understanding of how cases of alleged misconduct are dealt with and the common patterns entailed in such cases.

## 4. Case descriptions

### 4.1. Dutch Case 1

This case involves the Dutch emeritus professor in regional economics and economic geography of the Vrije Universiteit Amsterdam (VU), Peter Nijkamp, and his PhD student Karima Kourtit. Several anonymous allegations were filed against them between May 2013 and June 2014. Additionally, allegations of self-plagiarism were put forward by a national newspaper in January 2014. These allegations were processed by four local integrity committees at VU, with each committee looking into one allegation. In two instances, the accused appealed their cases at the national committee on scientific integrity (LOWI) which handled both cases. Nijkamp is a particularly prominent scientist within the Dutch research system, being a former president of the governing board of the Netherlands Research Council, chairman of the Dutch Social Science Council (SWR) and vice-president of the Royal Netherlands Academy of Sciences (KNAW). On top, Nijkamp has become widely known as one of the most productive scholars in his field. From 1975 onwards he published over 2,300 scientific articles and more than 100 edited volumes.

### 4.1.1 The organisational context

Prof. Nijkamp was a full professor at the Department of Spatial Economics at VU. The department holds 60 staff members who are involved in fundamental as well as national and international commissioned research. RePEc ranks the Department in the top 5 per cent of the world in multiple domains of spatial economics (VU 2017).

The Department of Spatial Economics is part of the faculty of Economics and Business Administration. The faculty's webpage explicitly mentions the importance of scientific integrity. In addition, it explicitly refers to the codes of conduct by VSNU ([VSNU 2012](#)) and ALLEA ([ESF/ALLEA 2011](#)) that faculty members are to adhere to. Furthermore, it has a reference to a university-wide 'Academic Integrity Complaints Procedure' (although the document cannot be found on the universities webpage), to faculty-specific trustees, and it mentions the university-wide committee on scientific integrity.

Within the department there is, officially, a clear focus on the quality of research, rather than the quantity. This shows, for example, in the fact that research resources are distributed over the department members on the basis of their top-five publications from the past 5 years, rather than their total amount of publications ([Zwemmer et al. 2015](#)) (Interviewees 2, 3). This system was implemented prior to the start of Nijkamp case and is still in place. Contrary to this, Prof. Nijkamp's colleagues indicate that some members of the department, including Prof. Nijkamp himself, had a clear focus on quantity anyway: 'Prof. Nijkamp was a good professor and a good scientist. He completely dedicated himself to his research, but he particularly focussed on its quantity, rather than its quality. This mainly showed when he participated in large European projects. ... In such cases he was very eager in forming many (or several) journal articles from one project report' (Interviewee 2).

Concerning the position of Nijkamp within the department, several of the interviewees note that it is best described as an 'island-like structure' in which prof. Nijkamp gathered a group of researchers who interacted only very limited with the rest of the department. Both this fragmented structure and the prevailing hierarchy, in which Nijkamp is described as an incontestable leader within his sub-group, gave rise to minimal levels of social control (Interviewees 1, 2, 3).

### 4.1.2 The allegations

The allegations by the anonymous whistleblower (who used the pseudonym N.N.) concern (self-) plagiarism in the PhD thesis by Karima Kourtit, largely co-authored by Nijkamp; plagiarism in journal articles (co-)authored by Nijkamp; and data fabrication and manipulation within Nijkamp's work ([LOWI 2015, 2016](#); [Struiksma et al. 2015](#); [Zwemmer et al. 2015](#)). On top, the national newspaper NRC put forward an allegation of self-plagiarism within large parts of Nijkamp's oeuvre. Subsequently, the case invoked several public allegations against Nijkamp in the form of newspaper articles, blog posts, and commentaries ([Remmie 2014](#); [Verbon 2016](#)).

### 4.1.3 The responses

The VU installed several committees to officially handle the filled allegations. Three ad hoc committees were installed as a response to the official allegations put forward by N.N. to the VU university board. The fourth ad hoc committee was charged with the investigation into citation practices in Nijkamp's work, thereby investigating the newspaper allegations of self-plagiarism. In addition, two of the

committees' conclusions were appealed at LOWI, yielding yet another two investigations into the allegations.

The committees come to diverse and sometimes contradictory conclusions. Most notably, LOWI repeatedly comes to different, milder conclusions than the ad hoc committees installed at VU. Because of the high number of committees and resulting investigation reports, we will not go into great depth into all conclusions, but rather limit the discussion to the core findings and the organisational responses to them. For more details we refer to the (public) investigation reports presented at the VSNU and LOWI webpages (Zwemmer et al. 2015; LOWI 2015, 2016; Struiksma et al. 2015; VSNU 2015).

The conclusions of the first committee stating that plagiarism was found in the doctoral thesis of Karima Kourtit, led the VU to postpone her public defence and give her the opportunity to resubmit her dissertation after rewriting the alleged passages.

The second VU committee finds plagiarism in several articles authored by Nijkamp. After appeal, the national integrity committee, LOWI contradicts this statement by stating that no clear intention to deceive can be found in the re-use of some text fragments and hence concludes that no plagiarism has occurred. These findings did not revoke any official response by the VU.

The third committee installed by the VU, investigating allegations of data fraud, concludes that no clear signs of data fraud can be found within the alleged publications, amongst others because no 'intentional misleading to obtain an advantage' could be identified.

The findings of the previous committees, most notably the first and second VU committee, as well as the newspaper allegations of self-plagiarism in Nijkamp's work, led the VU to install a fourth ad hoc committee to study the citation practices in Nijkamp's oeuvre. The committee concludes that 'systematic copy-pasting' within Nijkamp's work and qualifies this as 'QRP', intended to 'lead to a high number of publications, rather than an original oeuvre' (Zwemmer et al. 2015). After requesting a second opinion at LOWI, the national integrity committee concluded that the fourth VU committee did not use appropriate methods to assess Nijkamp's citation practices and hence that the conclusions by the VU committee are poorly grounded.

