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The Trinity of Good Research: Distinguishing between Research Integrity, Ethics and Governance

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Abstract

The words integrity, ethics and governance are used interchangeably in relation to research. This masks important differences that must be understood when trying to address concerns regarding research culture. While progress has been made in identifying negative aspects of research culture (such as inequalities in hiring/promotion, perverse incentives etc.), and practical issues that lead to research waste (outcome reporting bias, reproducibility etc.), the responsibility for addressing these problems can be unclear due to the complexity of the research environment. One solution is to provide a clearer distinction between the perspectives of "Research Integrity", "Research Ethics" and "Research Governance". Here it is proposed that *Research Integrity* should be understood as focussed on the character of researchers, and consequently the primary responsibility for promoting it lies with researchers themselves. This is a different perspective from *Research Ethics*, which is focussed on judgements on the ethical acceptability of research, and should primarily be the focus of research ethics committees, often including input from the public as well as the research community. Finally *Research Governance* is a technical area focussing on legal and policy requirements. Although complementary to research integrity and ethics, *Research Governance* requires input from expert research support officers with the skills and experience to address technical compliance.

Key Words:
Ethics, Integrity, Governance, Research Culture, Research Waste

Introduction

In light of evidence suggesting that 85% of research is wasted (Glasziou and Chalmers 2016), some have argued that we need "*less research, better research, and research done for the right reasons"* (Altman 1994). While research is difficult, and not all experiments work for a variety of good practical reasons, more can and must be done to reduce avoidable research waste. In recent years steady progress has been made in working out what needs to change so as to ensure that money, researcher time, and especially the goodwill and voluntary efforts of research participants, can be used more effectively (Kleinert and Horton 2014). The problems have been grouped into five specific areas: how research questions are initially formulated (Chalmers et al. 2014), how methodologies are chosen (Ioannidis et al. 2014), delays caused by research regulatory processes (Al-Shahi Salman et al. 2014), failure to publish (Chan et al. 2014), and lack of detail in publications (Glasziou et al. 2014). However, accountability and responsibility for addressing each of these aspects of research waste can often be unclear due to confused and overlapping responsibilities (Chiarelli, Johnson, and Loffreda 2022). Although not always referred to as research waste, these same issues have been highlighted through a number of related reports. For instance an influential report by the Nuffield Council on Bioethics (Joynson and Leyser 2015) highlighted "The Culture of Scientific Research", and was subsequently followed up (in the UK) by influential reports on "Research Culture" (Wellcome 2020) and "Research Integrity" (Science and Technology Committee – House of Commons 2018). This increasing emphasis inspired a number of other national and international initiatives (UKCORI 2023; AllTrials 2013; UK Reproducibility Network 2021) all seeking to address the underlying problems in research. Reflecting on the way that such issues could end up causing research conduct and even fraud, the UK House of Commons Science and Select committee noted:

> *There is a mismatch between the number of investigations and the scale of reported temptations to compromise on research standards, the 'reproducibility crisis' in some disciplines, the growth in journal article retraction rates, and trends in image manipulation… Increases in the number of investigations should be seen as a healthy sign of more active self-regulation. Further work is needed to determine the scale of the problem. (Recommendation 3 in* House of Commons Science and Technology Select Committee 2018).

However, in tension with these clearly acknowledged problems of research waste, quality and culture, researchers themselves find existing ethics and governance processes designed to address these problems highly frustrating (Barclay 2019). While the importance of rigour and accountability in the award and use of research funds is generally well understood, many within research communities cannot understand the purpose of, and are frustrated in the time taken for, reviews conducted by other bodies not linked directly to the award of grant funding (Kolstoe and Carpenter 2019; Petrova and Barclay 2019). There is a general perception that ethics and governance processes designed to reduce research waste are bureaucratic hurdles to be jumped over, or administrative processes to be 'got through', with little recognition of the reason for them, the value they are designed to add, or the protections (to both researchers and their research participants) that they confer. We therefore find ourselves in the situation where the problem of research waste, culture and even misconduct, seem to demand further regulation and oversight, yet researchers feel overburdened with unnecessary bureaucratic and administrative processes.

This lack of clarity does not only lie with the researchers. Well intentioned processes, justifiably put in place to guard against repeating previous failings, are often not well coordinated or clearly structured especially within institutions such as universities. This creates overlap between oversight bodies and committees such as ethics, finance, data management, health and safety among often others, meaning that multiple sign-offs are required sometimes using very similar forms or processes (Petrova and Barclay 2019). Coupled with causing confusion and frustration for researchers, administrators running the processes are often only familiar with their own area, and lack an over-arching appreciation of the process as a whole. This means that many apparently reasonable requests turn out to overlap with similar processes elsewhere in the system and thus become unreasonable due to duplication.

A large part of this lack of clarity is caused by confusion around terms. While "research waste" describes the problem that we are trying to solve, and "positive research culture" is a good umbrella term for the potential solution, creating the solution relies upon a number of different components. In this paper we argue that the headings 'Research Integrity', 'Research Ethics' and 'Research Governance' are particularly important. Unfortunately, however, a review of the UK reports addressing topic of research quality and culture (e.g. Nuffield Council, Wellcome etc. as listed above), coupled with publication by researchers objecting to research regulation and bureaucracy (Petrova and Barclay 2019) demonstrates that these terms in particular are used interchangeably. For instance, sometimes research governance is used as an overarching category

that includes both ethics and integrity (Shaw, Boynton, and Greenhalgh 2005), sometimes integrity is used as an overarching terms term that incudes governance and ethics (Korenman 2006) and sometimes ethics is seen as the philosophical name for broader issues that are then broken down into matters of research governance and integrity (World Health Organisation 2023). This lack of clarity is caused by confusion (or naivety) as to how the research landscape is constructed, and thus the roles and responsibilities of key players such as researchers, institutions, funders and sponsors. Although an attempt to provide definitions has been made in the "*UK policy framework on health and social care research*" (Department of Health and Social Care 2017), this document was formulated to define roles and responsibilities in relation to clinical trials (and specifically EU legislation) in particular, and hence is seldom read or fully understood by medical researchers, let alone researchers in other fields with fewer legal or policy constraints.

One solution that we propose is to draw a clear and focussed distinction between the concepts of Research Integrity, Research Ethics and Research Governance as three facets or perspectives on achieving a positive research culture. We have found over many years of delivering training in this area (Steneck and Kolstoe 2020), that when these perspectives are defined clearly it is easier to educate all research contributors as to their roles in promoting and conducting good research. A similar argument has been made by Iphofen and colleagues over a number of years, although focussing specifically on the distinction be between governance and ethics within a social science context (Ron Iphofen 2011; 2017; 2019).

In what follows we will outline a conception of 'Research Integrity' as oriented towards the character of the researcher. We will describe 'Research Ethics' as focussed on substantive judgements about the ethical permissibility of research programmes, projects and issues, and then address 'Research Governance' as focussed on the processes that manage, oversee, and regulate the legal and policy aspects of research. We will illustrate how a researcher shows *integrity* by making good judgements in the choosing, developing and conduct of their research programme. They are then supported by the *ethics review* of their projects by suitably constituted ethics committees that considers how research participants are protected and the cultural acceptability of the proposed research. However, concurrently both researchers and ethics committees work within a broader legal and policy framework overseen by research *governance* structures present with institutions and organisations that host research (R Iphofen 2017). These three perspectives – ethics, integrity and governance – are well developed within some research environments (Health Research Authority 2023), and consequently the ideas in this paper could be viewed as descriptive, however more can be done to provide clarity as to the difference between the concepts.

Research Integrity

To begin with a necessarily broad definition, integrity can be understood to connote a commitment to live in accordance with a certain set of rules or principles that one takes to govern one's conduct. Outside of the scientific context, moral philosophers have advanced a number of different theories of what constitutes 'integrity', and whether or not it is properly understood as a virtue (Audi and Murphy 2006; Williams 1973). Furthermore, it has been argued that there are domain-specific kinds of integrity that may sometimes conflict, such as moral integrity and intellectual integrity.

In our view, the most applicable philosophical conception of 'integrity' for the context of research understands integrity as a form of social virtue, one that incorporates both epistemological and moral commitments. Following Calhoun (Calhoun 1995), we suggest that integrity in this context should be viewed as a social virtue, insofar as we take integrity here to involve standing for a set of principles and one's own best judgements, not just because they are one's own, but also because they are endorsements that should matter to fellow deliberators within one's own particular community; in this case, the research community. However, we also suggest that the commitments and principles that undergird research integrity must have a certain kind of content. For instance, we believe Scherkoske (Scherkoske 2012) is correct to claim that integrity should at least partly be understood as an epistemic virtue, one that "places its possessor in good epistemic position and leads to cognitive success". Yet, we suggest that research integrity is not solely an epistemic virtue. To have integrity as a researcher is not just to have commitments that will lead one to be in a good epistemic position; it is also to be committed to 1) certain moral limits on how one will reach that epistemic position, and 2) pursuing the kinds of epistemic success in research that will lead to socially valuable knowledge.

The researcher with integrity is committed to both the epistemological and moral principles that underlie the aims of the science and the research process. To pre-empt our discussion below, the moral principles in question here will be significantly informed by the rulings and guidelines that, we suggest, are the domain of research ethics. The combination of these noble scientific and moral ideals are all crucially capturable as part of the character of the researcher: the virtuous researcher (Carpenter 2023; N Emmerich 2018).

In this view research integrity begins from a focus on those conducting research. The Nuffield Council on Bioethics' survey of researchers determined that the most desirable characteristics for

researchers are rigor, accuracy, originality, honesty, transparency, collaboration, multidisciplinary, openness and creativity (Joynson and Leyser 2015). This observation is compatible with similar attempts such as the "*Singapore Statement on Research Integrity*" that lists honesty, accountability, professionalism, and stewardship (Resnik and Shamoo 2011) and the "*The European Code of Conduct for Research Integrity*" that lists reliability, honesty, respect and accountability (ALLEA 2017).

Defining research integrity as the promotion or development of these characteristics is consistent with another common use of the word integrity in reference to research data itself. Here maintaining "data integrity" refers to the way it is processed, handled and reported. This is closely linked to discussions regarding reproducibility, replicability and repeatability, again three terms that are often conflated (National Academies of Sciences 2019). However, for the purposes of this discussion, if researchers hold a strong personal commitment to being trustworthy, rigorous, consistent and transparent in particular, data integrity will also follow.

Understanding research integrity as a form of social virtue in this way also provides a steer as to how integrity might be promoted. Character is developed over years of experience and training, so it seems appropriate that academic mentorship and supervision plays an important role in shaping and promoting good conduct among researchers. Importantly it is crucial that these activities are defined and conducted from within the respective fields by, for example, professional bodies or academies representing specific disciplines (Ron Iphofen 2016). "Outsiders" like research managers or regulators may play a role in facilitating the way in which character may be developed, but will never be able to promote good character as effectively as academic or clinical communities who take the lead in the mentorship of their newer members. Research is a sufficiently complicated activity that nothing can quite replace the experience, frustrations, and pressures inherent to being a researcher in the field, lab or clinic, and thus the lessons that can be passed on to others in similar circumstances.

However, we should not be under any illusion about the relationship between the character (and consequent behaviour) of researchers and the broader institutional and cultural environment. Researchers are very clearly a product of their environments in crucially important ways. Knowing what counts as good research - as research conducted with proper scientific integrity - is only one part of this. The other parts depend on the institutions in which the researcher work and the culture of their fields. The pressure to publish, and the pressure to publish successful research, is reflected and reinforced by journals and funders as well as research institutions as borne out by CVs, promotion committees and publication metrics. At the very heart of the philosophical work on character and its

role in thinking about integrity is education, culture, and context. Accordingly, the institutions which house researchers, and the culture of research integrity that they promote, is important as well.

Research Ethics

We noted above that research integrity is a social virtue grounded by a commitment to both epistemological and moral principles. We suggest that we should understand these principles to have a particular content; after all, we would not want to claim that a researcher acts with integrity simply because they act in accordance with their own, esoteric subjective moral principles. Naturally, this raises the question of which moral principles the researcher with integrity must have a commitment towards in a particular context. This is, of course, a deeply complex question that will likely need to be assessed on a case-by-case basis with reference to the professional and discipline specific research environments. However, when considering specific research activities, we suggest that the task of answering this question is best construed as the domain of research ethics.

Research ethics committees are one body that might be understood to provide information that can help us to answer this question. There are two types of research ethics committees. The first is a committee created to consider a specific ethical issue and provide guidance or advice to researchers, policy makers or stakeholders. These are often convened by funders or other bodies that oversee, or attempt to influence, a wide range of often international research. For example the World Health Organisation convened a committee to consider, and produce criteria for, the conduct of COVID Human Challenge Studies (Jamrozik et al. 2021) and there have been many similar committees created to consider a range of topics relevant to research. The second, far more common type of research ethics committee that are present in universities, hospitals and other research establishments around the world, focuses on a far simpler ethical question: should a particular piece of research (or research programme) be conducted as proposed? What is required is a timely and substantive judgement that takes into account broader issues, but is very much focussed on the ethical permissibility of the specific project as presented.

Questions concerning the philosophical foundations of research ethics, the elements that it is appropriate to consider when making judgements about the permissibility of a research study, and what it is to make such decisions well, are the subject of much reflection in the field of bioethics (London 2022). Naturally, the complexity of these issues has led scholars to differ not only on the substantive content of these judgements, but also the most appropriate procedures for making them. But there is an important balance to be struck here. Ideally, a research ethics committee of the second

type should have some understanding of the moral and philosophical foundations of the judgments that they make, but good philosophical research ethics should also be sensitive to the practical realities that must be incorporated into the judgments that the research ethics committee reviewing protocols have to make often quite rapdily. This emphasis on making a rapid decision is similar to the situation within medical ethics, where moral frameworks such as Beauchamp and Childress' influential Principlist framework are influential (Beauchamp and Childress 1979).

Adapting the framework of Principlism for the purposes of research ethics review is relatively straight forward. Research protocols can be assessed in light of autonomy (relating to the process of recruiting participants and gaining their consent), beneficence (the benefit of the project to participants and wider society), non-maleficence (the presence of risks) and justice (ensuring fairness in the distribution of the benefits and burdens of research). Although these "big four" are the most common principles in this context, attempts have also been made to break them into more specific questions that can be used by research ethics committees when reviewing and judging projects (Trace and Kolstoe 2017). However, others have made a fundamental critique of straightforwardly translating the Principlist framework from the therapeutic context to the research context by highlighting the contrasting aims of therapy and research (Miller and Brody 2003). In contrast to the aim of therapy, the primary aim of research is to generate socially valuable generalisable knowledge. Accordingly, Miller and Brody suggest that a participant-oriented understanding of the principle of beneficence is not readily applicable to the research context, as the principle in this context lacks the "therapeutic meaning" that guides its application to medical care. Click or tap here to enter text.In turn, this has concrete implications for substantive judgments about the ethics of research studies; for instance, if we reject a participant-oriented conception of the principle of beneficence in research ethics, then it is difficult to defend the claim that ethically permissible studies involving human subjects must meet the condition of clinical equipoise. This has been the subject of lively debate in leading medical journals in recent years (Hey et al. 2017).

However, notwithstanding these debates in the academic community, research ethics committees do tend to rely on the 'big four' principles because they are so practical. Yet even so the decisions that these committees are asked to make are complex, and thus sometimes prone to inconsistency (Friesen, Yusof, and Sheehan 2019). Indeed, RECs only offer an "opinion" as to whether a study, if conducted as presented in the protocol under review, is consistent with such principles (Carpenter et al. 2020). Where principles conflict, the conclusion that committees come to can be quite variable, although most commonly RECs will consider the arrangements for patients to be suitably informed and therefore come to their own decisions (i.e. autonomy) as the primary

concern; “first among equals” (Gillon 2003).

A quite different criticism of framing research ethics in terms of Principlism comes from subject areas that may be far removed from the “medical model” of research, i.e. that do not follow a specific, often necessarily fairly rigid, protocol. For instance research in molecular biology quite often evolves based on daily or weekly observations from experiments, while research in the social sciences or humanities is often based upon observations where individual consent is not possible, or uses analyses that change the direction of the research as new insights are gained (Ron Iphofen 2011). However, regardless of whether such research focuses on groups rather than individuals, is unpredictable, or framed in terms of an unfolding narrative, it is difficult to see why the principles cannot, nevertheless, apply. For instance, all research from a clinical trial through to historical analysis of texts must have benefits, must not cause harm and should respect autonomy and justice. Likewise it is difficult to understand why any research should occur in a vacuum *without* the input from colleagues or review committees helping to support the researchers as part of a healthy and supportive research culture.

The need to support and guide researchers in this way is reflected in ‘The Declaration of Helsinki’ (The World Medical Association 2013), ‘CIOMS Research Ethics guidance (Van Delden and Van Der Graaf 2017)’ and countless other ethical frameworks, although each provides slightly different accounts of how to go about making judgements about the ethical permissibility or acceptability of research. Nevertheless, they do draw on the kinds of normative ethical theory mentioned above. They often also provide additional levels of detail by articulating the kinds of empirical details that look important to deciding about the ethics of research. Debate in this area is active and lively, and while it would be a mistake here to attempt to settle the variation and disagreement within the literature, two relevant observations are:

1) The disagreement and variation in the literature does not mean that ethics is subjective, that there is no right answer, or that it is all just a matter of opinion (Sheehan 2007; 2016).

2) These are judgements that almost anyone can make, though not all people are in a position to do it well. Researchers clearly know a good deal about the methodology behind their research, and the rationale for conducting it; and this makes them well placed to make judgements about the ethics of research. But in general, ethics judgements are not mysterious, though they do require access to the right sets of knowledge (e.g. science, ethical concepts that are specific to research, ways of understanding risks and benefits etc.). Thus non-expert

members of the public can often make valuable contributions to research ethics committees of all types.

Research Governance

To recap the discussion so far, 'Research Integrity' is best understood as focussing on the *character* of researchers and research institutions, and 'Research Ethics' as concerning a judgement about the ethical permissibility, or acceptability of research topics, programmes and protocols, often using a framework linked to Principlism. As we shall now discuss, 'Research Governance' is primarily focussed on the various means through which (normally) institutions manage, oversee, and regulate research on behalf of broader society (R Iphofen 2017). These means include policies, processes, systems and enforcement mechanisms, committees, officers, and organisations. Research Governance is thus focussed on approvals and compliance. For instance, one governance duty is to ensure that only researchers demonstrating appropriate track records (and thus character traits) are allowed to conduct research; another is ensuring that research is designed in such a way that it addresses the principles that are looked for by research ethics committees, and a third is that appropriate insurance/indemnity arrangements are in place. There are, of course, many others as described in checklists such as those produced by UKRIO (UKRIO 2023).

In this account, the establishment and administration of research ethics committees is part of Research Governance, along with perhaps producing guidance documents to help RECs in their deliberations. It is, however, important to note that the actual ethics deliberative process should fall outside of governance because the nature of the "ethical opinion" (in considering societal norms/principles) is fundamentally different to the "governance approval" (that is concerned with legal/policy compliance). Of course, the final governance approval does need to take into account the ethical opinion, but normally in a rather binary way: is it favourable (in which case there is no ethical barrier to approval) or unfavourable (in which case approval is often withheld). Here we must emphasise that language is important: "approval" is a governance responsibility that takes into account the "opinion" provided by the ethics committee (Kolstoe and Carpenter 2019; Carpenter et al. 2020) and reflects often legal accountability for the research. The governance approval could theoretically ignore the ethics opinion, but in most governance processes the final approval is made contingent upon meeting the conditions of an ethics committee and thus obtaining a favourable ethics opinion.

When examining existing Research Governance structures checklists are extremely common

often either dictated by law, or in policies promoted and promulgated through institutions and professional bodies (UKRIO 2023). As these duties can be quite complex, such as the legal requirements of clinical trials, ensuring appropriate indemnity or data protection arrangements etc., they are best supported by specialist research or trial managers who can assist researchers as they design and conduct their work. Similarly, responsibility for upholding duties often sit more widely than just with researchers, as they encompass research environments, employers and processes beyond the individual researchers control. For instance, in clinical trials the label "sponsor" is given to those tasked to work with researchers to ensure that governance duties are met, and it is often the sponsor that takes responsibility for the wider legal and practical duties, and indeed is held accountable should things go wrong. Again, although the role of sponsor has been developed out of the medical/clinical research environment, it also applies to research in other areas. No matter whether research involves invasive studies involving seriously ill patients, or access to archive material in libraries, there are still certain duties around employment contracts, health and safety, and a myriad of other compliance issues that all involved in any type of research must observe. These duties are best viewed in terms of governance processes that can be formally handled by research managers or administrators working alongside the researchers themselves.

Distinguishing Research Integrity, Ethics and Governance: the UK Ministry of Defence as a case study.

One attempt to draw a better distinction between research integrity, ethics and governance has been in the UK Ministry of Defence (MOD). Research involving human participants is governed by the Joint Service Protocol 536 (UK Ministry of Defence 2022). This was substantially updated and harmonised with the UK's Policy Framework for Health and Social Care Research (Health Research Authority 2020) so as to ensure consistency across government departments. As it is a policy, JSP536 represents a governance document. It first defines the different roles within the research environment (Sponsor, Funder, Chief Investigator, Ethics Committee etc.) laying out who is responsible for which aspect of research. The majority of the policy then describes carefully the arrangements for scientific and ethics review of projects, followed by an annexe acting as a checklist of governance responsibilities for the researcher and sponsor to fill out together. It also highlights that while the ethics committee (in this case MODREC) is responsible for conducting a thorough review in accordance with the policy, the overall accountability for the research (especially if something should go wrong during the course of the research) sits with the research sponsor, not MODREC. This represents a good example of a clear demarcation between the governance role and the role of the research ethics committee.

However, although JSP536 makes a distinction between Research Governance responsibilities and the role of the ethics review, it does not dwell on Research Integrity issues. This omission was by design since JSP536 is very much focussed on the mechanics of managing protocols whereas, as described above, Research Integrity is a broader area relating to entire research communities and cultures. Initially, and *in lieu* of guidance relating to research integrity, the MOD endorsed the principles outlined by the Universities UK Concordat on Research Integrity (UUK 2019) as well as subscribing to the UK Research Integrity Office (UKRIO) so as to match (and endorse) similar standards to University based research. However, the MOD has recently published a separate policy, JSP 732 (UK Ministry of Defence 2023), relating specifically to Research Integrity. Taken together both JSPs complement each other, and comprehensively address governance, ethics and integrity matters as they relate to human participant research.

On one hand this example provides a good model for ensuring conceptual clarity between research ethics, governance and integrity. However, at the same time it emphasises that the three facets of good research do clearly overlap when applied practically. For instance the policies describing how research ethics and integrity will work within the MOD are themselves governance documents, even though the actual practice of research ethics and integrity represent different perspectives as we have been arguing in this paper.

Distinguishing Research Integrity, Ethics and Governance: Horizon Europe as a case study.

A second example comes from the European Commission. Applications for funding to the European Commission's Horizon programmes (previously Frameworks, then Horizon 2020, now Horizon Europe) require both an expert scientific peer review, and an "ethics appraisal" (European Commission 2023a). A review of ethics appraisals conducted between 2014 and 2020 highlighted Data Protection as "*one of the most represented ethics categories"* (De Waele et al. 2021). This reflects the instructions given to the "ethics experts" conducting the appraisal wherein the first task, called the "screening" phase, is to determine whether a checklist of relevant "ethics" categories (such as data protection amongst others) initially completed by the grant applicant is accurate. The hope is that the applicant will have highlighted all the listed issues at this point. But if this is not the case, the role of the ethics experts is to read the grant application so as to spot missing issues, and then determine whether any further actions may be necessary. If the ethics expert decides that all issues have been identified and dealt with appropriately an "ethics clearance" can be provided. Alternatively, a "conditional clearance" can be provided which results in specific additional

requirement added to the funding contract. These can take the form of a commitment to keep certain records on file, the appointment of an independent ethics advisor or board with specific reporting requirements during the lifetime of the award, or a more in depth "ethics assessment" by the European Commission followed by "ethics checks" or reviews at stipulated points during the funding period. As the ethics assessment and further reviews by the European Commission can be both expensive and onerous, it has been increasingly stressed to the ethics experts completing the screening phase that such reviews should only be recommended in exceptional circumstances, and accompanied by a clear justification.

This example raises a number of interesting issues in relation to the topic of this paper. Firstly the use of the word "ethics" by the European Commission seems to encompasses both the governance and ethics responsibilities as defined here, emphasising the way that the word 'ethics' can be used quite broadly, and in our view incorrectly, because in this case it perpetuates the confusion between responsibilities. However, secondly, and despite the overly broad use of the word 'ethics', the distinction between governance and ethics is actually very clear in the European process, and thus well aligned with the arguments being made here. This is because the checklist used during the ethics screening is identical to a governance checklist, and thus the most common outcome from the screening process is confirming that all relevant issues have been identified and "no serious or complex (ethical) issues" are present. Indeed in the guidance document given to ethics experts (European Commission 2021) it is clearly stated:

> *If the activities are standard practices, with a clear legal/ethics framework, the related ethics issues should not in the meaning of Horizon Europe be considered as serious or complex as they should be addressed by at local, regional and national level, should receive appropriate ethics approval/s and should not undergo an ethics assessment. In such cases of standard practices, there should be no need of ethics advisors or advisory boards.*

Furthermore even the phrase "ethics expert" itself suggests a level of technical knowledge or expertise. Indeed if the main task of the "ethics expert" during the screening process in particular is broadly compliance related, it can be fairly clearly seen that the "expertise" is in actual fact technical governance (data protection etc. (De Waele et al. 2021)) as opposed to ethics. We therefore believe that the "ethics" screening process is well aligned with the task of governance checks as we describe above, and should these governance checks identify "serious or complex issues", they are then passed to the "ethics assessment" phase, which ***is*** now an ethics review as described above. As a consequence, although we disagree with the broader use of the word "ethics" by the European

Commission, and indeed the term "ethics expert", we do see the same distinction between governance and ethics that we describe here, certainly at an operational level. Of course what is missing is the research integrity aspect, although if, as we argue above, this is primarily the role of professional bodies and research communities, it is not a surprise that this is not dealt with through the formal grant review/awarding process. Instead, the European Commission offers broader guidance (in some ways similar, but much more extensive than the UK MOD's JSP732) for the general conduct of research. One example is the extensive guidance produced by PRO-RES and similar action/projects referenced therein (European Commission 2023b).

Discussion

The two examples provided above emphasise that making the distinction between governance, ethics and integrity is more of a descriptive, rather than prescriptive activity. However, the way these terms are used interchangeably (as demonstrated in particular by the European Commission), is not helpful. Of course the concepts are linked, and interact with each other, but our contention is that if they are broadly considered as three separate aspects of ensuring good research, it is easier to determine who is responsible for which aspects of research practice and culture.

In considering how best to illustrate this idea we find the illustration in Figure 1 helpful. As we view all three aspects we have identified above as being essential for good research, we felt that the relationship between them is best illustrated by visualising all three as part of the same circle – or whole – of good research, but with a puzzle-piece icon to demonstrate the interactions between them. Referring to this illustration makes a good reference point for both training, but also when trying to navigate the complexities of conducting research. If researchers are reminded to consider and address governance aspects, ethics aspects, and personal integrity as they conduct their projects, they are unlikely to go too far wrong.

[Figure 1 near here]

Figure 1: A model of good research. Integrity, Ethics and Governance are three equal and interlinked parts of good research.

Limitations of model

In this paper we seek to draw distinctions between three components that form a trinity for good research: research integrity, research ethics and research governance. This model provides clarity for all involved in the research process, helping promote understanding and expectations. However, it should be remembered that like all models it provides a simplification and abstraction of reality.

One issue is that processes and procedures have developed over time and while these distinctions can be discerned in most systems, they do overlap. For example, many research ethics committees will carry out governance activities for example checking documentation and permissions (Ron Iphofen 2011). This is because the research ethics application and review process is a recognisable point in time during the research development process and thus it is a convenient time to also conduct these other checks. However, thinking through whether each particular activity, check, or review should best be described as 'governance' or 'ethics', would still be useful for the evolution of such services, for example concentrating committee time on research ethics and allowing administrators (or those with suitable technical expertise) to carry out the more explicit governance functions/checks. As an example further work by the European Commission on their terminology would be helpful in this regard, as while they do distinguish between governance and ethics review, they refer to the whole process as "ethics" and it can sometimes be unclear which checks are in fact compliance based, and which are more a review or relevant ethical issues.

Finally this paper is in general concerned with the interaction of ethics, governance and integrity in research involving humans. However, we would argue that a similar model would apply to other research (for example involving non-human animals, cultural and historic object and indigenous cultures). We have also not addressed all aspects of governance, for example misconduct committees.

Conclusion: Making Good Research

"Good Research" or a "Good Research Culture" involves collaboration between clinicians, scientists, funders, institutions, academic communities and often government or industry. Each has certain legal and moral responsibilities when it comes to ensuring that research is conducted effectively, to high standards, and does not contribute to research waste. However, while the pressures on researchers that lead to poor practice and research waste are well known, there has been considerable confusion as to the specific responsibilities of each player within the research environment for promoting positive research cultures and reducing avoidable research waste. Even well-known codes of conduct

such as the Declaration of Helsinki are not entirely clear on this issue. In this paper a simple theory distinguishing Research Integrity, Ethics and Governance is clarified. Although Integrity, Ethics and Governance are interlinked and only together form good research, the different perspective that each takes help to identify specific communities and individuals that are best placed to address each issue. We have found this distinction particularly helpful in conducting our own research and also trying to support others from widely differing research fields who we encounter through our participation in research ethics committees, peer review and institutional level research management. The distinction also complements existing codes by making explicit a common underlying feature of the majority of attempts to define good research behaviour, and thus good research culture.

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Figure 1

Independent Review:
1) Protect Participants
2) Support Researchers
Ethics
Integrity
Governance
Policies, processes, laws, regulations, indemnity etc.
People & Virtues:
Rigorous
Original
Honest
Open