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Research Ethics Committee and Integrity Board Members' Collaborative Decision Making in Cases in a Training Setting

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Abstract

This research focuses on how research ethics committee and integrity board members discuss and decide on solutions to case scenarios that involve a dimension of research ethics or integrity in collaborative settings. The cases involved issues around authorship, conflict of interest, disregard of good scientific practice and ethics review, and research with vulnerable populations (children and neonates). The cases were set in a university, a hospital, or a research institute. In the research, we used a deductive qualitative approach with thematic analysis. Twenty-seven research ethics committee and research integrity board members from 16 European countries and one country outside Europe participated. Participants represented natural and life sciences, social sciences, and humanities. They worked on cases involving ethical/integrity issues in six different constellations. Results show that experts apply key elements of ethical decision making, namely identification of ethical issues, stakeholders, guidelines, solutions, and own positionality, in dealing collaboratively with ethics/ integrity problems, and the nature of the application depends on the complexity of the case. Understanding how individuals knowledgeable in research ethics and integrity, in this case, individuals serving on research ethics committees and integrity boards, approach ethical/ moral issues can help to identify strategies that may be useful in the development of research ethics and integrity training for junior researchers who may benefit from learning professional strategies.

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Introduction

Ethical decision-making has been investigated in a variety of fields. These include life sciences (e.g., Cameron et al., 2001; Muirhead, 2012; Numminen & Leino-Kilpi, 2007; Park, 2012; Storaker et al., 2019; Weaver, 2007; Webster et al., 2016; Zydziunaite et al., 2015;), science (e.g., Brock et al., 2008), organisations and business (e.g., Butterfield et al., 2000; Craft, 2013; Elm & Radin, 2012; Ford & Richardson, 1994; Heyler et al., 2016; Lehnert et al., 2015, 2016; Loe et al., 2000; Schwartz, 2016; Whittier et al., 2006), psychology (e.g., Reynolds, 2006), social work (e.g., McAuliffe & Chenoweth, 2008), education (e.g., Gao et al., 2019; Green & Walker, 2009; Johnson et al., 2017) and multi-field studies (e.g. Fichtel et al., 2022). Research has focused on identifying personal, organisational, and contextual aspects, conditions, or factors influencing ethical decision making (see Craft, 2013) and behaviour (see Drumwright et al., 2015; Prentice, 2014). However, there have been fewer studies on decision making specifically in research ethics, for example, research by Hartmann et al. (2017), Van Valey et al., (2015) and de Jong et al. (2012). Research has targeted decision making in complex ethical contexts in research (Hartmann et al., 2017), and expert versus novice decision making (Van Valey et al., 2015). These pieces of research focused on cognitive processing patterns in the decision-making process. They successfully utilised the method of protocol analysis, namely 'talk-aloud' interview, developed for the analysis of expert performance. The ethnography by de Jong et al. (2012) on research ethics committees was based on a naturalistic research setting. The focus of the study was on repertoires of rules applied in the process of reviewing and evaluating the ethical aspects of research proposals.

In addition to limited research on decision-making in research ethics, there is limited empirical insight on how research ethics and integrity experts make decisions (see Hartmann et al., 2017; Van Valey et al., 2015), including collaborative decision making, which is often the nature of decision making in the work of research ethics committee and integrity board members. To contribute to this research gap, the objective of the research was to identify how individuals knowledgeable in research ethics and integrity approach and reason around research ethics/integrity cases in collaborative settings. It does so by investigating in a training setting how groups, having their background as members of research ethics committees or integrity boards, proceed in research ethical problem-solving when they jointly discuss cases that involve problematic issues in terms of research ethics or research integrity. Understanding ethical decision-making processes is important for learning and educational purposes (Johnson et al., 2017). By identifying the elements of decision-making processes of specialists in collaborative settings, it may be possible to support junior academics in developing professional strategies for solving ethical / integrity problems.

Ethical Decision Making: Processes and Models

While there is limited knowledge about how research ethics and integrity experts make decisions in collaborative settings (see Hartmann et al., 2017; Van Valey et al., 2015), ethical decision-making processes have been researched and developed on a general level. We use the concept of 'ethical decision making' in line with researchers focusing the decision-making involving ethical judgment (e.g., Lau et al., 2013; Lehnert et al., 2015, 2016; Loe et al., 2000; McAuliffe & Chenoweth, 2008; McCormack & Garvan, 2014; Mumford et al., 2006; Park, 2012; see also O'Fallon & Butterfield, 2005). Based on the understanding of ethical

decision-making processes, cognitive tools have been developed to support ethical decision-making (Stenmark & Kreitler, 2017; Stenmark et al., 2020). Analyses of ethical decision-making often draw on general ethical theories and moral philosophy, but also on social psychological understanding of moral reasoning and its development (e.g., Kohlberg & Hersh, 1977; Rest, 1983). Models mostly draw on Rest's (1986) cognitive four-component model on ethical decision making based on Kohlberg's work on moral development (e.g., Green & Walker, 2009; Lau et al., 2013; Loe et al., 2000; O'Fallon & Butterfield, 2005). Rest's ethical decision-making model involves the stages of 1) recognition of a moral issue, 2) making a moral judgement, 3) establishing moral intent, and 4) engaging in moral behaviour (Lau et al., 2013; Lehnert et al., 2015). These four distinct components implying sensitivity, judgment, motivation, and courage have been regarded as being sequentially present in ethical decision making (Green & Walker, 2009; Rest, 1986).

One of the few psychological models specifically related to decision making in research ethics has been articulated by Hartmann et al. (2017). This model appears to have a pronounced cognitive processing focus. Research ethical decision making is approached through four functional tasks, namely 1) interpretation, 2) retrieval of information from memory or the environment, 3) judgement and 4) editing (see Sudman et al., 1996). Each phase may utilise the tools of summarising, framing, hedging, anchoring, and concluding. These are interdependent and may overlap in practice (Hartmann et al., 2017).

While the model of Hartmann et al. (2017) and models building on Rest (1986) manifest cognitive focus on ethical decision-making the work of Michael D. Mumford and his colleagues (e.g., Mumford et al., 2006, 2008) has brought understanding about the importance of sensemaking in ethical decision making. Sensemaking involves framing an issue as one requiring ethical judgment, forecasting outcomes of various actions, and self-reflection to understand the premises for one's own judgment (Mumford et al., 2008). Further, intuitionist and emotivist models (Haidt, 2001; see also Leffel et al., 2015; Mumford et al., 2008) also highlight that the ethical problem cannot only be approached as a purely rational and cognitive process, that is, it is not only a matter of reasoning, but intuition and emotions are elementary to it. Empathy has been identified as an affective component in ethical decision making (Bebeau et al., 1999; Butterfield et al., 2000; Weaver, 2007).

The Ethical Decision-Making Model Applied in this Research

While the models mentioned above have identified the core phases in ethical decision making, there are models modifying or adding steps, such as gathering relevant ethical and empirical information about the situation; identification of the viable options or solutions; identification of ethical principles, stakeholders, guidelines, rules, regulations, and laws pertinent to the situation; and resolving potential conflicts among principles, guidelines, or rules (see e.g., Mustajoki & Mustajoki, 2017; Shamoo & Resnik, 2015; Swazey & Bird, 1997). Following Rest (1986), these models typically also involve recognition of the issue as a first step and deciding about proper action (and possibly acting upon it) as the final step.