The findings of the committees in turn sparked various debates, most notably in the media, resulting in dozens of newspaper articles, blog posts and comments, as well as (inter)national debates on the acceptability of 'self-plagiarism' or text recycling (Horbach and Halffman 2017). This in turn resulted in novel regulations and guidelines on citation practices and text recycling (KNAW 2014).

The directory board of the VU consents with the findings of the Committee but does not approve of the judgement that Nijkamp committed 'QRP', because this, according to the directory board, can only apply to individual publications (instead of an entire oeuvre) and because no clear regulations and norms regarding self-plagiarism were articulated at the time of publication of the alleged articles. The directory board specifically focussed on Prof. Nijkamp, rather than to include his co-authors in the investigation, because the allegations in the newspaper did so. The investigation was aimed as clarification of the adopted practices by Nijkamp and, in case the results of the investigation allowed for this, to his name (Interviewee 1). Because no other co-authors were accused of committing any undue practices, the directory board did not feel the need to clear their names and did not intend to raise any discussion on them (Interviewee 1).

Succeeding the publication of Committee 4's final report, the co-authors affiliated to the VU were individually informed about the Committee's findings by the Rector (Interviewees 1 and 2). One of the

involved co-authors describes this as: 'We were invited to visit the rector magnificus. He gave a sermon of ten minutes with almost no room for interaction or discussion ... All in all, we as co-authors felt that the VU was not there to protect us. It did not feel as a safe environment and my confidence in the institute has dropped dramatically' (Interviewee 2). While co-authors complain about the lack of a protective environment, others pointed to co-authors' responsibilities within the publication process and the fact that none of them signalled prof. Nijkamp's potential dubious behaviour (Interviewee 1).

The VU decided not to take any measures against Prof. Nijkamp and did not further investigate the individual publications on plagiarism. During the case, Prof. Nijkamp reached the age of retirement and was made an emeritus professor in January 2015. In this role, he is still able to work at the VU and continues his scientific career.

## 4.2 Dutch Case 2

This second Dutch case report concerns the allegations of plagiarism in, and poor scientific quality of, an external doctoral student's dissertation at Erasmus University Rotterdam (EUR) filled in 2013. The alleged culprit was a female doctoral student working in the consultancy sector and writing her dissertation at the Rotterdam School of Management on the topic of leadership models. Her Promotor, who was targeted in the allegations for not properly executing his role as supervisor, held a part-time professorship at EUR, where he acted as supervisor for a total of ten PhD students, the majority of which were external PhD students.

The case was handled by various committees at EUR and went to appeal at LOWI. Interestingly, the case stirred a debate about the possibility to retreat a doctoral degree after it has been rewarded by a university, a process of which no antecedents are known in the Netherlands. Despite the discussion of these rigorous measures, the case received only very limited (media) attention and mostly went by unnoticed.

### 4.2.1 The organisational context

Doctoral student X. was affiliated as an external doctoral student with the EUR. Here, she was supervised by Dr. Z. and Promotor Y. from the Erasmus Research Institute of Management. In this, the daily supervision was in hands of Dr. Z., while Promotor Y. acted as the official promotor (Interviewee 8). The process of writing and performing the research was mainly supervised by Dr. Z., while all results were subsequently shared with Promotor Y. to allow him to give feedback on all produced material (Interviewee 8). Together, Dr. Z. and Promotor Y. supervised between 25 and 30 external doctoral students during their careers (Interviewee 6). In addition, Prof. Y. was president of the exam committee at the Rotterdam School of Management.

As external doctoral student, doctoral student X. was only limitedly embedded within the department. She did not physically spend time at the department, nor did she cooperate with its members other than her supervisors (Interviewees 5, 6, and 8). Because she, as external doctoral student, was not enrolled in any of the training activities at Erasmus University, rules and regulations regarding scientific integrity were expected to reach doctoral student X. via her supervisor.

### 4.2.2 The allegations

On 22 November 2013, Dr. B. filled an official allegation of plagiarism in Doctoral student X.'s dissertation to prof. Dr. Pols, Rector of

EUR (Basten 2013). According to Dr. B. large parts of the thesis have been copied from other sources without proper reference to them. The whistleblower finds at least thirteen sources ranging from Wikipedia articles to other PhD theses. In several cases, Doctoral student X. does mention the use of a source in the beginning of a paragraph, but later copies large parts of the source without showing that the text was not her own. The allegation comprises a detailed list of parts of A's dissertation and the sources from which they have allegedly been copied.

In addition, the whistleblower mentions that two members of the doctoral committee and Doctoral student X.'s promotor, Promotor Y., were involved in the supervision of two theses from which material was plagiarised. This leaves the whistleblower to wonder whether the supervisors were aware of plagiarism in A's dissertation and whether intend to deceive is in play (Basten 2013).

On top of pointing to plagiarism in Doctoral student X.'s thesis, the whistleblower considers the thesis to be of extremely low scientific quality. However, she decides not to include statements on this subject in her allegations because she did not feel like having discussions on the content of the thesis and considered the amount of plagiarism so overwhelming that discussion on quality were no longer needed in the light of rules on scientific integrity so flagrantly being broken (Interviewee 7). In later stages of the allegation's handling by integrity committees, the scientific quality of the dissertation nevertheless came to play a central role.

#### 4.2.3 The responses

EUR responded to the allegation by installing an ad-hoc integrity committee to investigate the allegation. Basing itself on the code of conduct by EUR (2013), KNAW (2014), VSNU (2012), and ESF/ALLEA (2011), the committee concludes that the allegation is grounded and that doctoral student X's dissertation indeed contains plagiarised material. The amount of copied text without proper citation is of such extent that one cannot speak of honest error or negligence. Therefore, according to the committee, the EUR has unjustly provided the doctor-degree to Doctoral student X. Concerning the supervision, the committee concludes that the promotor, Promotor Y., has provided insufficient support to his student and has been imputably inadequate (Doelder et al., 2014).

These conclusions led the committee to advice the EUR directory board to repeal their decision of rewarding Doctoral student X. a PhD degree. In addition, it advises the directory board to investigate the other theses written under supervision by promotor Y. Apart from that, the committee makes several recommendations on policy adjustments to prevent similar cases of fraud in future projects (Doelder et al. 2014).

