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The Research Literacy of Professionals: Reconciling Evidence-Based Practice and Practical Wisdom

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Abstract

There is widespread agreement that the art/science dichotomy is obsolete; professional practice must accommodate both experience-based judgment and evidence-based tools. However, there is little agreement on what this reconciliation entails, partly because we lack a conceptualization of the professional agency involved. What kind of intellectual ability is needed for the translation of research into practice? This article argues that we need a new conception of *research literacy*, where the distinct issues of application to practice are addressed. By first replacing the art/science dichotomy with a *craft model* of professional practice, the article explains how research literacy should be conceived as a virtue that preserves the integrity of the domain of expertise. This virtue is served by a set of sensitivities that enable professionals to embed evidence-based tools into practice in a collaborative and situationally attuned way. The craft-oriented conception of research literacy is explored with examples from medicine and teaching.

Keywords

Research literacy, evidence-based practice, intellectual virtue, professional judgment

Introduction

It is a sociological commonplace that professional practice aims to be both scientifically anchored yet flexibly to attuned individual situations (Brante, 2011; Freidson, 2001). However, this commonplace assumes that professionals can mediate responsibly between research-informed standards and the complex demands of practice. The assumption is standardly justified by appeal to the "practical wisdom" of professionals. But as Donald Schön famously said, the term "wisdom" and its cognates are "junk categories" typically used as placeholders for elusive types of reasoning (1987, p. 13). While Schön's influential account of "reflection-in-action" made some aspects of practical wisdom less elusive, the current demands on reflection are unclear. How can evidence-based tools, such as decision aids for patient interaction or school-wide behavioral programs, be translated to practice without sacrificing responsible professional judgment?

This is an issue where superficial agreement soon gives way to fundamental disagreement. On the one hand, few would claim that professionals can ignore knowledge gained from systematic meta-reviews, science-based recommendations provided in guidelines and validated models of decision-making. Outright rejection of the tools of evidence-based practice will often be reckless. On the other hand, the turn towards evidence-based practice continues to raise fears of "cookbook medicine" or "teachers as mere technicians." *Qua* professionals, role-holders are supposed to act on reasons that can be offered as substantial justifications as opposed to mere formalistic deference to procedures. Today, fears of formalistic deference may be warranted by persisting tendencies to connect evidence-based guidelines to mechanisms of accountability (for recent accounts, see Håland & Melby, 2021 on medicine; Mockler & Stacy, 2021 on teaching). Sticking strictly to procedures may in some cases be necessary to avoid liability.

However, a more fundamental reason for continued resistance to evidence-based practice is the lack of conceptual tools for seeing professional roles as both governed by evidence and practical wisdom. Despite an abundance of academic literature claiming the obsolescence of the "art/science dichotomy"[1] and persuasive accounts of the potential "synergy between *theoria*, *praxis* and *poiesis*" (Oancea, 2018, p. 1050), there is no framework for integrating the tools of evidence-based practice with ethically informed and experience-based judgment. In some regards, we are still dealing in Schön's "junk categories." That is, the

[1] "the hoary confusion regarding the extent to which medicine is an art or a science is a relic of murkier times and not a useful way to think about the management of uncertainty in clinical practice" (Goodman, 2003, p. xi), "the recent distinction between the 'art' and 'science' of medicine presumes a traditional logical positivist or logical empiricist philosophy of science" (Solomon, 2015, p. 7), "This is a cliché we should get rid of—if only because neither the concept of 'art' nor the notion of 'science,' as they figure in this phrase, have any empirical referent" (Berg, 1997, p. 1085).

standards of practical wisdom that enable responsible reconciliation have yet to be articulated.

This paper argues that we can make headway by reconsidering what *research literacy* means in the professional context. Using examples from the literature on medicine and education, the paper shows how calls for research literacy seldom reach beyond the expectation that professionals should understand the methods, concepts, and importance of research. This expectation may be reasonable in itself, but it can lead to unreasonable results if the role-specific contours of research literacy are neglected. That is, an understanding that is restricted to terms internal to the domain of research fails to do justice to the challenges of reconciliation.

The following argument for professional research literacy as a mediating virtue between research and practice proceeds in three steps. The first challenge is to derive some basic benchmarks for responsible practice. The call for overcoming the art/science dichotomy is essentially a call for a new model of professional reasoning with research. My suggestion is to frame responsible reasoning on a craft model of professional practice. This is a rejoinder to the current literature on professional reasoning that equates craftwork with intuitive artistry and therefore as antithetical to evidence-based practice. The craft model can be rehabilitated by briefly revisiting the Socratic dialogues, which contain a conception of craftwork that is suitable for current needs. The second step is to articulate a conception of research literacy that respects the constraints of the craft model. In line with the craft model, my argument is that research literacy should be conceived as an intellectual virtue that serves the integrity of a practical domain of expertise. The final step is to illustrate this conception of professional research literacy with a couple of examples drawn from medicine and teaching.

What is professional practice? A craft model

The question of whether and how professional practice can comprise both evidence-based tools and practical wisdom depends, most fundamentally, on how we understand the concept of professional practice. It is useful to take a lead from the famous neurosurgeon Henry Marsh in this regard. In recounting his interview for medical school, Marsh mentions how a senior pipe-smoking registrar noted “it was best to see medicine as a form of craft, neither art nor science—an opinion with which I came to agree in later years” (Marsh, 2014 p. 77). The point seems to be, roughly, that good practitioners are neither slaves of rigid methods nor improvising performers. Rather, they have a grasp of the time and place of procedures and standards. It is about intelligent application of rules, guided by an understanding of the core concerns of the practice. For example, urgency may call for relaxation of precautionary measures, risky matters may call for increased information for consent, and so on.

We can expand on this by drawing on the "least academic" theory of knowledge (Woodruff, 1990, p. 60), namely Plato's early Socratic dialogues devoted to the nature of *techne*—standardly translated as craft. Describing it as the "least academic" theory is meant honorifically, referring to it being unburdened by later reductions of knowledge to "justified true belief" and modern controversies over how to meet skeptical worries. The dialogues express a more practical concern with *expertise* understood as the knowledge that grounds trustworthy action in a specific domain. On the early Platonic conception, expertise involves the interweaving of different types of knowledge (skills, factual knowledge, understanding of principle, etc.). That is, unlike later theories of knowledge that focus on how individual propositions can be warranted in the face of skeptical worries, the Socratic epistemology aims at illuminating knowledge as embodied in ways of doing things. In pursuit of this aim, the craft model takes on three main features that will be useful in conceptualizing the reconciliation of research and judgment. In the following, I am referring to these features as extracted by Plato scholars. It bears emphasizing that these scholars are not merely pursuing an exegetical goal, they are trying to reconstruct a theory of expertise that is attractive in its own right and that deserves to be revived.

The first feature is that an activity that aspires to be a craft must possess *integrity* (Smith, 1998, pp. 135-136; Woodruff, 1990, p. 72). This concerns the scope of the activity; the craftsperson is neither specialized in an arbitrarily narrow domain nor engaging in some very generic competence that is used in the pursuit of all kinds of ends. The idea is that each craft has an end that naturally connects a set of skills. Diagnostics, for example, arguably requires skills in abductive reasoning, probability, and communication. These skills hang together because they jointly support the end of explaining symptoms. By contrast, communication is not a craft in and of itself, because it serves many types of ends.

The second feature is that craftwork is rational in the sense that the craftsperson *can give reasons*. In the Socratic dialogues, this feature is especially emphasized to distinguish between craftwork and the automated skill expressed in a mere "knack" or "routine" (Plato, 1997b, Gorgias 462b-463c). The expertise of craftwork involves an understanding of connections, enabling the craftsperson to explain why certain things are done. Note that this is not simply about straightforward causal reasons, but also about normative reasons. For example, Socrates claimed poets lack craft expertise because they cannot explain the value of their artistic decisions (Plato, 1997a, Apology 22b-c).

The third feature of craftwork is that it can deal flexibly and intelligently with a variety of situations. This follows from the previous two features (integrity and rationality). A craft is not so specialized that it can only deal with standardized and predictable situations. It can deal with dynamic and novel challenges. Naturally, flexibility features prominently in modern craft conceptions as well, for example in the already mentioned concept of "reflection-in-action" (Schön, 1983). In Richard Sennett's *The Craftsman*, craftwork is imbued with a spirit of curiosity rather than formalistic reasoning (2008, e.g., p. 224, p. 288).

The curiosity that drives craftwork comprises inquiry into *why* some action is right, and this helps explain how flexibility relates to rationality. The expertise involved in craftwork is not mere imitation of actions in similar situations, but a form of responsiveness to a complex of connections.

However, there is no claim here that all the knowledge that goes into expertise can and should be articulated. Rather, the rationality component calls for an articulation that can provide *evidence* of craft knowledge, but this does not imply that the practical understanding that guides craftwork can be reduced to the content of the propositional articulation (see Smith, 1998, p. 138 for the Socratic pedigree of this view). Abstract principles and rules may indicate a direction of action for the novice, but for the expert they lose some of their guidance function and take on a more explanatory and justificatory role. However, this remaining justificatory function is, at best, obscured in more recent theories of expertise (Benner et al., 2009; Dreyfus & Dreyfus, 1986).

I motivated this account of professional practice by way of explaining a surgeon's remark about medicine being a craft. My account reclaims the craft concept from the current tendency to associate the concept with the antithesis of research-informed reflection, a tendency that is especially prevalent in the literature on teaching (see Winch, 2017, ch. 6 for a good overview). On the one hand, this tendency is understandable given the way craftwork often involves tacit knowledge and automated skills. However, the advantage of revisiting the Socratic dialogues is to highlight the rational and justificatory component of craftwork. As Plato scholar Terence Irwin describes the view: "The expert in a particular craft offers authoritative guidance supported by a rational account" (1977, p. 71). This connection between craftwork and rational account-giving survives in some contemporary virtue-theoretical accounts of expertise. Julia Annas, for example, sees craftwork as the opposite of mindless routine (2011, p. 169), although she and many others note that the term "craft" carries impoverished associations today compared to the ancient Greek concept of *techne*.

How does the craft model help us reconcile evidence-based tools and practical wisdom? It gives a sense of how research literacy—as a mediating ability—should be conceived as an intellectual virtue that sustains the integrity of practice through flexible adaptation. How far removed is this conception from the current use of the term "research literacy" in connection with evidence-based practice? As we shall see in the next section, while the craft model is aligned with certain influential accounts of the principles of evidence-based practice, current ideas of research literacy fail to recognize the need for mediation between normative domains. In particular, research literacy is still being used in the way it was introduced in the "public understanding of science" tradition, while what is needed is an account that respects how the use of evidence-based tools creates distinct challenges for the integrity of practice.

Why research literacy? Beyond the public understanding conception

On my reading, evidence-based practice is fundamentally about translation between domains of knowledge. While it has become common to equate evidence-based practice with a set of statistically refined techniques—especially randomized controlled trials and meta-analyses of such trials—it is a striking fact that its *core* method has only been gestured at in vague terms. That is, the methodological and epistemological issues involved in the evidence hierarchies and the guidelines have drawn much attention, but if we take the most cited definition seriously, these issues are secondary. Instead, the most fundamental concern is the *integration* of research-based evidence and professional judgment.

The famous definition from medicine reads: "The practice of evidence-based practice means integrating individual clinical expertise with the best available external evidence from systematic research" (Sackett et al., 1996, p. 71). As the authors note, "expertise" involves moral notions such as "compassion" and "thoughtfulness" (Sackett et al., 1996, p. 71). In other words, the evidence of systematic research needs to be translated into a practical framework of reasoning, which includes value-based considerations. In a similar vein, evidence-based teaching has been described as "a set of principles and practices which can alter the way people think about education" (Davies, 1999, p. 118). But such programmatic statements have not been followed up with a theory of integration through professional reasoning. Hence, for the past two decades, a steady stream of analysts, including friends of the evidence movement, claim that "the question of how experience and judgment integrates with the rules remains oblique" (Kelly, 2018, p. 1160).[2]

This obliqueness is due, at least in part, to the fact that the notion of research literacy is seldom taken to present distinct challenges for professionals. This neglect is reflected in the way the concept is used to assess comprehension of research, but not the agency involved in its application. Literacy, in its original and extended senses, is a "two-sided competency" (Engstrom, 2011, pp. 22-23; Herman, 2007, p. 80), meaning that it involves both epistemic *access* and competent *action*. In discussions of evidence-based practice, however, the focus is almost exclusively on access rather than action. For example, the early evidence movement is sometimes described as a "research literacy movement," but here the term research literacy simply means instilling "the ability to independently and critically read the biomedical research literature" (Wyer & Silva, 2015, p. 2). This falls within the broader tradition of treating professional research literacy as conceptually uninteresting, seeing it instead as merely a subcategory of public understanding of science, which is equally focused on the access aspect of research literacy.

[2] See also Bluhm, 2017, pp. 1-2: Loughlin et al., 2016, p. 629.

In fact, the assimilation between research literacy as understood in public understanding of science literature and research literacy in the professional context is often quite systematic. The public understanding conception of research literacy has a tripartite structure. It requires (1) "an understanding of the norms of science," (2) "knowledge of major scientific constructs," (3) "awareness of the impact of science and technology on society and the policy choices that must inevitably emerge" (Miller, 1983, p. 31). This structure is easily recognized in discussions of research literacy in professional roles. The research literacy of medical professionals has been defined as (1) the ability to "access, interpret, and critically evaluate primary medical literature," (2) familiarity with a "multitude of available research databases and [ability] to structure their clinical questions in a way that optimizes searchability and literature retrieval," and (3) the capacity to "decide if the results of the study are clinically meaningful and relevant to their own work in the field" (Senders et al., 2014). As in the public understanding tradition, this structure maintains a focus on methodological soundness, up-to-date findings, and practical importance. Similarly, the research literacy of teachers is defined as (1) being "familiar with a range of research methods," (2) knowledge of "the latest research findings," (3) and understanding "the implications of this research for their day-to-day practice, and for education policy and practice more broadly" (BERA, 2014, p. 40).

This way of extending research literacy from the public understanding context to professional practice is useful insofar as it highlights the need for active and critical engagement. Nevertheless, this standard conception of professional research literacy raises questions concerning what it means for professionals to reason in ways that aim not only at comprehension but also at application of research in a way that respects role-specific responsibilities. How can research literacy serve a mediating function between the domain of "what works" and the domain of "what is appropriate"?

The assimilation between professional research literacy and public understanding of science is not total, however. To some extent, the need for a mediating and craft-oriented concept of research literacy has been acknowledged in other parts of the literature. Recently, Pete Boyd argued that educational theory should develop a conception of research literacy that recognizes "the interplay between research and practical wisdom" (Boyd, 2022, p. 19). Similarly, in medicine, it has been argued that research literacy consists in a set of "core competencies" including "professional values, attitudes, and ethics" (des Cruser et al., 2012, p. 167).

The references to "practical wisdom" and "professional values" draw attention to the fact that teachers and doctors face a distinct task of application. For research literacy to serve as a source of trustworthiness, it must be given a role-specific form that connects evidence to the goals and concerns of professional practice. I have already argued that professional practice can be understood on a craft model, but it remains to be shown how this model should govern our conception of research literacy. In the next section, I propose an account

of professional research literacy that has its own distinct tripartite structure (i.e., different from the public understanding conception). Importantly, this is not meant to diminish the need for research literacy in the public understanding sense (i.e., critical comprehension). The claim is rather that research literacy takes on further dimensions in the professional context. Hence, the three sensitivities presented in the next section delineate the core features that make professional research literacy distinctive, but they do not exclude the concerns of the public understanding of science conception.

Professional research literacy: Three sensitivities

The argument of this section is that the craft model of professional practice places certain demands on how we conceive professional research literacy. That is, the features of *integrity*, *reason-giving* and *flexibility* (as discussed above) shape the success conditions of responsible engagement with research-based tools. My suggestion is that professional research literacy, in its role-specific form, has its own tripartite structure comprising three sensitivities: *genre sensitivity*, *practice sensitivity*, and *situational sensitivity*. This section lays out the core meaning of these sensitivities, leaving the discussion of concrete examples to the next section.

Genre sensitivity: In order to maintain the integrity of the craft, professionals must deal with questions in a way that is neither too narrowly specialized nor lacking in dedicated focus. In the exercise of professional research literacy, this expresses itself as responsiveness to professional roles as distinct genres of reasoning. This involves awareness that the standards of research do not have the thematic breadth required for practical conclusions. They can only deliver a sub-theme to a broader narrative.

In the public understanding of science sense of research literacy, the success conditions are provided by the applicable standards of the relevant academic discipline (e.g., transparency, replicability, or statistical significance). These standards define a research-internal genre that delimits the range of sensible questions to ask with regard to validity and justification. For example, it usually makes little sense to ask whether a regression analysis is caring or to justify a sociological model by appeal to its political support. But in switching to the genre of professional reasoning, considerations of care, political support and a broad range of further social concerns can ground legitimate questions and justificatory reasons. Not in the sense that professionals can appeal to their personal preferences in morality and politics, but rather that they are supposed to be responsive to role-specific principles of ethics and law. It often makes sense to ask whether professional claims express care or enjoy adequate political support (e.g., in distributive questions). The genre-sensitive professional is responsive to this difference in justificatory reasons and knows that whether some intervention “works” according to the genre of research does not answer whether it works according to the genre of the professional role (cf. Oancea & Pring, 2008, pp. 21-22).

Practice sensitivity: Craftwork is not justified by tradition or mere authoritative fiat. Rather, it is justified by providing rational explanations that can ground trustworthiness. While genre sensitivity serves the integrity of the craft (i.e., responsiveness to the appropriate standards), practice sensitivity serves the intersubjective reason-giving aspect. Doctors and teachers justify their actions in the name of a shared normative framework and the contours of this framework are developed in conversation with other practitioners and the public that depends on responsible professional reasoning.

The notion of genre sensitivity developed above suggests that professional action can be understood as a form of narrative rationality. Narrative rationality does not simply grasp the order or causality of events but captures their significance and meaning in light of human values and emotions (cf. Velleman, 2009 ch. 7). The narrative structure of professional reasoning been persuasively explored in Kathryn Montgomery's *How Doctors Think* (2006). Her account of the social origins of the professional narrative is particularly relevant for current purposes. She describes narratives as "communal, intersubjective, implicitly or overtly collaborative, and therefore conventional and audience-dependent" (p. 48). In the terminology I will adopt here, this means that narratives are developed as a social practice.

Practice sensitivity, then, is about being attuned to intersubjective and audience-dependent nature of professional reason-giving. It serves the reason-giving requirement by steering justifications towards considerations that are broadly supported. The aim served by this sensitivity is to respect reasonable disagreement and the need for democratic engagement, but it does not involve pandering to unreasonable views just because they are in majority. As part of research literacy, this enables professionals to justify their application of research by appeal to reasons that find resonance in both the professional community and in the public that trusts this community. For example, there may be role-specific constraints on utilitarian reasoning. Research may indicate that an intervention will produce a beneficial outcome in the aggregate but on terms that ignore publicly recognized role commitments to ideas of equality, responsibility, or dignity. In other words, the intervention depends on reasons that do not have currency in the social practice and should therefore be resisted.

Summing up so far, what is the main difference between genre sensitivity and practice sensitivity? Genre sensitivity concerns addressing research with an interpretive attitude guided by the standards appropriate to the professional craft (i.e., fitting it to a broader narrative). By contrast, practice sensitivity concerns explaining and justifying decisions in a way that is attuned to the intersubjective basis of professional trustworthiness (i.e., creating the narrative as collaborative effort). These are of course two sides of the same coin, but they involve distinct legitimacy issues. However, with its flexibility feature, the craft approach reminds us that these sensitivities must be employed in idiosyncratic and complex situations. An adequate account of research literacy should therefore include recognition of the contextual nature of professional reasoning.

Situational sensitivity: Active engagement cannot consist in algorithmic application of a ready-made judgment to a concrete situation. Even when research is filtered through genre sensitivity and practice sensitivity, there is still a question of when and how to apply the knowledge. Is *this* the time for introducing a new classroom management intervention? Should *this* patient proceed with the treatment recommended in guidelines? Situational sensitivity enables professionals to go beyond generic framings of problems and recognize discrete contextual features that shape validity of research-based input. This goes beyond the traditional concerns of external validity, such as population validity and ecological validity (Bracht & Glass, 1968). External validity is a measure of the *generalizability* of effects, and responsiveness to the importance of this kind of validity is arguably part of the ordinary notion of research literacy (i.e., in the public understanding of science sense). In the context of professional research literacy, however, situational sensitivity also requires a judgment regarding the *appropriateness* of the effects in the specific context.

While the craft-oriented conception of research literacy promotes flexible attunement to the demands of the concrete situation, it does not promote it as a form of intuition that is independent of the integrity of the craft and its commitment to reason-giving. Situational sensitivity is constrained by the collaborative and communicative nature of professional practice. Clearly, however, not every decision regarding the use of research can be fully explained. Sometimes a decision just seems right and there is no time to think through why it is right. Yet as Christopher Winch recently put it, although the "evaluating-selecting-deciding nexus may no longer be *articulated* due to temporal constraints […] it should remain *articulable*" (Winch, 2022, p. 26, emphases in original). As noted above, however, the craft model delivers a necessary distinction concerning what needs to be articulated and what can remain silent: the point is giving enough evidence to warrant trustworthiness. When called to account, what matters is explaining how the action is licensed by commitments of the practice, as opposed to why it was the optimal choice among several legitimate alternatives. In other words, it may be hard to say why it was perceived as right, but it is necessary to at least explain why it was not wrong.

This generalizes to the other sensitivities as well. As a form of practical knowledge, they can be operative without being subject to focal awareness. When professional work is in appropriate flow, the sensitivities are background modes of approaching evidence and structuring judgment. Nevertheless, in line with Winch's point, they should be brought to the foreground when integration of evidence requires justification. When challenged about the legitimacy of an evidence-based intervention, a justificatory response needs to explain how evidence has been integrated in a way that respects these dimensions. The next section discusses these sensitivities in connection with some examples.

Professional research literacy in action

How does a craft-oriented conception of research literacy govern the use of evidence-based tools? This section further examines professional research literacy with the examples of school-wide behavioral management programs (*Case 1*) and the use of quantitative information in shared medical decision-making (*Case 2*). Naturally, the aim is to explain how the three sensitivities of research literacy can approach these programs and decision-aids, not to discuss the merits of the tools as such.

Case 1: School-wide behavioral management program

Consider first the case of a school that is implementing an evidence-based behavioral management program, which has been deemed successful in other schools (*School-Wide Positive Behavioral Support* is a prominent example of an evidence-based model that generates such programs). The program comprises a set of strategies for dealing with behavioral issues through routines for positive feedback. How should research literacy govern teacher engagement with the contents of the program?

One approach is for teachers (and school-leaders) to treat the program as a set of rules that dictate how to deal with behavioral issues. This attitude may be supported by the fact that a specific set of rules was deemed a success in other schools, so the teachers and school-leaders believe that there should be as little alteration of the program as possible. This is their understanding of "fidelity," a term that is central to implementation researchers (Ogden & Fixsen, 2014). On this approach, participant educators read the program as requiring school-wide conformity and consistency in classroom management strategies, with the aim of replicating the concrete strategies of other schools. For example, if other schools use symbolic rewards and sanctions in the form of behavioral scorecards, then that specific measure must be adopted in the same format.

The craft-oriented conception of research literacy emphasizes a set of critical questions to be raised in this regard and points towards an alternative approach. First, does the behavioral program mesh with the values that structure relations between teachers and pupils? Genre sensitivity counteracts any tendency to see the task as a matter of replication. The components of the program should not be adopted wholesale, but individually in a way that teachers can recognize as part of their professional narrative. For example, if the use of symbolic scorecards conflicts with established modes of communicating with pupils and parents, this may be discarded as part of the program. The program is thereby not interpreted as finished script, but as a set of principles that need operationalization in a way that integrates them with a broader set of concerns.

Second, can the program be implemented and justified through collaborative and democratic procedures? For example, can program coherence evolve through mutual exchange of experiences with classroom strategies? Interpreted as a form of practice

sensitivity, such mutual exchange is not simply about learning handy strategies, but about developing a shared evaluative outlook. The decision whether to use scorecards expresses the profession's values and thereby its claim to trustworthiness. This is not to deny a scope for individual variation. But legitimate variation must be justified as within the bounds set by commitments that are undertaken and developed as a joint professional project. When legitimate, the claim "That's how *I* do it" implies "This is how I interpret and realize *our* professional commitments."

Third, can the program be implemented in a way that respects the school's situation? For example, is a program that requires active involvement of parents suitable for this school? Situational sensitivity considers the fit between the program and school with an awareness of how contextual factors interact over time. Social dynamics relating to the school's traditions, demographic changes and economic priorities affect the symbolic meaning of tools like scorecards. For example, the symbolic meaning of scorecards can take problematic forms in an area where behavioral issues track demographic divides. And scorecards that have been adopted in a trusting environment through classroom deliberation and voting is different from scorecards that are imposed by fiat from above in the face of pupil opposition. In other words, one and the same tool may have similar effects along many standardized metrics (reported incidents, grades, etc.), but they structure the situations with different social grammars and communicate different moral messages.

The discussion above has been informed by actual debates on such school-wide behavioral support programs, but it naturally abstracts away many details. It should be noted, however, that a reading of some literature suggests that evidence-based behavioral models for schools are intended by their developers as sets of principles that should be interpreted more along the lines of a craft-oriented conception of research literacy than as rigid sets of rules (e.g., Stormont et al., 2012, p. 19; Sørlie & Ogden, 2015). Nevertheless, in actual practice, such programs are often approached as sets of authoritative rules by teachers and school-leaders (Haugen, 2018). There may be many reasons for this discrepancy between intentions and reception (accountability dynamics, workload, etc.). However, we need a craft-oriented conception of professional research literacy to diagnose what is wrong with the situation in the first place.

Case 2: Shared medical decision-making

Consider now a doctor who must decide on a cancer therapy in discussion with the patient. On what I'll call the quantitative approach, the doctor appeals to statistics to inform the patient. The doctor explains the relative chances of improvement according to the meta-analyses that inform the treatment guideline The aim is for science to speak for itself unburdened by evaluative interference from the doctor. After the information stage, the doctor uses a numerical mode of eliciting patient preferences. The patient is asked about the relative value of various outcomes using a quantitative rating scale, which is computed

to a treatment preference. This is supposed to enable the doctor to elicit preferences in a way that avoids paternalistic imposition of value judgments. Validated versions of such tools are considered part of evidence-based medicine (e.g., Straus et al, 2019. pp. 107-113). The overarching goal is to provide a systematic and transparent way of supporting shared decision-making.

In response, the craft-oriented conception of research literacy highlights a set of considerations that are silenced in the quantitative approach to shared decision-making. First, can the constraints on paternalistic imposition of values be respected by sticking to the numbers? Genre sensitivity highlights that the statistical knowledge gained from evidence-based guidelines and the utility functions gleaned from patients' ranking forms can only tell part of the story. Or rather, as there is no numerical neutrality, they implicitly tell a story of their own. For example, framing statistics in terms of chances of improvement rather than chances of failure makes it more likely that patients accept the treatment, and framing data in terms of absolute numbers rather than percentages may have the reverse effect (Groopman, 2007, pp. 242-243). The genre-sensitive doctor knows that numbers are part of a broader evaluative narrative, where the overarching plot of "doing no harm" involves a multifarious set of risks. Trade-offs are omnipresent: some of what is won through systematic procedures and statistical patterns comes at a cost to outliers, some of what is gained in anti-paternalistic transparency may be lost in terms of competent guidance, and so on. Genre sensitivity highlights that formalized procedures will point in different directions regarding such trade-offs and that they can only be integrated through evaluative judgment.

Second, practice sensitivity points to the intersubjective and collaborative standards for the evaluative judgment. This sensitivity can be seen as part the more general call for a "cultural framework in which health care professionals can fluently use (or reject) guidelines" (Hurwitz, 1998, p. 51; see also Timmermans, 2005, p. 495). That is, the "cultural framework" that guides use and rejection of evidence-based tools should not only comprise critical methodological scrutiny, but also a sense of how trade-offs are dealt with and how they mesh with the evaluative outlook of the profession. This requires that practitioners exchange their evaluations and also provide some structured feedback to tool designers. Current evidence-based aids for shared decision-making are in fact developed through extensive engagement with experiences from actual practice and they are increasingly sensitive to the ways patients actually think and feel (an instructive account is provided in Heen et al., 2021).

Third, situational sensitivity clarifies the contextual preconditions for the use of tools such as asking patients for quantitative rankings of preferences. One contextual condition can be severity. Doctors and patients dealing with conditions such as terminal cancer often avoid rankings of "utilities" because, if they are to be realistic, they require a very explicit representation of terminal scenarios (Marsh, 2014, p. 245). Another condition may be the

rationality of the patient's reasoning. Patients whose preferences reflect, for example, a biased emphasis on the well-defined side-effects of a drug, rather than the significant potential for improvement, may need help to make their preferences conform to their considered judgments (Groopman, 2007, pp. 246-247).

These are standards for critical reflection on the use of evidence-based tools, not reasons for rejecting them. The craft-oriented conception of research literacy does not ban tools like quantitative utility rankings in shared decision-making but promotes an evaluative attunement to the needs of the role and the situation. This mode of evaluation can feed back into the design of tools.

Conclusion

Research literacy has become considered a core component of professionalism. Yet the tendency to understand this in the traditional public understanding of science sense fails to respect the need to integrate research in compliance with a broader set of professional commitments. By seeing professional practice as a form of craftwork that requires rational and flexible judgment, this paper has attempted to delineate ways in which professional research literacy preserves the integrity of the practical domain. In unpacking this in terms of three sensitivities, the paper has suggested how research literacy is governed by a collaborative narrative without succumbing to mechanical rule-following.

In conclusion, a couple of limitations of the article are worth mentioning as potential for further research. First, it has been beyond the scope of the article to discuss in any detail the extent to which professionals actually comply with the idea of research literacy. There are, however, relevant studies to which more systematic connections can be made. For example, a recent account describes how medical professionals cope "pragmatically" with evidence-based standards (Kuiper, 2018). Another describes how teachers engage in "thick" interpretation of evidence, which involves integrating it with experience and a future-oriented assessment of practice (Mausethagen et al., 2018). The current approach to research literacy may represent a normative framework for assessing such pragmatic coping and thick interpretation.

Second, the article has not discussed institutional ramifications. Nevertheless, it clearly has direct bearing on the status of administrative or legal instruments that make professionals liable to comply with guidelines and programs—the so-called shift from autonomy to accountability (Timmermans, 2005). As an account of responsible integration of evidence, the present notion of research literacy has implications for how we should understand "meaningful accountability" (Bovens & Schillemans, 2014) in the context of evidence-based practice. The task of professional research literacy is not merely to incorporate research, it is also to restrict the use evidence-based tools to their proper domain. In line with this, meaningful or legitimate instruments of accountability must track responsible judgment as

opposed to unthinking conformity to guidelines. In other words, the standards of research literacy must be understood and respected beyond the confines of the craft.

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