It is evident that familiarity with research ethics/integrity is required from individuals serving ethics committees and integrity boards (Cairoli et al., 2011). We may assume that people in research ethics and integrity bodies have sensitivity for ethical questions, are able to exercise judgment, are motivated to arrive at an ethically sound solution, and have the courage to stand behind their judgment (see Rest's, 1986, four components). From the perspective of experts who deal with cases involving others, that is, not solving their own ethical dilemmas,

the importance of stakeholder identification emphasised by Mustajoki and Mustajoki (2017) appeared useful. The identification of stakeholders involves identifying all parties who are influencing the situation or who are affected by it. Stakeholders may be individuals or groups, collectives, ecosystems, other living creatures, artefacts, or even future generations. The decision maker must identify what the consequences of any decisions may have for each of them. Furthermore, the rights and responsibilities of each stakeholder should be analysed. These may be based on laws, regulations, rules, guidelines, or codes of conduct, and may involve moral rights and duties. In identifying courses of action, the decision maker must consider that there are always options in complex ethical questions. It is important to note, that usually research ethical principles – and rights and responsibilities based on them – are considered to be *prima facie* by ethicists, which means they are binding unless a stronger principle, right or duty overrides or outweighs them (e.g., Beauchamp & Childress, 2001). The *prima facie* nature of research ethical principles highlights decision makers' capability to weigh the moral importance of different principles and when they conflict, to prioritise them in light of the relevant ethical features of the situation. The understanding of the ethical issue develops as the insights about stakeholders, their rights and responsibilities and solutions deepens. In the progression of the process, new and related ethical questions may emerge adding facets to the initial understanding of the ethical issue. Decision makers should also be aware of any individual positionalities or subjectivities that may implicitly influence or bias their decision. In addition, identification of one's own positionality can be used to communicate the affective dimension of ethical decision making (Bebeau et al., 1999; Butterfield et al., 2000; Weaver, 2007).

The identification of the ethical issue at hand is common for virtually all models (e.g., Rest, 1986, see also Lau et al., 2013, Lehnert et al., 2015). Consequently, in this study we looked for identification of ethical issues. The emphasis on stakeholders and recognising pertinent rules and guidelines is generally not emphasised explicitly in most models, but we identify these aspects brought forth by Mustajoki and Mustajoki (2017) as relevant in the work of ethics committee and integrity board members. As noted above, the established ethical principles of research ethics and integrity play a central part in the work of these bodies and recognition and paying due respect for the potential stakeholders, beyond research participants, is a central element of these principles. In addition to recognition of the ethical issue at hand, most models (e.g., Rest, 1986, see also Lau et al., 2013, Lehnert et al., 2015) also include a stage of identifying solutions and acting upon those, so we also looked for the identification of solutions and deciding amongst those which line of action is most feasible. As the discussion of cases in our research was set in the context of training, we were not able to follow up on behaviours 'in real' life. Hence, the model we applied in this research is a hybrid of common features in ethical decision-making models and some features that we identified as relevant from research ethics and integrity experts' point of view. In addition, we added own positionality as a more reflective-affective component proposed by others (Bebeau et al., 1999; Butterfield et al., 2000; Weaver, 2007). Hartmann et al. (2017) suggest that expert status in ethics involves an ability to communicate one's ethical position to others.

Collaborative Decision-Making

Although research is by and large conducted through collaboration, prior research on ethical decision making has mainly focused on individual cognitive acts, even as they take place in an organisational context (Lehnert et al., 2016). Research suggests that a lack of opportunity to share and discuss an ethical issue may prevent individuals from recognising dimensions important for sound decision making (Heyler et al., 2016). Ethical

decision-making is also improved when the decision-maker knows that other individuals will react on the decision made (Mumford et al., 2008). From this perspective, it is worthwhile to focus on ethical decision making as a collaborative process. Collaborative decision making involves the search for consensus of a solution and presumes that there is a defensible solution beyond expressions of preference or personal judgment (Stasser & Abele, 2020). Team-based learning for responsible conduct in research positively influences ethical decision making (McCormack & Garvan, 2014). The collaborative nature of ethical decision making adds opportunities for cognitive conflict, which appears to facilitate good decision making (Amason & Sapienza, 1997; Price, 2003, see also Heyler et al., 2016). Unlike the premise of ethical decision-making models in general, research ethics committee and integrity board members do not deal with their own ethical or moral questions or dilemmas, but with those arising from the research or actions of other people. Consequently, models that are based on the premise of ethical decision making as an individual act related to a personal dilemma or circumstance may not adequately conceptualise decision making in the context of committee and board members' work. By analysing ethical decision-making in the combined context of research ethics and research integrity cases we combine these two fields in a way which often reflects reality but is rarely addressed as such in research. While there are differing views and emphases on the aspects of ethical decision making, there seems to be a common understanding among ethicists that systematic and stepwise approaches to ethical decision making are useful in ensuring the comprehensive and multi-sited handling of ethical dilemmas (Johnson et al., 2022; McAuliffe & Chenoweth, 2008). Despite the interest in developing models for ethical decision making, limited efforts have been made to test these empirically (Craft, 2013). Considering these specificities, we posed the question: *How do specialists solve research ethics/integrity issues collaboratively?*

The Work of Research Ethics Committees and Research Integrity Boards

Research ethics committees typically provide ethics reviews and authorise research studies, and in doing so, ensure research participants' autonomy and protection from harm. Part of this mandate may be to provide advice to researchers (CIOMS Guidelines, 2016, para 23; Lõuk, 2023). Research Ethics committees assess aspects of non-maleficence, beneficence, respect for research participants, and justice in research proposals (Beauchamp & Childress, 1983/2001). Research ethics committees also serve on a national, regional, or institutional level, and in some cases, at an international level (CIOMS Guidelines, 2016).

The purpose of research integrity boards is related to the promotion of good research practices. The central principles characterising good research practices often mentioned are honesty, reliability, responsibility, and respect for, not only research participants, but for colleagues, society, and the environment (The European Code of Conduct for Research Integrity 2023). A central part of research integrity principles are the definitions of practices that violate research integrity, such as research misconduct (fabrication, falsification, or plagiarism) or other unacceptable practices (like manipulating authorship). Research integrity offices may conduct investigations on alleged violations of research integrity, but not all do so. They may have an advisory or educational role (see ENRIO Country Reports, 2023). Depending on the mandate of the board, the roles and tasks of board members may vary from investigation of alleged violations of research integrity to training and promotion of good research practices. While members in non-investigating boards may not have

expertise in the procedures of investigations and may not be involved in related decision making, they would most likely be familiar the principles and standards of research integrity, and with the problems of a failure to uphold them.

While Research Ethics Committees and Integrity boards share common themes (e.g., conflict of interest, data protection, etc.), their activities are usually not legally and institutionally related. These institutions function as separate and independent entities, with legal regulations, institutional affiliations, and scopes of activity. One of the first attempts to build the network of research ethics committees and research integrity offices on a European level was the ENERI project financed by the European Commission. In terms of content, collaboration between research ethics committees and research integrity boards appears to be particularly relevant in overlapping ethics and integrity issues, such as conflicts of interest (see for instance our Case 3: Reporting conflict of interest). From a procedural point of view, a collaborative approach is a prerequisite in advisory or educational role that research integrity boards may have. This function of the research integrity bodies is, in fact, close to a prospective review and advising, which research ethics committees are often involved in.

Method

Participants

The participants were specialists in research ethics or integrity, more specifically, they served on research ethics committees and integrity boards. Participants represented natural and life sciences, social sciences, and humanities. Twenty-seven individuals from 16 European countries and one country outside Europe participated. We did not choose the countries to be included. These merely represent the ones having representation in the training. Information about the training was distributed among the member associations of two relevant European networks, and therefore, the number of national backgrounds was relatively large. The participants, while members of research ethics committees or integrity boards did not take part in the research as a board, but as individuals organised in groups during training.

Data Collection

The data were collected during two international training events for research ethics committee and integrity board members, which gathered participants mainly from around Europe. The purpose of the training was to facilitate expert dialogue and exchange of views and practices in order to learn from each other. All main regions (North, West, Central, South, East) of the continent were represented. The trainings were held in English, and were structured to involve lecture-type input, discussion, and group work with cases. The case work generally ended with groups reporting and a common discussion in which everyone could join in. The training involved thematic sessions during which the participants engaged in ethical decision making related to given cases. These exercises provided the data for the research. There were twelve such discussions. These were videotaped and transcribed verbatim. Cases were discussed simultaneously, that is, several groups discussed cases at the same time, but not necessarily the same case. There were all in all three sessions during the two training events during which the groups worked with the cases.

The participants worked on cases in six group constellations. There were 4–6 individuals in each group. The groups were randomly composed on an ad hoc basis in the training situation. It was up to the participants to choose the group for each exercise. Mostly the groups consisted of people from different countries who were familiar with each other, as all were involved in research ethics and integrity and some on a national level. Some familiarity was a given, but the participants were generally not close colleagues directly working together in daily life.

The six cases were either real or realistic containing field-specific questions (medical and biomedical fields) or questions, which were general in nature and might apply to any field. The cases were selected by the trainers of sessions to match the intended learning outcomes of the training, that is, to update knowledge of recent trend in research ethics/integrity and to develop appropriate strategies for handling various aspects of board/committee work. The cases were selected by the different facilitators of the training to represent aspects of goals of the training. The participants were presented with information about the case in writing and asked to discuss it with the aim to arrive at a solution for the case. How to go about the discussion was up to the groups, and this was also what we investigated in this research. Each case was discussed in one to three groups. The cases were as follows:

– Two cases concerned the issue of authorship, namely the determination of sufficient prerequisites for claiming authorship (case "Anastasia" adapted from Macrina, 2005), and determination of author order (based on Shaw, 2011). These two cases primarily addressed research integrity. The cases did not necessarily have an obvious or unanimous solution, but they were "simple" in the sense that they were contained in nature and consisted of one main ethical issue (each case was discussed in three groups);
– A case on the failure to report conflict of interest also involving organisational power hierarchies (Erickson & Muskavitch's (n.d.) case, "Janet's suspicions"). The case primarily addressed research integrity, and involved two issues, namely reporting conflict of interest, and power dynamics potentially affecting the individual in a subordinate position. Nevertheless, it had a clear issue (the case was discussed in two groups).
– A multiple-issue case involving serious allegations of both failed ethics review and disregard of good scientific practice (based on the so called Macchiarini case (see Svärd Huss, 2022). This case addressed both research integrity and research ethics. The case was complex with a variety of information sources to draw upon, and potentially various issues that could be discussed (the case was discussed in two groups).
– A case on child consent in a medical context (based on Wendler, 2008) (the case was discussed in one group).
– A case on the ethics in research with neonates (drawing on a description in Good Clinical Practice Network, n.d.) (the case was discussed in one group).

The last two cases addressed research ethics and were clearly focused on a theme, but the fact that they involved individuals in vulnerable positions added layers of sensitivities and complexity. All cases had features that were more general and could be discussed by representatives from different fields.

Data Analysis

The research used a deductive qualitative approach. The data were coded using software (Atlas.ti) for qualitative data analysis. The analysis can be characterised as a thematic analysis (Braun & Clarke, 2006). The theory-driven analysis based on Mustajoki and Mustajoki's ethical analysis (2017) and ethical decision-making steps (Shamoo & Resnik, 2015; Swazey & Bird, 1997) focused on 1) identification of an ethical issue 2) identification of stakeholders, 3) identification of guidelines, rules, regulations, and laws pertinent to the situation, 4) identification of a solution and 5) identification of one's own positionality. The participants had not been instructed to use these steps in order not to impose a specific reasoning or decision-making model that might not have emerged otherwise. A discussion sequence addressing one of the five elements of decision making formed the unit of analysis. When the discussion progressed in a different theme, a new unit was identified. The coded unit may have been short (one or two people taking a turn) or lengthy and wavering elaborations involving at least two turn takers. Primarily each chunk was coded to represent one of the elements of ethical decision making, but there were three occasions on which guidelines were intertwined with either the ethical issue or with a solution in a way that made it problematic to separate the two, and therefore, these were coded as involving two elements at the same time. After the coding, the discussions were represented sequentially showing the order of the coded dimension (Tables 3–8). Table 1 shows the process of analysis with an excerpt of one of the discussions as an example (Discussion 8, see Table 2, steps 1–11).

The first two authors independently coded all data, and the agreement between their coding was 84%. The codes on which the two coders disagreed were discussed and a solution found as reflected in the final coding. In general, a percentage between 75–90 is desirable (Graham et al., 2012), which means our value is acceptable. Although it has been recommended that researchers in qualitative research double-code about a third of the data as a reliability measure (Schreier, 2013), we double coded all data, for greater robustness of analysis.

Research Ethics

Participation in the research was voluntary and based on informed consent. Participants could take part in the training, which constituted the setting for the data collection, without participating in the research. Non-consenting participants' data were left outside the analysis. This means that there were parts of the discussions, which were deleted if a non-consenting individual was involved. This may have changed the order of group reasoning steps but was not considered to be a threat to trustworthiness as the number of non-consenting individuals was small (3). This was also the reason for why it was not possible to place these individuals in a group of their own. Cameras were placed to capture the participants, not the non-participants. This was also explained to the non-consenting participants, none of whom had objections to the cameras being placed by their tables. The data were collected in a setting in which the primary purpose was training. Consequently, the meaningfulness of training activities was the priority, and data collection for research purposes was subordinate to this priority.

Personal identifiers have not been reported to protect the participants' anonymity. For the same reason we did not report the countries as in some cases, the number of professionals on research ethics committees and integrity boards was small in some of the countries. Revealing the country could have jeopardised anonymity. The principal investigator is based

Table 1 Example of the coding (the names Andrew, Chris and Michael refer to fictitious persons in the case under discussion)

Excerpt	Explanation	Code
D: Well it's [shaking one's head] every…	The discussion starts with an initial solution that Andrew should be first author, as the idea was originally his	Solution (D)
C: … original idea of Andrew.		
A: Andrew has a brilliant idea.		
C: He and Chris carry it out successfully. Michael writes a paper based on their results and analysis	The group turns back to the case, and one of the group members reads it aloud. After that, solutions are again in the focus of the discussion [Andrew first or alphabetical order]	
A: So, is the first one Andrew		
C: So, we have		
D: I would suggest alphabetical order		
A: I think that doesn't solve the problem		Issue (A)
C: Do you think that that Michel should be author?	The group questions whether one of the authors should be an author at all. One of the group members answers this by suggesting a solution [Michael may not be regarded as an author]	
A: But this …		
B: I wouldn't put him but they said in …		Solution (D)
B: But in medical area, I don't know…	One of the group members express uncertainty about the field in question as this is not the person's own field	Positionality (E)
D: Yeah, but it is [puzzling].		
B: But they have accepted Michael		Issue (A)
C: This is again, isn't it in medicine?	The group turns to the field and its guidelines and conventions. They recognise that the solution to the questions about authorship are field related	Guidelines and rules (C)
B: Yeah, *it is the British Medical Journal*		
D: Okay		
B: You are from medicine,	B points at A prompting A to take a stance as a representative of the field in question. A doesn't respond directly and others take over proposing solutions and justifying them. The group advances quickly in unison towards a solution	Positionality (E)
C: [..] Michael in the middle,		Solution (D)
[Andrew fist] and Chris should be last		
A: Andrew should be the first.		
B: Andrew first		
A: He made the real …		
C: [..]		
A: […] and he and Chris carried out it successfully, and then Michel should be then middle …		
B: the middle …		
A: I think so		
C: Right, yes, yes.		
D: (nodding)		

Table 1 (continued)

Excerpt	Explanation	Code
B: If, if at all … A: Yes, well … D: It depends	Yet, hesitation emerges as per the viability of the solutions, suggesting a revisiting of the issue. A new attempt is made looking at the contributions of the three authors	Issue (A)
C: Let's take all three		Solution (D)
B: And they decided to collaborate, they decided to collaborate	B emphasises the group's decision to collaborate as a crucial starting point, i.e. the intention of the group	Issue (A)
A: One …		
D: Yeah, he is not [medical] writer, he is from the beginning he is …		
B: Yeah		
D: He should be …		
A: Michael		

in an institution in Finland. Data handling and storage took place in the PI's institution. Consequently, Finnish ethics review guidelines were followed. In Finland, this type of research involving healthy, fully informed volunteer adults does not require an ethics review (Finnish National Board on Research Integrity, 2019). The same applied to the contexts of all authors.

Results

The results show that the research ethics committee and integrity board members made use of the key elements of ethical decision making identified in the literature (see e.g., Mustajoki & Mustajoki, 2017; Shamoo & Resnik, 2015; Swazey & Bird, 1997) as they solved the issue

Table 2 Frequencies of the key elements of ethical decision making in the discussions (1–8 refer to thematically clear cases, 9–12 to complex cases)

Discussion	Issue	Stakeholders	Guidelines	Solution	Position	Σ
1	7	1	3	8	1	**20**
2	3	1	1	5	0	**10**
3	6	1	3	6	3	**19**
4	4	5	5	6	1	**21**
5	4	2	0	5	0	**11**
6	16	11	4	10	0	**41**
7	4	0	7	4	0	**15**
8	9	0	5	9	3	**26**
9	2	0	1	3	0	**6**
10	7	0	2	9	0	**18**
11	21	5	4	29	5	**64**
12	16	5	9	10	3	**43**
Σ	**99**	**31**	**44**	**104**	**16**	**294**

at hand. Most often they discussed the nature of the ethical issue at hand ($f = 99$) and solutions to it ($f = 104$). Guidelines, rules, and regulations were addressed 44 times involving references to European, institutional, and national guidelines as well as laws pertaining to medical research. Stakeholders, the nature of whom varied depending on the case, were explicitly mentioned 31 times and one's own positionality 16 times.

All in all, the key elements of ethical decision making were addressed 294 times throughout the 12 discussions. The analyses of the progression of the twelve groups case by case are shown in Table 2.

Case 1: Authorship; Determination of Sufficient Prerequisites for Claiming Authorship

One of the groups started by stating the ethical issue at hand, and quickly progressed to proposing a solution. The discussion continued as juggling between defining the issue and the solution. In between, the group accounted for stakeholders and reviewed the guidelines and rules pertinent to authorship. There was one reference to one of the group member's own experiences. Overall, the discussion was solution oriented, and ended with a proposal for a solution (Table 3). Another group began by proposing a solution, then moving to defining the ethical issue at hand. Like the previous group, the discussion evolved around defining the ethical issue and proposing a solution. There was only one reference to guidelines and stakeholders, as if confirming that these do not bring additional perspectives and ending with a solution proposal.

The third group started differently, with one member stating their own positionality. Nevertheless, this was followed by someone offering a solution. More solutions were proposed following a discussion of stakeholders and guidelines. Positionalities were revisited twice. The beginning part of the discussion brought several solutions, whereas the latter part appeared to be more concentrated on defining the issue per se. The session ended with a statement of the issue. To su qm up, although progressing differently, all groups had an emphasis on defining the issue and proposing solutions, and the first proposals were provided early in the process.

Case 2: Author Order

One group started directly by proposing a solution to the issue on author order. Next, the group addressed the ethical issue at hand, and went on to discuss the issue, guidelines, and solutions, ending with a solution proposal. Group members referred to their own positionality three times during the discussion. Another group solved the issue quickly in just six steps involving offering a solution, identification of the ethical issue, a review of guidelines and taking a couple turns to juggle issues and solutions. The discussion of the third group involved similar elements, but a slightly longer process taking several turns. This group, too, began by identifying a solution, and thereafter identifying the ethical issue. The three authors in the case were the obvious stakeholders, and none of the groups mentioned other stakeholders (Table 4).

Case 3: Reporting Conflict of Interest

One group started by proposing a solution, after which the discussion evolved around stakeholders, guidelines, and more solutions. Only then did the group turn to defining the ethical

Table 3 Discussions 1–3, case on authorship; determination of sufficient prerequisites for claiming authorship (the numbers in the columns illustrate the order of decision-making steps, the frequencies at the right-hand side indicate how many times the step was employed)

Discussion 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	f
A) identification of ethical issue	1				5				9		11		13			16			19		7
B) identification of stakeholders			3																		1
C) identification of guidelines						6									15		17				3
D) identification of solution		2		4				8		10		12		14				18		20	8
E) identification of own positionality							7														1

Discussion 2

	1	2	3	4	5	6	7	8	9	10	f
A) identification of ethical issue		2		4		6					3
B) identification of stakeholders									9		1
C) identification of guidelines							7				1
D) identification of solution	1		3		5			8		10	5
E) identification of own positionality											0

Discussion 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	f
A) identification of ethical issue					5		7						13		15		17		19	6
B) identification of stakeholders										10										1
C) identification of guidelines			3						9					14						3
D) identification of solution		2		4		6		8				12				16				6
E) identification of own positionality	1										11							18		3

Table 4 Discussions 4–6, case on author order

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	f
A) identification of ethical issue		2			5				9		11				15		17			20		22		24			9
B) identification of stakeholders																											0
C) identification of guidelines						6							13			16					21				25		5
D) identification of solution	1		3					8		10		12		14				18					23			26	9
E) identification of own positionality				4			7												19								3

	1	2	3	4	5	6	f
A) identification of ethical issue		2			5		2
B) identification of stakeholders							0
C) identification of guidelines				4			1
D) identification of solution	1		3			6	3
E) identification of own positionality							0

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	f
A) identification of ethical issue		2		4		6			9			12		14		16		7
B) identification of stakeholders																		0
C) identification of guidelines								8		10								2
D) identification of solution	1		3		5		7				11		13		15		17	9
E) identification of own positionality																		0

issue at hand, and the discussion turned into juggling between issues and solutions to return to stakeholders and guidelines. There was one mention of one's own positionality (Table 5). The key elements received exceptionally 'balanced' treatment. The other group began with a limited identification of stakeholders, arrived at a solution, and then alternated between solutions and ethical issues ending with a solution proposal. In contrast to the prior group, there was no discussion of guidelines and rules, and no statements of own positionality.

Case 4: Serious Allegations of Failed Ethics and Good Scholarly Practice

One group was concerned with identifying the ethical issues at hand, as this case involved several. The group proposed several solutions, especially at the end of the discussion. The beginning part involved juggling between ethical issues and stakeholders, while in the latter part guidelines and regulations were also involved. Positionalities were not discussed. Due to the exceptional severity of the allegations in the case these were likely not immediately relatable by the participants themselves. The other group was mostly concerned with the guidelines and regulations that were in place and should have been followed. In a way, following the guidelines can also be seen as a solution, which may be reflected in the fact that both solutions and issues had a relatively lesser role in this discussion (Table 6).

Case 5: Child Consent in Medical Research

One group discussed this case. The group set off by proposing a solution, after which they went back and forth between ethical issues and solutions. Group members' own positionalities as well as guidelines and stakeholders played a part in the discussion, which ended in proposing a solution (Table 7).

Case 6: The Ethics in Research with Neonates

One group discussed this case. The group set off with one of its members stating their own positionality through explaining personal experiences. This led the group to defining the ethical issue. Guidelines and regulations were addressed early on, and stakeholders later. Towards the end of the discussion the group returned to its members' own positionalities ending with a solution proposal (Table 8).

Discussion and Conclusions

Results show that experts utilise steps of ethical reasoning in collaborative ethical decision making, but they apply it in different ways depending on the nature and complexity of the case. This study contributes with a novel perspective by analysing ethical decision making in the combined context of research ethics and research integrity cases, suggesting decision-making models that were applicable to both research ethics and research integrity. The results contribute to the research, empirically testing a model for ethical decision making (see Craft, 2013; O'Fallon & Butterfields, 2005; Whittier et al., 2006).

The way in which the decision-making steps were applied was not linear but varied depending on the complexity of the case. Identification of issues and solutions tended to dominate as key elements. Groups also tended to propose solutions early in the process. This may be problematic, if a

Table 5 Discussions 7–8, case on reporting conflict of interest

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	f
A) identification of ethical issue							7		9			12								20		4
B) identification of stakeholders		2			5								13		15		17					5
C) identification of guidelines			3			6										16			19		21	5
D) identification of solution	1			4				8			11			14				18				6
E) identification of own positionality										10												1

	1	2	3	4	5	6	7	8	9	10	11	f
A) identification of ethical issue			3		5		7			10		4
B) identification of stakeholders	1								9			2
C) identification of guidelines												0
D) identification of solution		2		4		6		8			11	5
E) identification of own positionality												0

Table 6 Discussions 9–10, case on serious allegations of failed ethics and good scientific practice

	Coded discussion turns	f
A) identification of ethical issue	1, 17, 19, 22, 24, 26, 29, 32, 38	**16**
B) identification of stakeholders	3, 4, 6, 10, 12, 16, 18, 21, 23, 27, 30, 34, 36	**11**
C) identification of guidelines	5, 25, 29	**4**
D) identification of solution	2, 8, 14, 20, 28, 31, 33, 35, 37	**10**
E) identification of own posit.		**0**

	Coded discussion turns	f
A) identification of ethical issue	4, 6, 8, 11	**4**
B) identification of stakeholders		**0**
C) identification of guidelines	1, 3, 5, 7, 9, 12, 14	**7**
D) identification of solution	2, 10, 13, 15	**4**
E) identification of own positionality		**0**

Table 7 Discussion 11, case on child consent in medical research

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
A) identification of ethical issue		2				6				10		12			15		17			20		22					27					32
B) identification of stakeholders								8																24								
C) identification of guidelines														14											25					30		
D) identification of solution	1		3		5				9		11		13			16			19		21		23			26		28			31	
E) identification of own positionality				4			7											18											29			

	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	**f**
A) identification of ethical issue		34			37			40		42		44		46		48				52		54		56		58			61			**21**
B) identification of stakeholders							39											50										60				**5**
C) identification of guidelines			35																													**4**
D) identification of solution	33			36		38			41		43		45		47		49		51		53		55		57		59				63	**29**
E) identification of own positionality																														62		**5**

Table 8 Discussion 12, case on research ethics with neonates

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A) identification of ethical issue		2						8		10		12		14			17			20
B) identification of stakeholders				4												16			19	
C) identification of guidelines						6	7		9									18		
D) identification of solution											11		13		15					
E) identification of own positionality	1		3		5															

	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	f
A) identification of ethical issue	21					26		28		30		32		34				38		40		42		**16**
B) identification of stakeholders									29												41			**5**
C) identification of guidelines		22		24							31						37						43	**9**
D) identification of solution			23		25		27						33		35	36			39					**10**
E) identification of own positionality																								**3**

careful analysis of all the dimensions has not been performed and groups miss insights that could contribute to an ethically sound solution (Mustajoki & Mustajoki, 2017). Interestingly, in all discussions the groups returned several times to defining the issue(s) suggesting that the understanding of the issue develops in the light of proposed solutions. Through the process, the originally identified ethical issue becomes refined as the understanding of the issue deepens (Mustajoki & Mustajoki, 2017; Park, 2012). Positionality statements justifying individual stances were presented less often, but they appeared to play a role in making individually held views understandable to others. Indeed, as specialist status involves the ability to communicate one's ethical position to others (Hartmann et al., 2017), it appears that the members used the communication of their positionality to justify views that might have been contestable and that did not directly relate to commonly held knowledge or facts, or guidelines and rules. Positionality may also be seen as a vital component of ethical decision making when forming an alternative viewpoint or formulating a dissenting opinion related to an ethical or moral dilemma. This is relevant in the practices of research ethics committees and research integrity offices when consensus-based decision cannot be reached.

The research involved a variety of cases and two decision-making patterns emerged, which appeared to be related to the nature of the case. In contained cases with relatively clear ethical issues, groups often began the decision-making process by proposing an initial solution. In general, this took place even before explicitly identifying the ethical issue (A) (e.g., discussions 2–6 and 8). The initial solution appeared to be a kind of working hypothesis which the group then started to investigate in more detail by going back to identifying and clarifying the ethical issue. These processes also included identification of stakeholders (B) and guidelines (C), mostly in a way as to secure that they did not raise additional questions. Finally, in most cases, the decision making took several rounds of reasoning through outlining and specifying the issue and identifying solutions (D). The perspectives on the ethical issue at hand widened gradually, and this was reflected in solutions developing along the process. The initial solutions were rarely the final solutions to the case. The groups were rarely in unison in their discussion, but instead, they brought in diverse perspectives. The extent to which steps back to the stages of identifying stakeholders and guidelines were taken, varied among these cases. To sum up, the process appeared to follow this logic: First, quickly outlining the dilemma and identifying a solution (A—>D), then going back to B and C in a checklist-type manner making sure stakeholders and guidelines had been accounted for (Fig. 1, left side). Even though
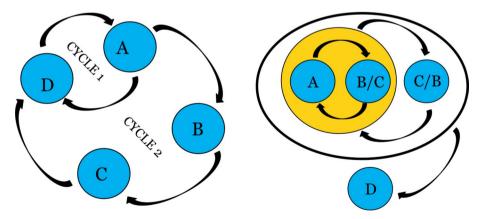

Fig. 1 Decision making in contained (left) and multidimensional ethical/integrity cases (right) (Legend: Identification of A = ethical issue, B = stakeholders, C = guidelines and rules D = solutions, see Fig. 1)

there where variation in how groups approached the task in those cases in which more than one group engaged with the case, the general pattern was similar.

In cases with increased complexity, there were generally more identifications of ethical issues than solutions, in contrast with the contained cases, in which the identification of issues and solutions were even, or solutions dominated over identification of issues. The complex cases generally took more reasoning turns. Stakeholders and guidelines received more attention, and the exploration of these were added into the analysis in an iterative manner. We have left positionality statements out from the visualization because their function seemed not to be equally established as those of the other elements of ethical decision making.

In contained and well-defined cases, the process was linear from the identification of the issue to a solution with checks that key aspects had been accounted for. It is possible that in the more routine cases, the specialists relied on what Kahneman (2011) has coined as System 1, which is an effortless, intuitive form of cognitive information processing. The more complex and ill-defined cases may have required System 2 processing, i.e., processing that is analytical and requires conscious reasoning effort. As individuals gain expertise by engaging in System 2 processes, the scope of the intuitive processing eventually broadens and develops as well (Kahneman, 2011). Therefore, experienced individuals can grasp content quickly to arrive at a conclusion with relative ease. However, experts in a field may, nevertheless, benefit from sensemaking training to develop their ethical decision-making competences especially in complex, novel, and ambiguous situations (Brock et al., 2008). In this regard, uncovering ethical decision-making processes in the way done in the present research, may serve as a tool in training research ethics committee and integrity board members.

We propose that the models presented here (Fig. 1) may support the evaluation of the maturity and quality of ethical decision making in the process of training. For example, using a process like the left-side model in ethically complex cases may be seen as a sign of simplified or incomplete ethical evaluation. To investigate specialist reasoning strategies further, stimulated recall (Lyle, 2002) might reveal participants' thinking processes and the extent to which the decision making displayed in the group settings may have been intuitive or analytic. The nature of positionality statements warrants further research.

This study approached ethical decision making as a group effort. Individual processes may have followed different patterns. It is likely that a group triggers more elaborations as each group member brings their perspectives, and the display of perspectives is likely to be broader than what an individual would produce, especially in our case, in which the participants in many respects formed heterogeneous groups representing a variety of contexts and research ethics or integrity infrastructures. A broadened array of perspectives may trigger the need to explore the ethical issue at greater extent, which resonates with the result showing that the groups tended to focus much on defining the issues in general. It is likely that group members adopting and rejecting ideas functions as a form of feedback in a collaborative setting. Indeed, collaborative processes contribute with formative feedback on an individual's ethical reasoning, which is something that has been identified as crucial in developing the ethical reasoning (Burr & King, 2012; Halkoaho et al., 2013; Rissanen & Löfström, 2014). How group dynamics and leadership within a group emerges and what the consequences for board members may be, warrants further research.

Limitations of the research include the fact that the participant groups were ad hoc in the sense that they were made up of individuals taking part in training rather than members of regularly meeting groups or committees. The dynamics and interactions may be different in groups that work together involving the same individuals over a period. It is not

meaningful to compare the performance of the groups as they engaged in different tasks, and there were at most only three groups working with the same task. This study does not address the quality of the arguments but took a more general view on the process of ethical decision making. The research identified statements of positionalities, including personal experiences and views, but these were not analysed with a view to the underlying ethical approach taken by the individual. We did not collect information on the participants' prior experience with research ethics or integrity as the point of departure was that they are research ethics committee or integrity board members, that is, already aware of ethics. We did not collect information about how the participants have approached cases, or what types of cases they have been exposed to before. The content of the cases, however, would not come as a surprise to anyone having an interest in research ethics or integrity. Consequently, the nature of the cases would be familiar to the research participants from before. However, we recognise that the lack of more precise background data is a limitation of the research. At the same time, while a limitation in this research, it is also a reality of ethics committees and integrity boards that there are members with varying degrees of experience, and in this sense this research does capture a feature that is realistic when experts come together to deal with a case as a group. The data did not allow reliable drawing of conclusions about the ethical approaches of individuals. We suggest that future research should explore how various individual ethical approaches manifest themselves in ethics and integrity specialists' collaborative decision making. Furthermore, the research is limited by the fact that it was not carried out in a natural setting, that is, real integrity board or research ethics review committee meeting. This is a limitation that can be addressed by research on actual discussions and work processes of boards. Accessing boards while they discuss cases or research plans involves sensitive and confidential data, and boards may be hesitant to open their meetings for researchers. Consequently, while a limiting factor, using training sessions, as we did, may be a more feasible route to uncover ethical decision-making. This is also why we have limited the focus of the research to the elements of decision-making processes, and do not make claims about how boards work.

The results of this research may be helpful for designing training for early career researchers to support development of specialist-like approaches, especially in complex ethical decision-making. This could be done in connection to case-based approaches in teaching. Learners might for instance explore how their decision-making process changes or develops when they apply decision-making phases as the specialist did and compare these to the decision-making process that they intuitively apply. Developers of ethics training may find the knowledge about expert reasoning useful. Naturally, undergraduate, and graduate students and doctoral candidates need to work on mastering the content of ethics at their appropriate level, but along the teaching of content, they may benefit from learning about effective strategies, and an exploration of which strategies work under which conditions. Overall, we anticipate this to increase awareness of decision-making processes. Another area of application is the training research ethics committee and integrity board members. Especially new board members may benefit from gaining insight into how they as a group together with fellow committee/board members approach ethical or integrity-related questions professionally. Practicing solving cases or dealing with ethical questions together and then analysing the process may help committees and boards to improve the collaborative decision making and to ensure transparency, communicativeness, and deliberativeness (see Hickey et al., 2021; Mustajoki & Mustajoki, 2017) in their treatment of the cases and review requests landing on their desks. Such a training element would directly address the identified need for competences in ethical analysis and in committee working (see Cairoli et al., 2011).

Declarations

Ethics Approval We aligned our practice along the guidelines of the institution having the main responsibility for the research. Data handling (including anonymisation) and storage took place in the PI's institution. In Finland, an ethics review for non-medical research involving humans is required when the study involves intervention in the physical integrity of research participants; deviates from the principle of informed consent; involves participants under the age of 15 being studied without parental consent; exposes participants to exceptionally strong stimuli; risks causing long-term mental harm beyond that encountered in normal life; or entails a security risk to the participant or other individuals (Finnish National Board on Research Integrity, 2019). None of the conditions that would require an ethics review in Finland materialised in this study. At the time of data collection, also Lithuanian (the other country in which researchers included in the team were working in) ethics regulation was such that an ethics review would not have been required for this kind of non-medical research with healthy volunteer adults.

Consent Research participation was based on voluntariness and fully informed consent.

Competing Interests Five of the authors took part in the organization of the training sessions during which data were collected. The data collection reported here neither involves evaluation of the training and as such, was not targeted on the organisers' or trainers' actions, nor did it involve evaluation of the participants' competence or learning during the training.

References

Amason, A. C., & Sapienza, H. J. (1997). The effects of top management team size and interaction norms on cognitive and affective conflict. *Journal of Management, 23*(4), 495–516. https://doi.org/10.1177/014920639702300401

Beauchamp, T. L., & Childress, J. F. (1983/2001). *Principles of Biomedical Ethics.* Oxford University Press.

Bebeau, M., Rest, J., & Narvaez, D. (1999). Beyond the promise: A perspective on research in moral education. *Educational Researcher, 28*(4), 18–26. https://doi.org/10.3102/0013189X028004018

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. https://doi.org/10.1191/1478088706qp063oa

Brock, M. E., Vert, A., Kligyte, V., Waples, E. P., Sevier, S. T., & Mumford, M. D. (2008). Mental models: An alternative evaluation of a sensemaking approach to ethics instruction. *Science and Engineering Ethics, 14*, 449–472. https://doi.org/10.1007/s11948-008-9076-3

Burr, V., & King, N. (2012). 'You're in cruel England now!': Teaching research ethics through reality television. *Psychology Learning & Teaching, 11*, 22–29. https://doi.org/10.2304/plat.2012.11.1.22

Butterfield, K. D., Treviño, L. K., & Weaver, G. R. (2000). Moral awareness in business organizations: Influence of issue-related and social context factors. *Human Relations, 53*, 981–1018. https://doi.org/10.1177/0018726700537004

Cairoli, E., Davies, H. T., Helm, J., Hook, G., Knupfer, P., & Wells, F. (2011). A syllabus for research ethics committees: Training needs and resources in different European countries. *Journal of Medical Ethics, 38*, 184–186. https://doi.org/10.1136/medethics-2011-10006

Cameron, M., Schaffer, M., & Park, H. (2001). Nursing students' experience of ethical problems and use of ethical decision-making models. *Nursing Ethics, 8*(5), 432–447. https://doi.org/10.1177/096973300100800507

CIOM. (2016). *International Ethical Guidelines for Health-related Research Involving Humans* (4th ed.). Council for International Organizations of Medical Sciences. https://cioms.ch/wp-content/uploads/2017/01/WEB-CIOMS-EthicalGuidelines.pdf

Craft, J. (2013). A Review of the empirical ethical decision-making literature: 2004–2011. *Journal of Business Ethics, 117*(2), 1–39. https://doi.org/10.1007/s10551-012-1518-9

de Jong, J. P., Van Zwieten, M. C. B., & Willems, D. L. (2012). Ethical review from the inside: Repertoires of evaluation in research ethics committee meetings. *Sociology of Health & Illness, 34*(7), 1039–1052. https://doi.org/10.1111/j.1467-9566.2012.01458.x

Drumwright, M., Pentice, R., & Biasucci, C. (2015). Behavioral ethics and teaching ethical decision making. *Journal of Innovative Education, 13*(3), 431–458. https://doi.org/10.1111/dsji.12071

Elm, D., & Radin, T. (2012). Ethical decision making: Special or no different? *Journal of Business Ethics, 107*(3), 313–329. https://doi.org/10.1007/s10551-011-1041-4

ENRIO Country Reports. (2023). The European Network of Research Integrity Offices. http://www.enrio.eu/country-reports/. Site viewed November 5, 2023.

Erickson, S., & Muskavitch, K. M. T. (n.d.). Janet's Suspicions. *Administrators and the Responsible Conduct of Research*. https://ori.hhs.gov/education/products/rcradmin/topics/coi/case_2.shtml. Site viewed July 14, 2022.

Fichtel, M., Gujar, Y., Sanders, C., Higgs, C., McIntosh, T., Connelly, S., & Mumford, M. D. (2022). Looking around and looking ahead: Forecasting and moral intensity in ethical decision-making. *Ethics & Behavior, 32*(4), 326–343. https://doi.org/10.1080/10508422.2021.1896364

Finnish National Board on Research Integrity TENK Publications. (2019). The ethical principles of research with human participants and ethical review in the human sciences in Finland. https://tenk.fi/en/ethical-review/ethical-review-human-sciences. Site viewed February 12, 2023.

Ford, R., & Richardson, W. (1994). Ethical decision making: A review of the empirical literature. *Journal of Business Ethics, 13*(3), 205–221. https://doi.org/10.1007/BF02074820

Gao, R., Liu, J., Johnson, R., Wang, J., & Hu, L. (2019). Validating an ethical decision-making model of assessment using authentic scenarios. *Studies in Educational Evaluation, 62*, 187–196. https://doi.org/10.1016/j.stueduc.2019.05.003

Good Clinical Practice Network. (n.d.). *A Study of 2-Iminobiotin in Neonates With Perinatal Asphyxia*. https://ichgcp.net/clinical-trials-registry/NCT01626924. Site viewed July 14, 2022.

Graham, M., Milanowski, A., & Miller, J. (2012). *Measuring and Promoting Inter-Rater Agreement of Teacher and Principal Performance Ratings. CECR.*

Green, J., & Walker, K. (2009). A contingency model for ethical decision-making by educational leaders. *International Journal of Educational Leadership Preparation, 4*(4), 1–10.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review, 108*(4), 814–834. https://doi.org/10.1037/0033-295X.108.4.814

Halkoaho, A., Matveinen, M., Leinonen, V., Luoto, K., & Keränen, T. (2013). Education for research ethics for clinical investigators with Moodle tool. *BMC Medical Ethics, 14*, 53. https://doi.org/10.1186/1472-6939-14-53

Hartmann, D., Van Valey, T., & Fuqua, W. (2017). Coding ethical decision-making in research. *Science and Engineering Ethics, 23*(1), 121–146. https://doi.org/10.1007/s11948-016-9756-3

Heyler, A. G., Armenakis, A. A., Walker, A. G., & Collier, D. Y. (2016). A qualitative study investigating the ethical decision making process: A proposed model. *The Leadership Quarterly, 27*(5), 788–801. https://doi.org/10.1016/j.leaqua.2016.05.003

Hickey, A., Davis, S., Farmer, W., et al. (2021). Beyond criticism of ethics review boards: Strategies for engaging research communities and enhancing ethical review processes. *Journal of Academic Ethics, 20*, 549–567. https://doi.org/10.1007/s10805-021-09430-4

Johnson, M. K., Weeks, S. N., Peacock, G. G., & Domenech Rodríguez, M. M. (2022). Ethical decision-making models: A taxonomy of models and review of issues. *Ethics & Behavior, 32*(3), 95–209. https://doi.org/10.1080/10508422.2021.1913593

Johnson, R. L., Liu, J., & Burgess, Y. (2017). A model for making decisions about ethical dilemmas in student assessment. *Journal of Moral Education, 46*(2), 212–229. https://doi.org/10.1080/03057240.2017.1313725

Kahneman, D. (2011). *Thinking Fast and Slow*. Farrar, Straus & Giroux.

Kohlberg, L., & Hersh, R. (1977). Moral development: A review of theory. *Theory into Practice, 16*(2), 53–59. https://doi.org/10.1080/00405847709542675

Lau, G. K. K., Yuen, A. H. K., & Park, J. (2013). Toward an analytical model of ethical decision making in plagiarism. *Ethics & Behavior, 23*(5), 360–377. https://doi.org/10.1080/10508422.2013.787360

Leffel, G. M., Oakes Mueller, R. A., Curlin, F. A., & Yoon, J. D. (2015). Relevance of the rationalist–intuitionist debate for ethics and professionalism in medical education. *Advances in Health Sciences Education, 20*(5), 1371–1383. https://doi.org/10.1007/s10459-014-9563-z

Lehnert, K., Craft, J., Singh, N., & Park, Y. (2016). The human experience of ethics: A review of a decade of qualitative ethical decision-making research. *Business Ethics: A European Review, 25*(4), 498–537. https://doi.org/10.1111/beer.12129

Lehnert, K., Park, Y., & Singh, N. (2015). Research note and review of the empirical ethical decision-making literature: Boundary conditions and extensions. *Journal of Business Ethics, 129*(1), 195–219. https://doi.org/10.1007/s10551-014-2147-2

Loe, T., Ferrell, L., & Mansfield, P. (2000). A review of empirical studies assessing ethical decision making in business. *Journal of Business Ethics, 25*(3), 185–204. https://doi.org/10.1023/A:1006083612239

Lõuk, K. (2023). Relevance and challenges of ethics committees. In E. González-Esteban, R. A. Feenstra, & L. M. Camarinha-Matos (Eds.) *Ethics and Responsible Research and Innovation in Practice.* Lecture Notes in Computer Science, vol 13875. Springer. https://doi.org/10.1007/978-3-031-33177-0_8

Lyle, J. (2002). Stimulated recall: A report on its use in naturalistic research. *British Educational Research Journal, 29*(6), 861–878. https://doi.org/10.1080/0141192032000137349

Macrina, F. L. (2005). *Scientific Integrity: Text and Cases in Responsible Conduct of Research*. ASM Press.

McAuliffe, D., & Chenoweth, L. (2008). Leave no stone unturned: The inclusive model of ethical decision making. *Ethics and Social Welfare, 2*(1), 38–49. https://doi.org/10.1080/17496530801948739

McCormack, W. T., & Garvan, C. W. (2014). Team-based learning instruction for responsible conduct of research positively impacts ethical decision-making. *Accountability in Research: Research Integrity, Part 2, 21*(1), 34–49. https://doi.org/10.1080/08989621.2013.822267

Muirhead, W. (2012). When four principles are too many: Bloodgate, integrity and an action-guiding model of ethical decision making in clinical practice. *Journal of Medical Ethics, 38*(4), 195. https://doi.org/10.1136/medethics-2011-100136

Mumford, M. D., Connelly, S., Brown, R. P., Murphy, S. T., Hill, J. H., Antes, Al., & L., Waples, E. P., & Devenport, L. D. (2008). A sensemaking approach to ethics training for scientists: Preliminary evidence of training effectiveness. *Ethics & Behavior, 18*(4), 315–339. https://doi.org/10.1080/10508420802487815

Mumford, M. D., Devenport, L. D., Brown, R. P., Connelly, M. S., Murphy, S. T., Hill, J. H., et al. (2006). Validation of ethical decision-making measures: Evidence for a new set of measures. *Ethics & Behavior, 16*(4), 319–345. https://doi.org/10.1207/s15327019eb1604_4

Mustajoki, H., & Mustajoki, A. (2017). *A New Approach to Research Ethics*. Routledge.

Numminen, O., & Leino-Kilpi, H. (2007). Nursing students' ethical decision-making: A review of the literature. *Nurse Education Today, 27*(7), 796–807. https://doi.org/10.1016/j.nedt.2006.10.013

O'Fallon, M., & Butterfield, K. (2005). A Review of the empirical ethical decision-making literature: 1996–2003. *Journal of Business Ethics, 59*(4), 375–413. https://doi.org/10.1007/s10551-005-2929-7

Park, E. (2012). An integrated ethical decision-making model for nurses. *Nursing Ethics, 19*(1), 139–159. https://doi.org/10.1177/0969733011413491

Prentice, R. (2014). Teaching Behavioral Ethics. *Journal of Legal Studies Education, 31*(4), 325–365. https://doi.org/10.1111/jlse.12018

Price, T. (2003). The ethics of authentic Transformational Leadership. *The Leadership Quarterly, 14*(1), 67–81. https://doi.org/10.1016/S1048-9843(02)00187-X

Rest, J. R. (1983). Morality. In J. H. Flavell & E. M. Marksman (Eds.), *Handbook of child psychology Vol. III. Cognitive development* (4th ed., pp. 556–629). New York, NY: Wiley.

Rest, J. R. (1986). *Moral development: Advances in research and theory*. Praeger.

Reynolds, S. J. (2006). A neurocognitive model of the ethical decision-making process: Implications for study and practice. *Journal of Applied Psychology, 91*(4), 737–748. https://doi.org/10.1037/0021-9010.91.4.737

Rissanen, M., & Löfström, E. (2014). Students' research ethics competences and the university as a learning environment. *International Journal for Educational Integrity, 10*(2), 17–30.

Schreier, M. (2013). Qualitative content analysis. In U. Flick (Ed.) *The SAGE Handbook of Qualitative Data Analysis* (pp. 170–183). Sage. https://doi.org/10.4135/9781446282243.n12

Schwartz, M. (2016). Ethical Decision-Making Theory: An Integrated Approach. *Journal of Business Ethics, 139*(4), 755–776. https://doi.org/10.1007/s10551-015-2886-8

Shamoo, A. E., & Resnik, D. B. (2015). *Responsible Conduct of Research*. Oxford University Press.

Shaw, D. (2011). The ICMJE's definition of authorship is unethical. *British Medical Journal, 343*(d7192), 999. https://doi.org/10.1136/bmj.d7192

Stasser, G., & Abele, S. (2020). Collective choice, collaboration, and communication. *Annual Review of Psychology, 71*(1), 589–612. https://doi.org/10.1146/annurev-psych-010418-103211

Stenmark, C. K., & Kreitler, C. M. (2017). A Cognitive Tool for Ethical Decision Making: A Case for ACED IT. *Ethics & Behavior, 27*(3), 221–239. https://doi.org/10.1080/10508422.2016.1176566

Stenmark, C., Riley, K., & Kreitler, C. (2020). Ethical decision-making interrupted: Can cognitive tools improve decision-making following an interruption? *Ethics & Behavior, 30*(8), 557–580. https://doi.org/10.1080/10508422.2019.1683012

Storaker, A., Nåden, D., & Sæteren, B. (2019). Hindrances to achieve professional confidence: The nurse's participation in ethical decision-making. *Nursing Ethics, 26*(3), 715–727. https://doi.org/10.1177/0969733017720827

Sudman, S., Bradburn, N. M., & Schwarz, N. (1996). *Thinking about Answers: The Application of Cognitive Processes to Survey Methodology*. Jossey-Bass.

Svärd Huss, M. (2022). The Macchiarini Case: Timeline. *News from Karolinska Institutet.* https://news.ki.se/the-macchiarini-case-timeline. Site viewed February 12, 2023.

Swazey, J., & Bird, S. (1997). Teaching and Learning Research Ethics. In D. Elliot & J. Stern (Eds.), *Research Ethics: A Reader* (pp. 1–19). University Press of New England.

The European Code of Conduct for Research Integrity. (2023). *Rev. ed. All European Academies.* https://allea.org/wp-content/uploads/2023/06/European-Code-of-Conduct-Revised-Edition-2023.pdf. Site viewed November 19, 2023.

Van Valey, T., Hartmann, D., Fuqua, W., Evans, A., Ing, A., Meyer, A., Staros, K., & Walmsley, C. (2015). The process of ethical decision-making: Experts vs novices. *Journal of Academic Ethics, 13*(1), 45–60. https://doi.org/10.1007/s10805-014-9223-1

Weaver, K. (2007). Ethical sensitivity: State of knowledge and needs for further research. *Nursing Ethics, 14*, 141–155. https://doi.org/10.1177/0969733007073694

Webster, F., Weijer, C., Todd, L., Grimshaw, J., Marshall, A., Cook, D., & Francis, J. (2016). The ethics of future trials: Qualitative analysis of physicians' decision making. *Trials, 17*(12). https://doi.org/10.1186/s13063-015-1137-8

Wendler, D. (2008). The assent requirement in paediatric research. In E. J. Emanuel, C. C. Grady, R. A. Crouch, R. K. Lie, F. G. Miller, & D. D. Wendler (Eds.), *The Oxford Textbook of Clinical Research Ethics* (pp. 661–669). Oxford University Press.

Whittier, N. C., Williams, S., & Dewett, T. C. (2006). Evaluating ethical decision-making models: A review and application. *Society and Business Review, 1*(3), 235–247. https://doi.org/10.1108/17465680610706319

Zydziunaite, V., Lepaite, D., Åstedt-Kurki, P., & Suominen, T. (2015). Head nurses' decision-making when managing ethical dilemmas. *Baltic Journal of Management, 10*(2), 166–187. https://doi.org/10.1108/BJM-12-2013-0194