Commenting on the report by the integrity committee, the directory board of the EUR states that it does not fully consent with the findings of the committee (College van Bestuur EUR 2014). Although the board acknowledges that substantial amounts of text have been copied, it asserts that clear rules about what constitutes plagiarism are lacking. In addition, the directory board feels that the supervision of Doctoral student X. was insufficient. Finally, the majority of the plagiarised text concerns parts of the introduction, theoretical framework, and methodology sections, rather than the core of the results or conclusions. Given these contextual circumstances, the directory board feels that repealing the decision to provide Doctoral student X. a PhD degree would be too grave of a sanction. Instead, the directory board decided to reprimand Doctoral student X. and to demand her to rewrite the plagiarised parts of her thesis

and provide proper citations. The directory board consents with the committee's advice to investigate the other PhD theses written under promotor Y.'s supervision.

Following the decision by the EUR's directory board to provide Doctoral student X. a second chance to rewrite her thesis, the whistleblower appealed the case at national integrity board, LOWI. LOWI concludes that Doctoral student X. committed a severe form of plagiarism that cannot be attributed to negligence or mistake. The LOWI Committee advises the directory board to reconsider the imposed sanctions on Doctoral student X. (LOWI 2014).

Nevertheless, Doctoral student X gets the chance to rewrite her thesis and denude it from plagiarism. She takes on the job. Subsequently, EUR installs a second committee, not referred to as an 'integrity committee', tasked with judging the rewritten version of A's dissertation and testing the other theses written under supervision of Promotor Y. on plagiarism. The committee concludes that the resubmitted dissertation is free of plagiarism but is of too poor scientific quality to warrant a doctoral degree. In addition, it concludes that the other theses written under supervision of promotor Y. do not contain significantly more overlap with other work, than the theses in a control group (Leefflang 2015).

Basing itself on the report by Committee 2 and the LOWI Committee, the EUR directory board made a final decision in the Doctoral student X. case on 25 June 2015 (College van Bestuur EUR 2015). The final decision targets Doctoral student X., her promotor and general aspects of EUR policy for doctoral students. The directory board decides to:

- Make the (anonymised version of the) final report by Committee 2 publicly available;
- Repay the government subsidy obtained after the PhD-defence of Doctoral student X.;
- Not store any hardcopy or digital version of Doctoral student X.'s thesis in the university library;
- Advice other universities to remove (the original version of) Doctoral student X.'s thesis from their libraries.
- Promotor Y. cannot act as promotor of a doctoral candidate, nor can he become member of a doctoral or manuscript committee judging the quality of a PhD-thesis at the EUR.
- Every internal and external doctoral candidate should write an educational and supervision plan for his/her doctoral study;
- Every doctoral student should be supervised by at least two staff members;
- More severe demands will be set on the composition of doctoral committees judging the quality of a thesis;
- Every doctoral thesis should be subject to a plagiarism detection scan and the results of the scan should be analysed in context (NB such a scan was performed in this case prior to submitting the first version of the thesis, without flagging unacceptable duplication);
- Every doctoral student should acknowledge to be aware of the code of conduct for scientific practices at the EUR (College van Bestuur EUR 2015).

Because there are no set means to repeal Doctoral student X.'s degree, the directory board decided to request Doctoral student X. to voluntarily renounce her degree, but to not take any legal steps in demanding her to do so. Doctoral student X has not yet followed up on this request.

This case remained relatively 'below the radar', yielding only minor media attention (Kolfshootten 2015) and public discussion.

Nevertheless, the measures taken by EUR did have some implications for national policy on research integrity and supervision of (external) doctoral students. This will be discussed more elaborately in Section 5.

### 4.3. Norwegian Case 1

The first Norwegian case concerns Jon Sudbø, who was an academic super-star until a whistleblower suggested that the patient data used in his 2005 *Lancet* article did not yet exist. An investigation into Sudbø's record of accomplishment, showed that he had fabricated data in at least half of his scientific articles including his PhD. Sudbø lost his job and was revoked his PhD and authorisations as a doctor and a dentist.

#### 4.3.1 The organisational context

Sudbø worked within the disciplines of medicine and odontology. He was an oral cancer researcher at the Rikshospitalet-Radiumhospitalet. Sudbø was relatively young (45 years) medical doctor and a dentist when he was accused of scientific fraud in 2006. He had top grades (best in his odontology class), with an impressive CV and several large research grants. One of his last grants was from the National Cancer Institute in the USA, which he got in March 2004 together with distinguished American cancer researchers. In an interview with the Norwegian newspaper *Aftenposten*, Sudbø tells 'about periods of intense engagement where work is all-embracing and that the research gives the same kick as paragliding and diving. I'm probably a risk-taker and curious person' (Kluge et al. 2006). Sudbø was an independent lone wolf ever since he started his PhD in 1993. Few had insight into his work. Lack of (social) control over his work and a competitive culture therefore also explain why he was able to carry on with his fraudulent behaviour without questions for more than a decade.

#### 4.3.2 The allegations

The allegations in Sudbø's case were filled by Camilla Stoltenberg, M.D., a researcher and Director at the Division of Epidemiology at the Norwegian Institute of Public Health, who had studied a new article by Sudbø in the October 2005 issue of *Lancet* (Sudbø et al. 2005). She noticed that the data used was from an epidemiological database (CONOR) that did not exist at the time of the supposed data collection.

On 10 January 2006, Sudbø and his PhD advisor met with the Cancer registry, where also Professor Vatten from the University of Trondheim was present. Sudbø verbally admitted to his employer on 12 January 2006 that he had fabricated the patient data (Ekbom 2006). The Radium hospital informed the *Lancet* and the press that Sudbø had manipulated the data in his article the day after. The *Lancet* itself first expressed a concern about the article on 21 January (Horton 2006) and retracted the article on 4 February (Horton 2006) after Anders Ekbom, the leader of the investigation committee, confirmed in a letter to the *Lancet* that it contained fabricated data. The *New England Journal of Medicine* expressed a similar concern on two other papers by Sudbø on February 9th (Curfman et al. 2006), but awaited the results from the investigation committee before they retracted both papers on 2 November 2006 (Sudbø et al. 2001, 2004; Curfman et al. 2006).

#### 4.3.3 The responses

On 18 January 2006, an independent investigation committee was appointed by Rikshospitalet—Radiumhospitalet Medical Center

and the University of Oslo to investigate the admitted fraud and determine the role of the co-authors (among others Sudbø's wife and twin brother, and prominent cancer researchers from the USA and Finland) and whether Sudbø's prior work was fraudulent (Ekbom 2006). The commission was led by the Swedish epidemiology professor Anders Ekbom, at Karolinska hospital in Stockholm, Sweden. The committee also included statisticians, researchers, and staff of the Norwegian Institute of Public Health, the Norwegian Research Council, Cancer Registry of Norway, and the Cancer Clinic at the Radium Hospital.

All of Sudbø's scientific work from 1993 to 2006 was investigated in a report of almost 150 pages (Ekbom 2006). In total sixty scientists from six different countries and thirty-eight scientific papers were investigated. A total of fifteen of Sudbø's thirty-eight articles, including parts of his doctoral work as well as articles in *Lancet*, *New England Journal of Medicine*, and *Journal of Clinical Oncology* were considered fraudulent due to manipulation and fabrication of patients' data.

The investigation committee documented that large part of the patient data were manipulated, for example: (1) several were fictitious persons with inserted birth dates; (2) data from a single patient were reused; and (3) half of the patients had already been diagnosed with oral cancer before or at the same time as the leukoplakia was diagnosed. These latter patients could not be studied for later development of cancer, since they already had cancer. In addition, in the October 2005 *Lancet* article, Sudbø seemed to have used a database including 908 subjects (Sudbø et al. 2005). It turned out that these data came from a database which did not yet exist and that the data once again were fabricated with 250 subjects with identical birth-days (Ekbom 2006). Sudbø also admitted partly to the investigating commission (Ekbom 2006) that he had fabricated data in an article in *Clinical Oncology* (Sudbø et al. 2005).

Responding to the committee's findings, Sudbø was the first to have his authorisations as a physician and dentist revoked because of scientific fraud in Norway. Moreover, he was the first to have his doctoral thesis revoked at the University of Oslo (Haug 2007). In addition, he was fired from Rikshospitalet—Radiumhospitalet and his 20 per cent position at the Medical Faculty, University of Oslo.

The committee reprimanded Rikshospitalet—Radiumhospitalet for a lack of control on Sudbø's projects, lack of educational measures in the area of research ethics, and lack of routines for dealing with misconduct. As a response, Rikshospitalet—Radiumhospitalet introduced regulatory systems for securing better institutional control over their research activities, among other things, the introduction of larger research groups (Harboe 2006).

The Sudbø case undoubtedly increased the awareness of research misconduct not only in the health care sector in Norway, but also at other research institutions, colleges and universities. Several institutions have introduced more elaborate supervisory and regulatory systems to monitor research programmes and routines (Nylenna 2007). Mandatory courses in research ethics have also been introduced and several institutions have made their own local research integrity guidelines.

The Sudbø case was an eye-opener for the Norwegian authorities. Although a discussion on research integrity had been going on for several years, a new law on research ethics was finalised quicker than anticipated, in 2007. The law requires institutions to bear the responsibility of regulating research misconduct. In the wake of the new law, the National Commission for the Investigation of Research Misconduct ('Granskningsutvalget') and the regional

ethics committees for medical research also saw its birth and became statutory (Tavare 2011; Nylenna 2016). Moreover, scientific dishonesty was given a legal definition in the form of ‘falsification, fabrication, plagiarism, and other serious breaches of good scientific practice committed intentionally or grossly negligently in planning, conducting, or reporting research’.

We found 315 matches during 2006–17 searching for ‘Jon Sudbø’ in Norwegian newspapers. As most of these articles were mainly commenting on the allegations and the conclusions from the Investigation report from 2006 (Sudbø et al. 2005), we have for the most part not cited them here. However, the number of matches shows that this was a high media profile case in Norway, and this was also the case internationally. The Sudbø case also sparked an international debate on peer-review, the internal quality-control process and co-authorship.

#### 4.4 Norwegian Case 2

The second Norwegian case concerns a low media profile ‘grey case’ of alleged plagiarism, in which all involved actors were working at the same Christian University College in Bergen, Norway. The case was ‘grey’ for two reasons. First, the case shows that there were tensions between using ethics guidelines and ethics legislations to judge whether or not a case of plagiarism had occurred. Secondly, the case shows that there might be diffuse distinctions between processing and handling a case of workplace conflict and a case of research misconduct (Komite for vurdering av klagesak ved NLA Høgskolen 2014; Forskerforum 2015; Nasjonal utvalg for granskning av redelighet i forskning 2015; Sævik 2015a,b).

##### 4.4.1 The organisational context

During this case of alleged scientific misconduct, the whistleblower, and the accused were both affiliated with the private Christian NLA University College with 2000 students and 200 employees. The College was founded in 1968 and has, in 2017, campuses in Bergen (1,600 students), Kristiansand (200 students), and in Oslo (300 students).

NLA University College is the only private college in Norway offering primary school teacher education. This education is offered in Bergen, where also the kindergarten teacher education is offered together with bachelor and master’s degrees in pedagogics, intercultural understanding, and theology/practical theology and management.

The actors involved in the alleged case of misconduct were stationed at the Bergen campus in the field of pedagogics. The whistleblower worked at the department for pedagogics (Sandviken) and the accused at the department for pre-school teacher education (Breistein). The accused is a lecturer in pedagogics for bachelor and master students. The accused is a mid-career researcher with a master’s degree in pedagogics and an unfinished PhD who has published three book-chapters in Norwegian anthologies on the topic of pedagogic creed for teachers. The whistleblowers are two lecturers in pedagogics, one for pre-school teacher students, the other for both pre-school teacher and primary school teacher students. Both were mid-career researchers. They are co-editors of one Norwegian anthology on pedagogic creed for kindergarten teachers, published August 2015: two of the chapters in this anthology were included in the later search for plagiarism.

The departments at Sandviken and Breistein are located 15 km apart. The two units merged in 2010. Sandviken has a more academic profile, hosting more staff with PhDs and professors, and

publishes more in academic journals compared to Breistein, which is more involved in teaching and applied science. The NLA University College is private; they are therefore not obliged to report openly to the public.

##### 4.4.2 The allegations

In February 2014, the whistleblower at Sandviken unit in Bergen accused two colleagues at the Breistein unit for plagiarism, violation of good reference practice and for ‘uncollegial’ behaviour. The whistleblower claimed that the two colleagues had plagiarised the concept ‘pedagogic creed’ in five unpublished drafts, including two chapters meant for a Norwegian anthology (later published in 2015), and an abstract, paper, and a power-point presentation used at an international conference (Forskerforum 2015; Nasjonal utvalg for granskning av redelighet i forskning 2015).

##### 4.4.3 The responses

The leadership of the NLA University College first sought to resolve the matter between the parties internally. When this effort did not lead to a solution, it was decided to appoint a local expert committee to assess the alleged scientific misconduct. Two of the appointed members were employed at the University of Bergen and a third member was a retired professor still associated with the NLA University College.

The internal committee concluded that the accused had plagiarised the whistleblower, that they had violated good reference practices and behaved ‘uncollegially’. The internal committee used the *Copyright Act (1961)* and the *National Committee for Research Ethics guidelines in the Social Sciences and the Humanities* from 2006 (NESH) for supporting their argument that this was a case of plagiarism. Finally, the local commission stated that the institution had a responsibility for preventing scientific research misconduct in the future; this should be achieved in courses in research ethics, other follow-up and in establishing a sufficient organisational culture (Forskerforum 2015; Nasjonal utvalg for granskning av redelighet i forskning 2015).

The management at the NLA University College decided to take note of the committee’s statement and lay the foundation for further follow-up of the case. This led to the delay of a book publishing and disciplinary warnings for the two accused employees. The NLA management concluded that there were grounds for termination of the accused’s positions, but allowed them to hold their position if they would accept certain conditions. These included the accused to relate to general standards for research ethics in the field of pedagogics and in the institution, and follow a ban on sending e-mails or publish any documents on the case to internal or external colleagues. The accused disagreed with the conclusions, quit their jobs in 2015, and pointed to what they considered were law suiting and procedural errors (Komite for vurdering av klagesak ved NLA Høgskolen 2014; Nasjonal utvalg for granskning av redelighet i forskning 2015). The accused henceforth appealed to the National Committees for Research Ethics (Forskerforum 2015). Using the definition of the Law of Research Ethics, the national review committee concluded that there was no serious breach of good scientific practice and that the accused had not acted fraudulently. In the cases of similarity in text (in PPT-presentations), the investigators had recited text from the study guide at NLA Breistein, rather than copied the text from the whistleblower. Setting the question of plagiarism aside, the national committee criticised the local report for procedural errors and the NLA University College for a lack of routines for dealing with



alleged cases of scientific misconduct and education on research ethics (Forskerforum 2015; Nasjonal utvalg for granskning av redelighet i forskning 2015).

As a direct consequence of the case, NLA published new ethics guidelines and new ideals and guidelines for handling and processing of alleged scientific misconduct. Their webpage now also includes a Scientific Misconduct Notification Form as well as links to web-sources on research integrity. Additionally, the institution published new guidelines for the prevention and management of conflicts between employees. Lastly, in the aftermath of the case, NLA initiate several courses and workshops related to scientific integrity and research ethics.

There were no national or long-reaching consequences of this case. The case had a low media profile. It was not covered by national media. We found a few newspaper reports made by the Bergen-based newspapers ‘Dagen’ (19 and 21 November 2015) and ‘Bergens Tidende’ (9 September 2017) and one online report made by ‘Forskerforum’, a journal for the members of the labour union Forskerforbundet (19 November 2015). These articles mainly described the content of the two investigation reports.

### 5. Organisational responses

In this section, we analyse the organisational responses based on the framework of sensemaking, sensegiving and sensehiding described earlier. The findings are summarised in Table 1.

#### 5.1.1 Sensemaking: *Ad hoc* committees

As shown in Table 1, sensemaking in all of the cases involved establishing committees tasked to investigate the allegations of misconduct. These committees were established on an *ad hoc* basis, and generally had little experience regarding such procedures and went through relatively short learning curves. The cases thus demonstrate the existence of an *ad hoc* nature of investigating and making sense of allegations of scientific misconduct.

On the one hand, this *ad-hoc* nature showcases the novelty that allegations of scientific misconduct may impose on universities, as they have no such established structures in place. Hence, they can be regarded as fair attempts of dealing with complex cases. On the other hand, the *ad-hoc* committees might create several problems and difficulties. These include: disregarding (fair) procedure and law; being unaware of antecedents and (reports from) earlier cases; or failing to provide disclosure or coming to a final conclusion. In the latter situation, this can lead to the installation of new (*ad hoc*) committees. In several of the cases, we witness these new committees coming to diverging or even contrasting conclusions to those of prior committees, resulting in general confusion and uncertainty about the acceptability of (questionable) research practices. The usage of different definitions of misconduct by different committees might even give the appearance of committees being less than perfectly impartial or building to pre-desired conclusion (Interviewee 6).

The investigations of the *ad hoc* committees are thus a prime endeavour in the sensemaking process concerning the cases. When allegations arrive, the ‘normal’ is interrupted and investigation reports serve as a verbal account making sense of the situation and explicating the tensions, potential dilemmas, and solutions. The *ad hoc*-ness of the committees seems to underscore the processual and unfolding nature of the alleged misconduct’s sensemaking processes. This is exemplified in diverging assessments by different integrity

**Table 1.** Overview of sensemaking, sensegiving, and sensehiding processes in the cases studied.

	Dutch case 1	Dutch case 2	Norwegian case 1	Norwegian case 2
Sensemaking	<ul style="list-style-type: none"> <li>• Several committees installed</li> <li>• Committees came to different conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• Several committees installed</li> <li>• <i>Ad hoc</i> committees and national committee came to different conclusions</li> </ul>	<ul style="list-style-type: none"> <li>• One in-depth investigation committee involving sixty researchers from different countries</li> </ul>	<ul style="list-style-type: none"> <li>• Two committees installed</li> <li>• They came to different conclusions</li> </ul>
Sensegiving	<ul style="list-style-type: none"> <li>• New guidelines on how to handle misconduct allegations</li> <li>• New guidelines on text recycling</li> <li>• Enhancing (social) control</li> </ul>	<ul style="list-style-type: none"> <li>• Sanctioning involved actors</li> <li>• New guidelines to enhance (social) control</li> <li>• Explanatory framing: lack of supervision</li> </ul>	<ul style="list-style-type: none"> <li>• New control systems at the University</li> <li>• Larger research groups</li> <li>• New national legislation on scientific misconduct</li> </ul>	<ul style="list-style-type: none"> <li>• New ethical guidelines</li> <li>• New guideline for handling and processing alleged scientific misconduct</li> <li>• New ethics courses and workshops to employees</li> </ul>
Sensehiding	<ul style="list-style-type: none"> <li>• Focus on individual (Nijkamp)</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on specific characteristics (external doctoral student)</li> <li>• Discussion on quality rather than integrity</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on individual (Sudbø)</li> </ul>	<ul style="list-style-type: none"> <li>• Discussions of scientific misconduct were inflicted with a workplace conflict and cultural differences due to a recent merger of former separate research organisations</li> </ul>

committees, on the basis of different legislative frameworks (as in the Norwegian Case 2) or new emerging information. In addition, both the Netherlands and Norway have a national research integrity office, which was involved in all of the described cases. These committees, which are permanent rather than ad hoc, demonstrate more in-depth knowledge of procedures and guidelines and henceforth often come to contrasting conclusions than their local counterparts. These contrasts further highlight the sensemaking processes.

These unfolding series of sensemaking events are processual as they fail to provide disclosure (Weick et al. 2005). This lack of closure leads to general confusion and particularly hinders the learning process of both involved actors as well as other organisations. This is particularly problematic since scholars have identified clarity of norms as crucial to a work atmosphere that promotes integrity in organisations: ‘Shared understandings of what is right and wrong, allowed and forbidden, desirable or undesirable set the normative context in which members of an organisation interact’ (Palazzo 2007).

Part of the sensemaking endeavour concerns the articulation of what should or should not be considered a problem of integrity. Whereas questions of integrity and quality were addressed simultaneously in Dutch Case 2 and the Norwegian Case 2, the involved committees processing the allegations in other cases specifically stated that they would ‘only assess those aspects of the allegations concerning scientific integrity’. This requires the committees to explicitly demarcate between issues of quality and issues of integrity, which is in itself a highly problematic distinction in the light of contemporary discussion about integrity in science (Penders et al. 2009; Horbach and Halffman 2017; Penders 2018).

### 5.1.2 Sensegiving: Articulation of procedures and guidelines

All of the discussed cases led to the articulation of new procedures or guidelines, either on a local, national, or even international level. The formulation of these procedures and guidelines is a clear example of sensegiving processes based on preventative actions (Gangloff 2014). Regarding the institutional level, these new guidelines or procedures often aim to prevent similar cases to happen in the future (e.g. requiring more supervision on PhD-students, new guidelines to prevent work floor conflicts, etc.) or to describe how future allegations of misconduct should be handled (e.g. no longer accepting anonymous allegations, installing research integrity officers, etc.). In addition, in some cases (Dutch Cases 1 & 2, and Norwegian Case 2) the level of social control was actively elevated. For instance, in Dutch Case 1, measures were taken to making both ongoing and completed research more systematically accessible across colleagues through sharing publications via newsletters and organising departmental seminars more systematically and at higher frequency. These changes were not exclusively made because of the Nijkamp case, but lessons learned from the case were taken into account.

Through the articulation of new procedures, the cases provide a basis for organisational and institutional learning. Whereas new organisational procedures and guidelines were prominent in all cases, the Norwegian Case 1 is explicitly regarded as a central precursor to the national legislation on scientific misconduct. The alterations in policy are in line with recommendations made in literature about organisational characteristics nourishing misconduct. In particular, social control, or the lack thereof, is put forward as one of the most prominent factors playing a role at the intersection of the micro- and

meso-level of organisational structures. Lack of social control creates opportunities, required to engage in dubious behaviour (Hackett 1994; Vaughan 2002; Murphy and Dacin 2011; Faria 2015). This is particularly applicable to our cases, since the organisational characteristics and settings show poor signs of social control, either due to the specific (high hierarchical) status of the accused or the general work practices within the involved departments. Hence, novel policy, such as requiring more supervision for PhD candidates, aiming at increasing (formal) social control might be effective ways of reducing the extent of dubious behaviour in the affected organisation (Mishkin 1988; Vaughan 1998; Murphy and Dacin 2011; Faria 2015; Trinkle et al. 2017).

In addition to aiming at the prevention of future cases of misconduct, the corrective actions serve as a sensegiving mechanism by conveying a zero-tolerance attitude regarding misconduct in the affected organisation. The involved universities express not to tolerate misconduct by taking a stand against the behaviour shown.

On top, Dutch Case 2 showcased an example of explanatory framing in which the role of the supervisors was put forward as a main reason for the alleged behaviour of external doctoral student X. Here again, we see that a lack of social control is framed as the cause of trouble, whereas simultaneously, individuals are held responsible for this task. This framing may serve as a sensegiving mechanism, pointing attention in desired directions (Gangloff 2014). However, the focus of specific individuals is more effectively described as a sensehiding mechanism, to which we will point our attention in the next section.

All of these organisational responses serve as sensegiving mechanisms; they help to (re)create a certain image of the situation or the organisation, such as that of zero-tolerance or immediate organisational retaliation. However, as we will discuss in more depth in the next section, the images did not necessarily conform to reality or actual practices. Indeed, various involved actors acknowledge that the organisational responses were in fact only rarely put in practice. Therefore, the responses serve as formal (sensegiving) reactions, but whose practical implications seem to be limited.

### 5.1.3 Sensehiding: Containment and individualisation

A reoccurring pattern in the cases concerns the (apparent) goal or rationale of the universities’ responses to misconduct. The organisational response generally involves a risk that the problem with respect to part of the issue or allegation may be contained (e.g. through argumentation such as ‘this is a debate about quality rather than integrity’, ‘this is a work floor conflict, not an issue of scientific integrity’). In addition, the response may also contain the problem to the individual scientist or a few colleagues. The alleged behaviour is thus framed along the ‘rotten-apple argument’ (or ‘special person argument’) which may distance it from the common or representative practices within the organisation. These types of responses are examples of sensehiding processes to the extent that they conceal the potentially more structural issues and thereby close or minimise discussion—and consequently learning—of the disputed cases.

In the Dutch Case 1 no explicit sanctions were put forward against actors. But measures in general were taken: both within the department, for example, by raising levels of social control, and on a national level, through the KNAW (The Royal Netherlands Academy of Arts and Sciences) guidelines on text recycling, new initiatives were put forward to regulate scientific practices regarding ‘self-plagiarism’. As one of the informants said: ‘Therefore, there was no reason to formulate, on top of these general measures to

discourage incentives for self-plagiarism, additional rules or regulations, or to put more emphasis on the commitment to the existing guidelines regarding self-plagiarism than the emphasis that was already induced by discussions on the ongoing case and on the newly formulated rules' (Interviewee 3). In the Norwegian Case 2, the discussions of integrity and misconduct were interwoven in complex ways with other discussions, such as a work conflict between several of the involved researchers, an ongoing merger of two previously separate research institutions, and different cultural assessments of research integrity in the new merged organisation. In this complexity, it was difficult for the university college to make sense of the issue of integrity in particular.

Further, sensehiding also involve a diminishing of the need for further measures, especially due to the rotten-apple argument:

'On top of measures to eliminate possible incentives for the undesirable re-use of own texts, additional measures specifically directed to individuals' numbers of publications per se, ultimately the key undesirable possible consequence of self-plagiarism, did not seem very useful. Professor Nijkamp's way of working, with very many publications and many co-authors was unique and not representative for others at the department. To install new rules now that are especially targeted to possible risks of that way of working, and to prevent cases exactly like this one, is not very useful. There are currently no people at the department who work in that way. Nijkamp was in that respect a very unique colleague, in the most objective and neutral sense of the word' (Interviewee 3).

This reasoning, indicating the unicity of a specific person's work practices, reoccurs in several of the other cases. For example, in Dutch Case 2, it was argued that little general measures needed to be taken, because the alleged practices where supposedly due to the specific background of the individual actors involved (an external doctoral student, with very limited contact with the rest of the department). Similar arguments and reasoning were used in the Norwegian Sudbø case. These examples, which stress the individual behaviour and characteristics of the alleged researchers, may potentially involve sensehiding processes to the extent that they obfuscate organisational responsibility for the issue. Even though the statement that work practices were (highly) specific to a certain individual might be legitimate, the question may be raised whether stressing this is an effective way of dealing with a case. Indeed, the rotten-apple metaphor stretches further: a rotten apple may contaminate its neighbours. An effective learning process may prevent such contaminations. Contrary to the formulation of guidelines as described in the previous section, stressing the individuality of specific behaviour may hinder the learning process and lead to limited change within the organisation.

## 6. Discussion

There are some key characteristics of the cases that seem to drive the sensemaking processes and outcomes. We highlight five characteristics. First, we note that allegations of misconduct accusation relate in complex ways to various forms of social tension. Therefore, processing allegations frequently involves discussion on aspects of science not directly related to scientific integrity. Within the cases described above, this includes aspects related to personal disagreements, work floor conflicts (such as in Norwegian Case 2) and indignation over standards or quality of scientific work. Most notably, both Dutch cases involved allegations that targeted not only the integrity, but to a large extent also the quality of the alleged work.

Secondly, all cases demonstrated a lack of existing guidelines and institutionalised systems for handling the cases—as seen not only in the number of ad-hoc committees established, but also the variety of interpretations. Even in cases apparently involving clear-cut questions related to integrity in science, such as allegations of plagiarism, the standards against which these allegations are to be judged are often unclear and contentious. An example of this is Norwegian Case 2 where the national research committee strongly disagreed with the local investigating committee on standards of plagiarism and the sanctionability of their transgressions. This potentially gives rise to further discussions about non-integrity related aspects of science and publication.

Thirdly, a common feature of the universities' handling of the cases was a fear of reputational damage and the (potential) involvement of the media. Actors persuasively argue that most severe consequences arrived in the form of reputational and emotional damage. For all actors involved, this seems to be the threat that is most feared. This holds both for individuals, who see their career opportunities and personal contacts being damaged, as well as for organisations, for which the fear of reputational damage seemed to be one of the driving forces behind their willingness to take (seemingly strong) measures. In this respect, the role of the media should not be underestimated.

Frequently, actors acknowledged that the fact that the case would (or could) be discussed in the media, and hence be publicly visible and known, was a major trigger for the organisations' responses. In many cases, action in such cases would be primarily tailored at damage control and image management (e.g. Interviewees 1, 6, and 7). From the organisational perspective, individualising the case serves as an effective strategy to channel the reputational damage from the institution to the individual scientist. On the contrary, individuals often felt unprotected by their institution and hence reported on a diminished level of trust in their employer (e.g. Interviewees 2, 6, 8). Additionally, it may have led individuals to seek media attention in order to engage in sensegiving practices through explanatory framing. This can for instance be witnessed in the Nijkamp and Sudbø cases, where both actors gave newspaper interviews in order to defend their case (Gjerding and Utheim 2013; Nijkamp 2015). The importance or threat of media coverage for the involved organisations suggests that organisational responses are primarily tailored at sensegiving processes of explanatory framing (Gangloff 2014). The next section elaborates on this perspective.

Fourth, in all cases, the organisation's response includes corrective actions in the form of several policy alterations and the installation of new procedures or guidelines. While this is laudable from a perspective of increased social control and quality assurance, the organisational responses apparently did not always meet up to the official statements communicated through press releases or official reports. Therefore, the responses have a high sensegiving content, that is, as images of corrective actions, but arguably only limitedly serve as effective mechanisms in preventing future cases scientific misbehaviour. Actors within the cases acknowledge that in practice 'little has changed' since the case. One of the main reasons for this should be sought in the usage of the rotten-apple argument, containment and individualisation of the cases. While the organisational responses on the one hand provide a statement demonstrating the institution's zero-tolerance policy regarding scientific misconduct, it is also acknowledged that, since the case involved a 'particularly uncommon set of circumstances, not representative of the institution's common practices', there is little need to make drastic alterations to the everyday research practices or environment. The lack of changes

taking place after the cases was acknowledged by several actors and subsequently deemed ‘disappointing’. ‘I had hoped that more would have changed afterwards’. ‘I am not so much disappointed because of a lack of official sanctions, but because of a lack of discussion. In my opinion, too little discussion has been going on. This could have been much more elaborate’ (Interviewee 2).

As such, we see a clear discrepancy between how the organisations talk about the cases and how they act upon them, that is, between the explanatory framings and the corrective actions. The announcement of new procedures and the simultaneous lack of changes in practice clearly point to an amplified gap between formal structures and actual work practices. Due to these mixed processes of sensegiving through explanatory framing or corrective action and processes of sensehiding, a process of decoupling is exposed (Meyer and Rowan 1977; MacLean and Behnam 2010). In other words, the organisations fail to ‘walk the talk’.

Fifth, the failure to ‘walk the talk’ point to organisational responses apparently mainly serve to restore symbolic order. Restoring symbolic and channelling reputational damage point to processes of legitimation (Thurman 2001; Maitlis and Lawrence 2007; Monin et al. 2013), and to the focus on universities to engage in forms of image management and damage control that are very similar to that of the private sector (Coombs 2007). This raises questions on the rationale and motives of universities to respond to misconduct in the particular ways witnessed in our case studies, especially in the light of discussion on the changing financial incentives for universities and the introduction of new public management strategies to higher education and research (De Boer et al. 2007; Andersen and Pallesen 2008; Halfman and Radder 2015).

In the process of restoring symbolic order, institutions regularly tend to shift the focus from institutional or organisational causes of alleged misconduct to individual, micro-level causes. This should be considered a technique of neutralisation, redirecting the responsibility of an organisation towards an individual (Minor 1981; Agnew 1994; Thurman 2001). Misconduct is hence framed as an issue of individual psychopathology, a theory generally regarded as the least satisfying to explain scientific misconduct by social scientists (Mishkin 1988; Hackett 1994), contrary to theories pointing to anomy and alienation as systemic causes of misconduct (Merton 1938; Zuckerman 1977). Accordingly, framing misconduct as rooted in individual causes distorts the institutional responsibility to act upon it.

Concluding, we witness processes of sensemaking, sensegiving and sensehiding in play at various stages of processing and responding to alleged cases of scientific misconduct. These processes mutually reinforce each other, resulting in a complex constellation: the sensemaking activities by ad-hoc committees serve as the base for the sensegiving mechanisms of announcing sanctions and new policies, which on their turn feed into the sensehiding mechanisms of channelling reputational damage. Conversely, the identified sensegiving processes potentially nourish (future) processes of sensemaking by suggesting boundaries of which issues are to be thought of as issues of integrity and which are not.

## 7. Conclusions

Our study analyses the organisational responses to allegations of scientific misconduct, thereby addressing a knowledge gap in the literature on scientific integrity, which tends to focus on either micro- or macro-level processes. Our analysis adds to the literature in two ways. First, by providing an empirical analysis of organisational

responses and their outcomes in four influential cases of alleged misconduct. Secondly, by providing a theoretical model comprising of the interrelations between sensemaking (the committees), sensegiving (e.g. the new regulations) and sensehiding (e.g. the individualistic focus) in how universities handle allegations of misconduct (Weick 1995; Faria 2015; Degn 2018).

As suggested in the theory on organisational misconduct, several aspects of the sensemaking, sensegiving and sensehiding processes identified in our analysis hinder effective learning processes within organisations and the involved individuals. First, the ad hoc committees tasked to investigate the allegations of misconduct, thereby engaging in the prime sensemaking activity, suffer from a lack of experience. Occasionally this leads to repetition of the sensemaking process, resulting in confusion over standards, definitions, and good or acceptable practices. Secondly, the discrepancy between the announced establishment of novel procedures and the perceived consequences of their implementation contributes to decoupling speech and action, which has been asserted as a hurdle to effective learning in response to misconduct (MacLean and Behnam 2010; Gangloff 2015). Thirdly, the process of sensehiding through containment and individualisation of integrity issues distorts the organisation’s responsibility of handling the case and incentivises actors to stick to current practices.

Similar processes of sensemaking, sensegiving and sensehiding have been identified in commercial or private organisations (Vaughan 1999; Thurman 2001; Gangloff 2014, 2015), as well as some of the intentions and consequences of these processes (Coombs 2007; MacLean and Behnam 2010; Davies and Olmedo-Cifuentes 2016). Our analysis thereby provides an initial step in the endeavor of extending the theory on responses to misconduct from a commercial context to universities and the academic context.

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## Appendix: Data sources

**Table A1.** Overview of employed data sources to describe the cases.

Case	Dutch case 1	Dutch case 2	Norwegian case 1	Norwegian case 2
Number of interviews	4	5	0	5
Investigation reports by Integrity committees	6	3	1	2
Official statements by university	Yes	Yes	No	No
Allegation report	Yes	Yes	Yes	Yes
Newspaper articles	Over 220	1	315	4
Additional sources (e.g. blog posts, academic journal articles, (new) guidelines, and regulations)	Yes	Yes	Yes	Yes