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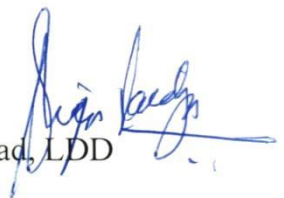
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Greeting from the LDD, NCERT!

The Library and Documentation Division (LDD) of NIE, NCERT is pleased to bring out “**Indexing & Abstracting Service of Periodicals**” for the month of **July 2023**. This information product of LDD is the collection of Articles in the area of Educational Research, Elementary Education, Inclusive Education, and ICT in Education, Educational Psychology, Science Education and Teacher Education.

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एलडीडी, एनसीईआरटी की ओर से शुभकामनाएँ!

एनआईई, एनसीईआरटी के पुस्तकालय और प्रलेखन प्रभाग (एलडीडी) को **जुलाई, 2023** महीने के लिए **“पत्रिकाओं की अनुक्रमणिका और सारगर्भित सेवा”** लाने में खुशी हो रही है। एलडीडी का यह सूचना उत्पाद शैक्षिक अनुसंधान के क्षेत्र में लेखों का संग्रह है। प्राथमिक शिक्षा, समावेशी शिक्षा, और शिक्षा में आईसीटी, शैक्षिक मनोविज्ञान, विज्ञान शिक्षा और शिक्षक शिक्षा।

यह एलडीडी की पहल है जो उपयोगकर्ताओं को उनकी अकादमिक पूर्ति के लिए प्रासंगिक लेखों का चयन करने और अनुशंसा करने के लिए सदस्यता प्राप्त जर्नल लाने की है। इस सेवा के भाग के रूप में, यदि उपयोगकर्ता को विशेष पूर्ण पाठ लेख की आवश्यकता है, तो वे इस ईमेल लाइब्रेरी-nie@nic.in पर हेड एलडीडी से संपर्क कर सकते हैं, हम ईमेल के माध्यम से उसी की स्कैन की गई/डिजिटल प्रति प्रदान करेंगे।


अध्यक्ष, एलडीडी

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AMERICAN JOURNAL OF PHYSICS

1. Behrman, J. (2023). Sarah Frances Whiting, pioneer of laboratory instruction in astronomy. *American Journal of Physics*, 91(6), 417. <https://doi.org/10.1119/5.0131617>

Abstract: Sarah Frances Whiting developed innovative and influential laboratory work in her introductory astronomy classes at Wellesley College in the late 1800s and early 1900s. Whiting was strongly influenced by Edward Pickering and the early physics laboratory education at the Massachusetts Institute of Technology. This article explores the early development of laboratory work in astronomy education at Wellesley and Whiting's underlying philosophy of education. By laboratory work, Whiting meant day-time work, including work with astronomical photographs and spectroscopy. Her pedagogy was encapsulated in her phrase “to sharpen the pencil sharpens the mind,” which referenced the importance of a student's familiarity with tools as well as the role of drawing in astronomical work. Whiting further modeled her instruction after the work being conducted at the Harvard College Observatory in order to prepare her students for potential future employment as astronomers.

2. Kaczkowski, S. (2023). Optimal trajectories for symmetric turns. *American Journal of Physics*, 91(6), 425. <https://doi.org/10.1119/5.0114235>

Abstract: The problem of determining minimal time trajectories in a plane constrained by an upper bound on the magnitude of the acceleration vector is reexamined. In the previous work [Am. J. Phys. **49**(7), 685–688 (1981)], a stationary solution of a functional, applied over curves in two-dimensional velocity space, was used to find explicit expressions for what was claimed to be a minimum turn time trajectory. In this paper, this work is furthered by a formal demonstration that the turn time associated with this trajectory is indeed lower than that corresponding to any other smooth trajectory. Supporting evidence for this claim is provided by numerical procedures, which are developed to allow comparisons between the turn times of competing trajectories across a range of parameter values of the turn width, the initial speed, and the magnitude of the acceleration vector.

3. Sullivan, K. D., Sen, A., & Sullivan, M. C. (2023). Investigating the magnetic field outside small accelerator magnet analogs via experiment, simulation, and theory. *American Journal of Physics*, 91(6), 432. <https://doi.org/10.1119/5.0068701>

Abstract: Particle accelerators use powerful and complex magnetic fields to turn, shape, and eventually collide beams of near-light-speed particles, yet the fundamental magnetic principles behind the accelerator magnets can be understood by undergraduate students. In this paper, we use small-scale accelerator magnet analogs in a multi-faceted, low-cost exploration of the magnetic field exterior to accelerator magnets. These fields are best understood using the multipole expansion of the field. If we assume that the magnetic field is created by ideal magnetic dipoles, we can derive a theoretical model that shows that each accelerator magnet configuration is dominated by a single multipole moment and obeys $B \propto 1/r^{l+2}$, where l is the multipole order (with $l=1,2,3$, and 4 for the dipole, quadrupole, octopole, and hexadecapole moments, respectively). Using commercially available NdFeB magnets and the magnetic field sensor inside a smartphone, we experimentally verify the power-law

dependence of the accelerator magnet configurations. Finally, we use the open-source Python library Magpylib to simulate the magnetic field of the permanent magnet configurations, showing good agreement among theory, experiment, and simulation.

4. Lee, C. H., & Park, B. (2023). A magnet falling inside a conducting pipe: Dependence of the drag force on the magnet orientation. *American Journal of Physics*, 91(6), 440. <https://doi.org/10.1119/5.0062860>

Abstract: We develop a simple model to investigate the orientation-dependence of the drag force acting on a magnet falling inside a vertical conducting pipe. We approximate the magnet by a point magnet and the pipe by a two-dimensional cylindrical surface. Independent of the magnet's orientation, the drag force is proportional to its velocity: $\vec{F}_d = -k\vec{v}$. We show that the coefficient k_{\rightarrow} of the horizontally oriented magnet is about $2/3$ of the coefficient k_{\uparrow} for the vertically oriented magnet. If the magnetic moment makes an angle θ with the vertical direction, the drag coefficient k can be expressed as $k = k_{\uparrow} \cos^2\theta + k_{\rightarrow} \sin^2\theta$. When the magnet falls with a non-vertical orientation, a local charge distribution is induced in the pipe, which plays a role as important as that of the time-varying magnetic field due to the falling magnet in generating the eddy currents. The model's predictions are compared with experimental results.

5. Corcovilos, T. A. (2023). Beyond the ABCDs: A better matrix method for geometric optics by using homogeneous coordinates. *American Journal of Physics*, 91(6), 449. <https://doi.org/10.1119/5.0083069>

Abstract: Geometric optics is often described as tracing the paths of non-diffracting rays through an optical system. In the paraxial limit, ray traces can be calculated using ray transfer matrices (colloquially, ABCD matrices), which are 2×2 matrices acting on the height and slope of the rays. A known limitation of ray transfer matrices is that they only work for optical elements that are centered and normal to the optical axis. In this article, we provide an improved 3×3 matrix method for calculating paraxial ray traces of optical systems that is applicable to how these systems are actually arranged on the optical table: lenses and mirrors in any orientation or position (e.g., in laboratory coordinates), with the optical path zig-zagging along the table. Using projective duality, we also show how to directly image points through an optical system using a point transfer matrix calculated from the system's ray transfer matrix. We demonstrate the usefulness of these methods with several examples and discuss future directions to expand the applications of this technique.

6. Kopf, L., Hiekkamäki, M., Prabhakar, S., & Fickler, R. (2023). Endless fun in high dimensions—A quantum card game. *American Journal of Physics*, 91(6), 458. <https://doi.org/10.1119/5.0062128>

Abstract: Quantum technologies enable new ways to distribute and process information. The enormous progress over the recent decades has led to an urgent need for new educational programs to train professionals to work in this field. Here, we present a card game that teaches students the building blocks of quantum computing through strategic gameplay. Participants start from the lowest quantum state and play cards that change their state and/or their opponents' state, aiming to build an algorithm that achieves the highest possible quantum state. Players can utilize several different

strategies that rely on quantum features such as randomness, superposition, interference, and entanglement. Our game expands on the existing Q (Cards)|Cards) game, originally developed using traditional qubits (with 2-level states), by including an option to play with qutrits (with 3-level states), and by developing cooperative and single player modes in addition to the existing competitive mode. The presented game contributes to the ongoing efforts on gamifying quantum physics education with a particular focus on the counter-intuitive features that make quantum computing powerful.

7. Orjuela, A. M., & Freericks, J. K. (2023). Free expansion of a Gaussian wavepacket using operator manipulations. *American Journal of Physics*, 91(6), 463. <https://doi.org/10.1119/5.0083964>

Abstract: The free expansion of a Gaussian wavepacket is a problem commonly discussed in undergraduate quantum classes by directly solving the time-dependent Schrödinger equation as a differential equation. In this work, we provide an alternative way to calculate the free expansion by recognizing that the Gaussian wavepacket can be thought of as the ground state of a harmonic oscillator with its frequency adjusted to give the initial width of the Gaussian, and the time evolution, given by the free-particle Hamiltonian, being the same as the application of a time-dependent squeezing operator to the harmonic oscillator ground state. Operator manipulations alone (including the Hadamard lemma and the exponential disentangling identity) then allow us to directly solve the problem. As quantum instruction evolves to include more quantum information science applications, reworking this well-known problem using a squeezing formalism will help students develop intuition for how squeezed states are used in quantum sensing.

8. Tran, D. L., Shirazi, P., Panduranga, M. K., & Carman, G. P. (2023). Cost-effective measurement of magnetostriction in nanoscale thin films through an optical cantilever displacement method. *American Journal of Physics*, 91(6), 470. <https://doi.org/10.1119/5.0134187>

Abstract: A cost-effective method for the quantitative characterization of the magnetostrictive effect in thin films is presented. In this method, a sample's magnetostriction is extrapolated from the tip displacement of a thin-film magnetostrictive cantilever. The tip displacement is measured by monitoring the position of a reflected laser beam using two differentially coupled photodiode positioning sensors. In contrast with alternative optical deflection-angle devices designed for educational purposes, the detection limit of our setup resolves submicron-level displacements from nanoscale thin films. The efficacy of the system is demonstrated through measurements using amorphous 200-nm thick Terfenol-D/Si (100) bimorph cantilevers. In these measurements, magnetostriction values of 106 ± 3.5 ppm at ± 4300 Oe applied field were attained, where the voltage noise floor was ± 0.05 V (a cantilever displacement uncertainty of ± 70 nm). In-plane (IP) and out-of-plane (OOP) magnetization curves and crystallographic x-ray diffraction (XRD) were performed to determine the magnetic behavior and confirm the amorphous nature of the films, respectively. The experimental methods and material characterization systems demonstrated here enhance the understanding of complex magnetic phenomena and introduce common measurement techniques to better equip students with the skills for insightful analysis of fundamental magnetic physics.

APPLIED MEASUREMENT IN EDUCATION

1. Poe, M., Oliveri, M. E., & Elliot, N. (2023). The *Standards* Will Never Be Enough: A Racial Justice Extension. *Applied Measurement in Education*, 36(3), 193–215. <https://doi.org/10.1080/08957347.2023.2214656>

Abstract: Since 1952, the *Standards for Educational and Psychological Testing* has provided criteria for developing and evaluating educational and psychological tests and testing practice. Yet, we argue that the foundations, operations, and applications in the *Standards* are no longer sufficient to meet the current U.S. testing demands for fairness for all test takers. We propose racial justice extensions as principled ways to extend the *Standards*, through intentional actions focused on race and targeted at educational policies, processes, and outcomes in specific settings. To inform these extensions, we focus on four social-justice concepts: intersectionality derived from Black Feminist Theory; responsibility derived from moral philosophy; disparate impact derived from legal reasoning; and situatedness derived from social learning theories. We demonstrate these extensions and concepts in action by applying them to case studies of nursing licensure and placement testing.

2. Russell, M. (2023). Shifting Educational Measurement from an Agent of Systemic Racism to an Anti-Racist Endeavor. *Applied Measurement in Education*, 36(3), 216–241. <https://doi.org/10.1080/08957347.2023.2217555>

Abstract: In recent years, issues of race, racism and social justice have garnered increased attention across the nation. Although some aspects of social justice, particularly cultural sensitivity and test bias, have received similar attention within the field of educational measurement, sharp focus of racism has alluded the field. This manuscript focuses narrowly on racism. Drawing on an expansive body of work in the field of sociology, several key theories of race and racism advanced over the past century are presented. Elements of these theories are then integrated into a model of systemic racism. This model is used to identify some of the ways in which educational measurement supports systemic racism as it operates in the United States. I then explore ways in which an anti-racist frame could be applied to combat the system of racism and reorient our work to support racial liberation.

3. Lederman, J. (2023). Validity and racial justice in educational assessment. *Applied Measurement in Education*, 36(3), 242–254. <https://doi.org/10.1080/08957347.2023.2214654>

Abstract: Given its centrality to assessment, until the concept of validity includes concern for racial justice, such matters will be seen as residing outside the “real” work of validation, rendering them powerless to count against the apparent scientific merit of the test. As the definition of validity has evolved, however, it holds great potential to centralize matters like racial (in)justice, positioning them as necessary validity evidence. This article reviews a history of debates over what validity should and shouldn’t encompass; we then look toward the more centralized stances on validity – the book series *Standards and Educational Measurement* – where we see that test use, and the social impact of test use, has been a mounting concern over the years within these publications. Finally, we explore Kane’s argument-based approach to validation,

which I argue could impact racial justice concerns by centralizing them within the very notion of what makes assessment valid or invalid.

4. Shultz, P. K., & Englert, K. (2023). The promise of assessments that advance social justice: an Indigenous example. *Applied Measurement in Education*, 36(3), 255–268. <https://doi.org/10.1080/08957347.2023.2222031>

Abstract: In the United States, systemic racism against people of color was brought to the forefront of discourse throughout 2020, and highlighted the on-going inequities faced by intentionally marginalized groups in policing, health and education. No community of color is immune from these inequities, and the activism in 2020 and the consequences of the pandemic have made systemic inequities impossible to ignore. In the Hawaii context, social and racial injustice has resulted in cultural and language loss (among other markers of colonization), but it is within this loss that we can see the potential for the most significant evolution of assessment practices that champion self-determination and social justice. We illustrate how injustices can be addressed through the development of assessments centered in advocacy of and accountability to our communities of color. It is time for us to reimagine what self-determination and social justice in all assessment systems can and should look like.

5. Evans, C. M. (2023). Applying a Culturally Responsive Pedagogical Framework to Design and Evaluate Classroom Performance-Based Assessments in Hawai‘i. *Applied Measurement in Education*, 36(3), 269–285. <https://doi.org/10.1080/08957347.2023.2214655>

Abstract: Previous writings focus on why centering assessment design around students’ cultural, social, and/or linguistic diversity is important and how performance-based assessment can support such aims. This article extends previous work by describing how a culturally responsive classroom assessment framework was created from a culturally responsive education (CRE) pedagogical framework. The goal of the framework was to guide the design and evaluation of curriculum-embedded, classroom performance assessments. Components discussed include: modification of evidence-centered design processes, teacher and/or student adaptation of construct irrelevant aspects of task prompts, addition of cultural meaningfulness questions to think alouds, and revision of task quality review protocols to promote CRE design features. Future research is needed to explore the limitations of the framework applied, and the extent to which students perceive the classroom summative assessments designed do indeed allow them to better show all they know and can do in ways related to their cultural, social, and/or linguistic identities.

6. O’Dwyer, E. P., Sparks, J. R., & Oláh, L. N. (2023). Enacting a process for developing culturally relevant classroom assessments. *Applied Measurement in Education*, 36(3), 286–303. <https://doi.org/10.1080/08957347.2023.2214652>

Abstract: A critical aspect of the development of culturally relevant classroom assessments is the design of tasks that affirm students’ racial and ethnic identities and community cultural practices. This paper describes the process we followed to build a shared understanding of what culturally relevant assessments are, to pursue ways of bringing more diverse voices and perspectives into the development process to generate new ideas and further our understanding, and finally to integrate those

understandings and findings into the design of scenario-based tasks (ETS Testlets). This paper describes our engagement with research literature and employee-led affinity groups, students, and external consultants. In synthesizing their advice and feedback, we identified five design principles that scenario-based assessment developers can incorporate into their own work. These principles are then applied to the development of a scenario-based assessment task. Finally, we reflect on our process and challenges faced to inform future advancements in the field.

CAMBRIDGE JOURNAL OF EDUCATION

1. Hazir, O., Harris, R., & Williams, T. (2022). The mentor–tutor partnership in Turkish special education initial teacher training: an exploration of collaboration and agency. *Cambridge Journal of Education*, 1–20. <https://doi.org/10.1080/0305764x.2022.2086216>

Abstract: This paper explores the perspectives of the tutors and mentors involved in Turkish special education departments' initial teacher training, and how their understanding of and degree of agency shapes the nature of the partnership in it. The data collected from four partnership settings identified three sub-themes: expertise; experience; and expectations. The collective understanding within the teacher training environments shaped the behaviour of individuals. However, rather than working in collaboration with schools, the dominant role in the partnership is either taken by the tutors, and the mentor is largely ignored, or tutors leave the dominant role to the mentors and participate in the system superficially. Exploring the collaboration in Turkish teacher training programmes seems to be an important area to improve the overall quality of teacher training. Looking at ways in which mentors and tutors exert agency offers an opportunity to strengthen levels of collaboration.

Keywords: Initial teacher training, special education, tutor-mentor partnership, ecological agency

2. Jia, Z., Huang, Q., & Ye, J. (2022). Investigating the mediating effects of professional learning communities on the relationship between leadership practices and teacher collective efficacy: a perspective of Chinese principals. *Cambridge Journal of Education*, 1–22. <https://doi.org/10.1080/0305764x.2022.2092070>

Abstract: This study investigated the mediating effects of professional learning community (PLC) components on the relationship between leadership practices and teacher collective efficacy from the perspective of Chinese principals. Survey data were collected from 878 school principals. The results revealed that leadership practices significantly and positively affected the five PLC components, three of which (shared purpose, collective focus on student learning and reflective dialogue) had significant positive effects on teacher collective efficacy. Shared purpose, collective focus on student learning and reflective dialogue significantly mediated the effects of leadership practices on teacher collective efficacy. The practical implications of the findings and suggestions for future research are discussed.

Keywords: Professional learning communities, leadership practices, teacher collective efficacy, China

3. Baxter, L. P., Gardner, F., & