Communicating research to practitioners – between scientific rigor, easy science and practitioners’ self-perception of expertise

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Abstract
Purpose – Research shows that there are mechanisms of information simplification that lead to the danger that first, laypeople rely on their own epistemological skills when assessing scientific claims. Second, laypeople underestimate their dependence on experts when they receive simplified information. This underestimation can be problematic because scientific knowledge, due to its complexity, usually cannot be fully understood without further advice from experts. Compared to laypersons, adult education practitioners can be expected to have a higher level of scientific literacy in relation to knowledge in their professional field because they are familiar with the structure of knowledge through their formal education. The present study examines whether the “easiness effect” also occurs in adult education practitioners when they read simplified and highly simplified texts about research findings.

Design/methodology/approach – The sample consisted of 1,267 continuing education institutions. For the survey experiment, participants were randomly assigned to three text types at the end of the survey: easy, less scientific and scientific text. We used the difference-in-difference method to analyze the data.

Findings – The study examined whether easily presented research findings influenced self-assessment and reliance on experts. The results of our study support the hypothesis that the easiness effect is also present among professional practitioners.

Originality/value – The use of clear and nontechnical language is essential for ensuring that scientific knowledge is accessible and utilizable outside of academic circles. This aspect gains particular significance in educational research, as it enables professional practitioners to comprehend and ideally implement, research findings in their daily routines to address and resolve real-world challenges in their educational environments. Previous studies have demonstrated that the way text is presented influences laypeople’s perceived reliance on

Data availability statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Ethics statement: Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions: AM, SW contributed to the study conception and design. Material preparation, data collection were performed by AM and SW. AM and HM performed the data analysis. The first draft of the manuscript was written by HM. AM, LK, SW and HM wrote sections of the manuscript. All authors commented on the earlier versions of the manuscript. All authors read and approved the final manuscript.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
experts. Building upon the conceptual framework of the easiness effect, this survey experiment took an additional step by focusing specifically on a targeted audience: professional practitioners in adult education.

**Keywords** Science and practice relationship, Science communication, Easiness effect, Research findings, Survey experiment

**Paper type** Research paper

1. Introduction

International comparative school performance studies by the Organization for Economic Co-operation and Development (OECD) have led to a debate around evidence-based education reform. Moreover, as this debate spread internationally in various ways, the question of how to support professional practitioners in the teaching-learning process to improve the quality of these operations has been taken up politically. Several political programs and practices, such as the Every Student Succeeds Act (ESSA, 2015) in the United States, the Education Endowment Foundation in the United Kingdom (https://educationendowmentfoundation.org.uk), or the Framework Program for Empirical Educational Research of the Federal Ministry of Education and Research in Germany (BMBF, 2018), have claimed to contribute to the improvement of professional practice on the basis of empirical research (e.g. Slavin, 2020). Although the programs' orientation, aims and feasibility are controversially discussed in the scientific community (e.g. Biesta, 2017), the programs provide impulses for educational science to revisit the relationship between science and practice and the question how educational science knowledge can transfer to an informed educational practice, especially with regard to knowledge transfer. In addition to questions of appropriate governance, the programs also consider aspects such as research design (e.g. design-based research and research collaboration), teacher training and adequate formats for communicating scientific knowledge to professionals.

Communicating scientific knowledge is essential in an information and knowledge society and has been studied from different perspectives in recent years. These perspectives include the consideration of societal preconditions, interrelationships between various organizations and actors, as well as the content to be communicated, e.g. health, finance, crisis, etc. (Görke and Rhomber, 2017). Furthermore, little empirical data has been collected on this topic in educational research and the debate is particularly based on assumptions (Vanderline and van Braak, 2010). Therefore, it seems fruitful to look at communication between educational research, practice and policy from the perspective of science communication. Internationally, efforts are being made to enhance the application of research findings across various sectors. This is reflected in a range of initiatives, from optimizing research production to developing practical skills (Boaz and Nutley, 2019). Specifically, the education sector is witnessing an intensification of the link between research and practical application, as outlined in the Emerald Handbook of Evidence-Informed Practice in Education (Brown and Malin, 2022) and the OECD report (2022). In this context, the National Network of Education Research-Practice Partnerships (NNERPP RPP) Knowledge Clearinghouse and the William T. Grant Foundation make valuable contributions to improving the communication and application of research in practice. These platforms provide extensive resources and guidance to bridge the gap between research and practice, particularly in educational research. A large body of literature in education particularly considers the research-practice gap (Bauer and Fischer, 2007; Broekkamp and van Hout-Wolters, 2007) and the reasons responsible for this gap (Broekkamp and van Hout-Wolters, 2007; Vanderline and van Braak, 2010; van Schaik et al., 2018) and more broadly, the role of evidence in the formation of policy and practice (Williams and Coles, 2007; Farley-Ripple et al., 2020). Amongst individual and environmental characteristics, a professional and social culture, implementation, infrastructure and practices and professionals’ own beliefs about the relevance of research, translation of research findings and communication patterns are key impact factors for the use of research
evidence in education (Lawlor et al., 2019; Levin, 2010). A major communication barrier between education researchers and practitioners identified in the literature reviews is the difference in terminology, as scientific knowledge is represented in overly complex, academic language. Maintaining the impersonal, authoritative stance of the scientific jargon creates a detached tone that is often puzzling to readers and very difficult to emulate in writing (Snow, 2010). Bullock et al. (2019) conclude that the scientific jargon interferes with readers’ information processing. They recommend that ease of processing should be facilitated, and jargon should be avoided whenever possible. However, making scientific knowledge accessible to professional practitioners through simplified representation can also have negative effects on science-related judgment. The so-called easiness effect in science communication research means that a simplified presentation of science-related information increases people’s willingness to rely on their own judgment rather than seeking an expert’s advice. This effect has predominantly been investigated in studies with laypeople (Scharrer et al., 2012, 2013, 2014, 2017, 2019). In the present study, we aim to investigate this effect within the context of professional practitioners working in the educational field. We want to deepen our understanding of how scientific knowledge that differs in its use of scientific or nontechnical language is perceived by professional practitioners. Specifically, we investigate whether the presentation of scientific knowledge (easy, less scientific and scientific texts) influences professional practitioners’ self-perceptions of their expertise. We ultimately ask whether the easiness effect is also observable among professional practitioners.

2. Communicating scientific knowledge to professional practitioners

The logical selection and reception of research knowledge is an expression of educational professionalism (Thomm et al., 2021). Thus, the question how research knowledge is conveyed to professional practitioners in the education system is increasingly coming to the fore (Hamsley-Brown and Sharp, 2003). Different communication strategies are used in the field of science communication. These strategies can be classified as the deficit, dialog and participation model of science communication (Bucchi, 2008). One-way communication consists of a direct transfer of scientific knowledge to a stakeholder group, i.e. a “one-to-one” transfer (concepts include the diffusion concept, the science push model, the deficit model, the knowledge driven model, the engineering model or the technocratic model). Dialogical communication focuses on the transmission of concrete information from science to users with scientists reacting to the specific practical context. Information is available to the public, which is then selected and attracted by the users according to their individual interests (this involves concepts such as the demand-pull model, the problem-solving model, the dialog model, the economic model, or the contextual model). Participatory communication on the other hand, means a reciprocal, dialogical, above all an interaction-oriented scientific communication between practice and science. This multidirectional communication occurs in different phases of knowledge production, dissemination and use (this includes concepts such as the interactive model, the interaction model, the participation model, or the continuity model).

Instead of determining which models are best suited for the communication of knowledge, science is increasingly addressing the conditions for their emergence, governance and impact, also in the educational sciences (Bauer and Fischer, 2007). However, the deficit model is still considered the predominant form of science communication today (Weingart and Joubert, 2019; Marcinkowski and Kohring, 2014). Indeed, if one follows the deficit model, the main barriers to communicating research in professional practice in education remain the complex language and presentation of research. Discussion papers argue and selected studies show that the research-practice gap is more likely to be perceived by practitioners when they encounter scientific knowledge in complex and technical language (Hemsley-Brown and Sharp, 2003). As studies on prospective teachers’ epistemic trust in knowledge sources reveal,
authors of scientific texts are attributed a higher expertise but lower integrity and benevolence than experts and practitioners, the so-called “smart but evil” stereotype (Rosman and Merk, 2021). However, these assessments of the trustworthiness of information sources are also related to the academic aims of the prospective teachers (Hendriks et al., 2016). While these findings illustrate quite complex relational patterns of science communication in the professional field, practitioners’ criticisms of incomprehensible language and demands for more understandable contributions from science are strong (Vanderline and van Braak, 2010). Since the language used is not adapted to the practitioners’ needs, access to scientific knowledge is difficult (Ion and Iucu, 2014).

2.1 Use of research evidence in education (URE)
Research on the use of scientific knowledge in educational practice (Zlatkin-Troitschanskaia et al., 2016; Stark, 2017) highlights that educators and school administrators rarely refer to scientific findings, often leaving scientific knowledge unused. Teachers tend to make decisions based on experiential knowledge and personal values rather than on the basis of scientific evidence. A study showed that over 50% of educational practitioners never or only seldom consult the what works clearinghouse or the regional education laboratories (both part of NCEE within IES) for curricular decisions in schools (Penuel et al., 2017). Instead, decision-makers often turn to original research articles because they require information that is more detailed and robust than what is provided by clearinghouses. For instance, they need information on effect sizes and costs, as well as details on comparison conditions, the feasibility of implementing the intervention, adaptability to local contexts and the underlying logic and theory of the intervention (Farley-Ripple et al., 2018; Penuel et al., 2017). Farley-Ripple et al. (2020) suggest the need to more strongly connect and coordinate the field of URE to improve the quality of research in this area and to advance the use of evidence in policy and practice. This requires enhanced dialog, improved collaboration and targeted support from funders, academic associations, conferences and journals.

A narrative literature review by van Schaik et al. (2018) and a supplementary study (Mohajerzad et al., 2021) attempt to develop a comprehensive understanding of how research knowledge is used in educational practice. They focus on four key areas they identify as crucial for the use of research findings: the individual characteristics of educational actors, the structures and cultures of educational institutions, the communication pathways between researchers and educational practitioners and the nature of the scientific knowledge itself. These research efforts show that educators’ willingness to incorporate research findings into their work is significantly influenced by their personal attitudes (Williams and Coles, 2007), beliefs (Lysenko et al., 2014; Yashkina and Levin, 2008) and motivation (Cain, 2016). Moreover, the structure and culture within educational institutions are essential factors influencing the use of research findings. Institutions that foster a culture of openness, exchange and innovation create an environment conducive to evidence use (Coburn, 2005; Cordingley, 2016). Communication between researchers and educational practitioners also plays a crucial role. Communication strategies that highlight the relevance of research findings for educational practice and enable bidirectional exchange are essential for knowledge transfer (Levin, 2011; Vanderlinde and van Braak, 2010). Finally, the nature of scientific knowledge itself matters. Research findings presented in an accessible, understandable and directly applicable form have the greatest chance of being applied in educational practice (Ikemoto and Marsh, 2007).

The linkage of the two key areas – educational practitioners and scientific knowledge – shows that the challenge of incomprehensible vocabulary also comes with a lack of information literacy, i.e. the ability to find valid, relevant and reliable information, to critically evaluate it, to translate it into one’s own practice and finally to effectively use
information for decision-making, knowledge building and problem-solving (Levin, 2011; Ion and Lucu, 2014; Thomm et al., 2021). This skill includes scientific literacy, most of which should be acquired in school (Feinstein, 2010). Feinstein offers a fruitful definition for scientific literacy, framing “science literate people [as] competent outsiders with respect to science: people who have learned to recognize the moments when science has some bearing on their needs and interests and to interact with sources of scientific expertise in ways that help them achieve their own goals” (2010, p. 180). Being scientifically literate means being able to determine the relevance of scientific results for one’s own life – or for one’s professional practice. Moreover, scientific literacy complies with Scharrer et al.’s (2014, pp. 470–471) practical implications on the relationship of complexity of knowledge, understanding and self-assessment. Comprehensible, easy texts about scientific content in which the author does not explicitly call attention to the underlying epistemic topic complexity, demand a formal science education that promotes the students’ consciousness about their limited understanding of science. This, the authors hope for, could prevent the easiness effect (Scharrer et al., 2014).

2.2 The easiness effect

The easiness effect describes a specific relation between the complexity in the presentation of certain information and the reader’s self-assessed ability to not only comprehend, but also assess this information: the easier facts are presented, the more confident nonexpert readers are in their capability to grasp them. Scharrer et al. (2019, p. 2) directly link this effect to the increasing science popularization that is accompanied by the simplification of facts to make them accessible to laypersons. Thus, as Scharrer et al. state (2019), “text easiness appears to make readers overlook their epistemic limitations”, Moreover, while Scharrer et al. (2012, 2014, 2017) find evidence for this connection in several studies, they particularly emphasize the risk of the easiness effect and sometimes tend to neglect that a scientific article – regardless of how complex it might be – always constitutes only an extract of a research process. This means the reader, whether a layperson or an expert, must trust the author and their willingness to provide solid information. Vanderlinde and van Braak (2010) show that one way of communicating scientific knowledge to professional practitioners in scientific articles and research reports is to write teasers in easy, comprehensible language. The question remains however as to whether the easiness effect equally occurs in the audience of professional practitioners. Framing the easiness effect as a seduction, Scharrer et al. (2019, p. 2) point out the risks of laypersons feeling capable of making decisions and passing judgments based on articles that vary in their complexity. However, Scharrer et al. (2017) rightly acknowledge the necessity and the value of science popularization and determine laypersons’ dependence on expert knowledge due to the division of cognitive labor. Suggesting that laypersons use specialized knowledge and expert sources for decision-making, it remains unclear in which exact form practitioners should be confronted with scientific knowledge (Scharrer et al., 2017, p. 1005). Either way, scientifically literate people are capable of accessing and evaluating scientific texts that vary in their complexity.

2.3 Professional practitioners in adult education

In contrast to other fields of education (e.g. school or vocational education), adult education is less institutionalized and regulated. In most areas of adult education, there are no entry requirements through formal vocational or academic qualifications. Practitioners often access the field via a lateral entry, changing their careers. The proportion of academic degrees is relatively high, but only a comparatively small share of these degrees relates to educational science. According to the latest available survey data on employees and self-employed persons
in adult education in Germany from 2014 (Koscheck and Ohly, 2017), roughly 64% of all adult education practitioners have a university degree. The share of university degrees in educational science is only provided for practitioners with teaching activities (as opposed to staff in management or administration) and is around one-quarter. In addition to formal qualifications, practitioners in adult education often obtain additional non-formal qualifications, provided through trainings (e.g. train-the-trainer certificates, counseling and mediation or quality management). Around 60% of adult education practitioners report such non-formal qualifications. Overall, the participation among practitioners in further education and training is higher than in the average population. Around 78% report participating in non-formal education within the last 12 months. The low level of academization with regard to pedagogical degrees contrasts with a comparably high level of commitment to lifelong learning and individual professionalization. Even though these activities can be very heterogeneous in terms of topics, duration and formats, and there is a considerable need for research on the knowledge and skills of this professional group in general, there is evidence that targeted training can improve the epistemic beliefs and knowledge of adult education practitioners (e.g. Jolley et al., 2022; Marx et al., 2018). Thus, if one considers the overall high share of academics and above-average continuing education activities, adult education practitioners are likely to have a higher level of scientific literacy regarding knowledge in their professional field than laypersons. They are familiar with the structure of science through their formal education and epistemic knowledge specific to their field through individual professional development. But Feinstein’s framing of scientifically literate people as competent outsiders (2010) is still valid. On the one hand, this notion is supported by studies that generally refer to complex and technical language as a barrier to knowledge transfer (see above). On the other hand, there are few studies that examine other components of scientific literacy in professionals. For example, medical students and medical professionals show insufficient medical statistical literacy and struggle to understand basic statistical concepts (e.g. risk assessment) in their field of expertise (Jenny et al., 2018). A review of health policy knowledge transfer and exchange strategies identifies a lack of experience and capacity for assessing evidence as one barrier amongst others on the individual level in conceptual models of knowledge transfer and exchange. Capacity building and training of professionals for using scientific evidence is sometimes addressed in the implementation of transfer strategies. However, their impact cannot be estimated on the basis of the sparse evidence (Mitton et al., 2007). A case study of four educational doctorate programs, which emphasize teaching students to share their research findings with potential users, reveals a frequent lack of in-depth engagement with the necessary approaches and conceptual frameworks (Firestone et al., 2021). This suggests that a greater integration of curriculum content is needed, not only in research methodology but also in skills for effectively communicating, interpreting and translating evidence-based findings into concrete action strategies.

2.4 Research questions and hypotheses
Following Scharrer et al. (2012, 2014, 2017, 2019), the present study hypothesizes that the simplification of scientific knowledge, which is a necessary prerequisite for its transfer to the public, leads to the easiness effect occurring in the context of educational professional practice in adult education. Thereby, we assume the same pattern as identified with laypersons. First, practitioners’ perception of their expertise level decreases the more scientific the text (H1). Second, practitioners’ perception of their ability to form a judgment when given more information decreases the more scientific the text (H2). Third, practitioners underestimate how dependent they are on the expertise of experts due to the cognitive division of labor. Thus, we hypothesize that the more scientific the text, the more aware professional practitioners are of their dependence on experts (H3).
3. Method

3.1 Sample
For the analysis, we use data from a wbmonitor survey experiment. The wbmonitor surveys German providers from all fields of adult education annually. It is conducted in co-operation with the Federal Institute for Vocational Education and Training (BIBB) and the German Institute for Adult Education – Leibniz Center for Lifelong Learning (DIE). Between May and June 2018, 18,981 providers were invited to participate in the survey. The current analysis is based on the sample of 1,267 institutions, each with one respondent with valid survey participation (Christ et al., 2019). Overall, only 6 respondents reported not having a degree. The majority of respondents (68.6%) have a university degree and 10% completed a doctorate. Most individuals work in management positions at educational institutions (85.7%). As the survey mainly addresses questions at the organizational level, further individual information about the respondents is limited.

3.2 Study design
The survey experiment, which was conducted in addition to the regular survey program in 2018, has the advantage of linking randomized experiments with large representative surveys. It thus allows causal relationships to be identified and enables high internal and external validity (Auspurg and Hinz, 2015). The experiment was conducted in a module at the end of the survey and participants were randomly assigned to three experimentally manipulated factors: easy, less scientific and scientific texts. The dependent variables were respondents’ subjective evaluations towards the research findings.

3.3 Material and procedure
Participants were randomly assigned to one of three versions of a research finding from a study on the effect of participation in further education and training on literacy skills in the broad population. The study was based on longitudinal data from the German Programme for the International Assessment of Adults Competencies Panel (PIAAC-L) (Gauly and Lechner, 2019). Findings on literacy skills in the broad population were chosen as they provide a common ground for a diverse range of adult education providers with a broad spectrum of educational offers, target groups and specialization. Through advocacy and education programs, literacy skills are an established field of action in the adult education community and should be a concept even for those not directly involved in literacy offers.

According to the findings, individuals with higher literacy levels show higher training participation, but training participation shows no effect on literacy development. The three versions of the research finding (see Table A1) were derived from the study’s abstract and contained the same factual information about reading literacy but differed in presentation (easy, less scientific and scientific texts). The texts were manipulated through a combination of changes at the lexical, syntactic and information density levels (see Table A1 for the research design), producing three text types of different complexity but identical in their basic message. The scientific text follows scientific rigor and language and includes statistical-methodical terminology, statistical figures and several abbreviations (e.g. fixed-effect-model, AME (for average marginal effects), non-random selection processes, etc.). The easily comprehensible text used no technical terms and no figures. To describe the study design and results, the text as a whole uses simple language, syntax and explanatory inserts that should be accessible to laypeople. The less scientific text has been manipulated to fall between the two poles of scientific and non-scientific. For example, “competence level” was used both, in the less scientific and scientific texts, but the less scientific text does not specify the statistical models applied (see Table A1 for the treatment design). Vignettes were assigned to the wbmonitor population through a random split before institutions were invited.
to participate in the survey. The sizes of the three splits in the analyzed sample differ slightly (easy 35.04%, less scientific 30.70% and scientific texts 34.25).

Before the texts were presented to the respondents, three questions were asked to assess the respondents’ judgment on literacy. More specifically, respondents were asked to assess if true or false the claim that training participation affects literacy skills. These evaluative questions are based on the measures in Scharrer et al. (2012). Respondents were asked (1) whether they were confident they could assess true or false claims on the relationship between training and literacy, (2) whether they were confident they could make a judgment with more information and (3) whether they preferred to trust the judgment of a trusted informed person. The three items were surveyed using a seven-point Likert scale (+ + “agree completely” to — “do not agree at all”). Subsequently, the texts were presented in the different degrees of comprehensibility. Then, respondents were first asked how scientific the text seemed (very scientific to not scientific at all). On the other hand, the three previous questions on (1) assessment, (2) judgment with more information and (3) reliance on an expert were asked again.

To estimate the effect of random treatments on the outcome variables, we use a difference-in-difference approach. The difference-in-difference model can be written as follows:

$$y_i = \beta_0 + \beta_1 Time + \beta_2 Treat_{2i} + \beta_3 Treat_{3i} + \beta_4 (Time \cdot Treat_{2i}) + \beta_5 (Time \cdot Treat_{3i}) + \epsilon_i$$

where $y_i$ is the standardized outcome, $Time$ is a dummy for pre- and post-observation, $Treat_{si}$ is a binary variable indicating the treatment group, $\beta_i$ are fixed unstandardized model parameters to be estimated, $\epsilon_i$ is a residual and $i$ indexes the individual cases in the data. The estimator $\beta_1$ indicates by how much the expected value of the reference group increases or decreases on average when the contextual characteristic $Time$ increases by exactly one. In contrast, estimator $\beta_4$ and $\beta_5$ capture the interaction between $Time$ and $Treatment$. Due to the random assignment to the treatment, we assume that the parallel trend assumption is not violated.

4. Results

4.1 Treatment checks

As treatment checks, we examined the participants’ assessments of the research findings in terms of how scientifically they evaluated the differently presented research findings. The treatment check was successful. As intended, the three differently presented research findings were rated as differentially scientific: There were differences in participants’ ratings of the scientific character of the research findings (M(easy) = 2.45, SD = 0.75 vs M(less scientific) = 2.67, SD = 0.69 vs M(scientific) = 3.12, SD = 0.75), $F(2, 1905) = 144.45, p < 0.001$. $T$-tests revealed that significant differences emerged between the easy presented research finding and the other two representations of research findings (mean difference between easy and less scientific text $b = 0.22, p < 0.001$; between easy and scientific $b = 0.87, p < 0.001$ and between less scientific and scientific $b = 0.45, p < 0.001$). Thus, as expected, the participants indicated that the research findings presented more according to scientific standards were classified as scientific to a greater degree than the other types of research findings.

4.2 Hypotheses testing

We hypothesized that there would be a main effect of research presentation style on perceived level of own expertise (hypothesis 1) and a main effect of research presentation style on perceived dependence on experts (hypothesis 3). Both hypotheses were supported by the data. We also hypothesized a main effect of presenting research findings according to scientific standards on perceived ability to form judgments with more information
(hypothesis 2). This hypothesis was not supported by the data. Thus, because we hypothesized three main effects for each of the three dependent variables, we ran difference-in-difference models for the three dependent variables. The results are shown in Table 1.

The first model, with perceived level of own expertise as the dependent variable, confirmed hypotheses 1. As expected in hypothesis 1, we found a main effect of research finding presentation on the level of the practitioner’s perception of their own expertise. Participants who read research findings according to scientific standards perceived their expertise on the topic of the research finding to be 0.35 standard deviations ($p < 0.001$) lower than participants who read a text in which the findings were simply presented.

Consistent with hypothesis 3 (model 3), we found a main effect of presenting research findings according to scientific standards related to reliance on experts that supported our expectations. Participants who read research findings according to scientific standards were more likely to be aware of their reliance on experts (by 0.24 Standard deviations, $p < 0.05$) than participants who read research findings in which the results were presented as easily understandable.

Contrary to our assumption (model 2), there was no significant difference between the presentation of research findings and perceived ability to form judgments with more information (0.109 Standard deviations, $p > 0.05$; 0.083 Standard deviations, $p > 0.05$).

5. Discussion

Comprehensible and less technical language is a basic prerequisite for scientific knowledge to be understood in practice and applied outside the scientific community (Bucchi, 2008). This is of particular importance in the field of educational research when professional practitioners read, understand and, in the best case, apply instructional research findings in their everyday practice, in order to approach and solve everyday problems in their educational practice (Ion and Iucu, 2014).

Previous research has found that text representation can have an impact on how laypeople perceive their dependency on experts. The survey experiment presented here built on the theoretical foundation of the easiness effect approach and went a step further by targeting a specific group, professional practitioners in the field of adult education. The study examined whether easily presented research findings influenced self-assessment and reliance on experts. The results of our study support the hypothesis that the easiness effect is also present among professional practitioners. Subjectively perceived dependence on experts was

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Note(s): SE = standard error of the coefficient

*p < 0.05; **p < 0.01; ***p < 0.001

Source(s): Authors’ own work

Table 1. Results of the fixed effect
significantly higher when reading research findings presented in highly technical language than when reading research findings presented in lay language. These results support the hypothesis that perceptions of expert dependence and perceptions of own expertise are directly related to the way research findings are presented. Professional practitioners tend to rely on their own expertise in this regard and do not prefer expert advice when research findings are presented in simple language. This is the case even though professional practitioners might not have the necessary knowledge about the research subject, context and scientific standards, such as method, quality criteria, effect size, significance level, etc., to make appropriate decisions that may have consequences for the teaching-learning process. The need for more information on the research findings presented did not show any association with the text types presented. The result could be an indication that the need for more information remains low in the case of scientific texts that are presented as very incomprehensible, because with more (even similarly complex) information, comprehension does not improve. Further research to provide clarity on the issue, could investigate if the assessment of need for more information is related to the level of text engagement, a measurement that could not be considered in this study.

In summary, the findings indicate that the easiness effect is also found for professional practitioners, supporting the notion that professional practitioners’ self-assessed expertise toward scholarly knowledge is a real concern. Although ten percent of respondents have doctoral degrees and nearly seventy percent have university degrees, even with a target population such as professional practitioners, some caution is warranted when communicating scientific knowledge in a simplistic manner. Professional practitioners, however qualified, may also overlook the limitations of their own scientific abilities (Scharrer et al., 2017).

However, the results of this study should not be misinterpreted: Providing scientific knowledge in simple language is a promising approach for communicating research knowledge. Laypeople actually understand information better when they read simple scientific texts than when reading common scientific texts and laypeople can evaluate the credibility of research results in simple texts (Kerwer et al., 2021). Apart from the risks of an easiness effect, professional practitioners can also benefit from research findings in simple language. Considering the competence and prior knowledge of professional practitioners seems to be key for a nuanced understanding of the extent of the easiness effect in every single case and context. To account for the varying contexts and the specific needs of different target groups, networking and coordination between researchers and educational practitioners are crucial (Farley-Ripple et al., 2020). These measures are essential to advance the use of research evidence in policy-making and practice. Awareness of the easiness effect can also help to inform knowledge mobilization strategies to support research production and use in research-practice partnerships. The Research-Practice Partnership Brokers Framework (Wentworth et al., 2023) addresses the partners individual skills in communicating research to different audiences in plain and academic language as crucial for the integration of research into decision-making processes. Researcher and practitioners alike can benefit from tools that help them to reflect and navigate language barriers and misconceptions in this communication process (Holter, 2019) and collaboratively develop a communication about research findings that balances the demands of an academic and practice audience (Vaade et al., 2019).

Scharrer et al. (2014) suggest that raising awareness and emphasizing the complexity and controversy of scientific findings can raise doubts about one’s own personal expertise. In addition, it requires the insight from professional practitioners that their understanding remains limited due to the high level of scientific complexity. Such scientific competences, namely the awareness of the complexity of scientific knowledge, is necessary to not be exposed to the possibility of the easiness effect. We acknowledge that we could have
measured a direct effect through several vignettes on text features such as jargon and scientific methods to determine the exact specific text features that influence the easiness effect. We could still assume that text features, such as scientific rigor, reduce the easiness effect, again limiting the comprehensibility of research findings. Textual features of scientificity could reduce ease, however, it is important to remember that textual features also produce a “scientificity effect.” Essentially, this means that texts that are perceived as highly scientific by lay readers may elicit higher credibility ratings and more agreement with the statements, which can affect the reception of research knowledge (Thomm and Bromme, 2012; Bromme et al., 2015). Research results with few technical terms on method and design, presented in a way that is relatively easy to understand, also reduce the easiness effect. In order for research results to be easily understood, information must be translated into simple science. In addition, to counteract side effects such as the easiness effect, the question should also be investigated as to whether scientific literacy or additional information about research processes, complexity of research knowledge, etc., reduce the easiness effect. In general, it can be observed in this study that even professional practitioners are affected by the easiness effect. We believe there is a need to explore factors influencing the reception of research knowledge and its effectiveness in the context of knowledge translation. Given the steady growth of empirical educational research, relatively little attention has been paid to the question of how generated knowledge can be translated for educational practice, targeted for a practice audience with a specific professional culture, scientific literacy and beliefs about the relevance of research. Further research on the communication of research findings between the interface of science and practice accounting for these specific contexts can contribute to a better understanding of effective communication and inform communication products and skill development in knowledge brokering. Accounting for the non-linear nature and co-production of knowledge and communication, research-practice partnerships are predestined settings to further address language and translation issues between research and the field of action. Research on communicating research with practitioners instead of communicating research to practitioners (see title of this paper), will likely bring helpful insights into effective language and communication, that helps bridge the gap between practice and research.

References


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Appendix

In the concluding part of the survey, we are interested in your evaluation of results from research on adult literacy skills. To this end, we present concrete research finding in the following and ask you to give us three brief assessments after reading through the text.

**Scientific text:** Can participation in continuing vocational education and training promote basic skills such as literacy in adulthood? Findings from cross-sectional studies show a positive correlation between participation in continuing education and competences (continuing education effect). However, this relationship may also be based on the fact that the level of competence influences the decision for or against participation in continuing education (selection effect). To distinguish between continuing education and selection effects, we use longitudinal data from two waves of PIAAC (Programme for the International Assessment of Adult Competencies) (2012, t0) and the German follow-up study PIAAC-L (2015, t1), a representative large-scale study that provides detailed information on continuing education participation and repeated measurement of competencies \( N = 1,788 \). Probit regressions are calculated for the question of whether competences influence participation in continuing education. To estimate the effects of participation in continuing education on the level of competencies, we run fixed-effect models with an instrumental variable approach to account for non-random selection processes in continuing education. Our results indicate that individuals with higher skill levels are more likely to participate in CET (AME = 10–14%), while participation in continuing education does not lead to a significant increase in reading skills.

**Less scientific text:** Can participation in continuing vocational education promote adult literacy? Previous studies show a positive correlation between participation in continuing education and competences. However, this relationship may also be due to the fact that individuals with higher reading skills are more likely to participate in continuing education. To investigate the direction of this relationship, we use representative data from PIAAC (Programme for the International Assessment of Adult Competencies) and the German follow-up study PIAAC-L, which provide information on CET participation and competency measures at two measurement points (2012 and 2015). To answer the question of whether higher competencies make participation in further education more likely, we examine various influencing factors in interaction with reading competencies. In order to detect effects of participation in continuing education on the level of competencies, we test whether individuals have a higher level of competencies after participation in continuing education than before participation in continuing education, controlling for central influencing factors. We find that individuals with a higher level of literacy are more likely to participate in continuing education, but that participation in continuing education does not lead to an increase in reading literacy.

**Easy scientific text:** Are adults better able to read after participating in professional development? The reading ability of people who have participated in continuing education is on average higher than that of people who have not participated in continuing education. But is this a result of participation in continuing education or were these people already able to read better beforehand? And is this perhaps the reason why they participate more often in continuing education? We can investigate this question with PIAAC (Programme for the International Assessment of Adult Competencies), the “PISA for Adults” and a follow-up study. Here, for the same people at different points in time, we measured how well they could read and whether they had participated in continuing education in the meantime. We can also take into account many other characteristics that may also have an impact on participation in continuing education or reading ability, for example, educational attainment or use of computers at work. The result is that people who are better at reading are more likely to participate in continuing education than people who are not as good at it. But you don’t get better at reading by participating in continuing education.

Please indicate now to what extent you agree with the following statements:

1. Based on my current knowledge of the topic, I am confident I can assess whether it is true or false that continuing education affects literacy.
2. I don’t think my current knowledge is enough to assess whether it is right or wrong that continuing education affects literacy. However, I trust myself to make a judgment about it when I have more information.
3. I don’t think my current knowledge is enough to assess whether it is right or wrong that continuing education affects literacy. I would rather trust the judgment of a trustworthy informed person.

**Note(s):** The texts are translated using the online machine learning translation service DeepL to ensure a certain degree of standardization and objectivity.

**Source(s):** Authors’ own work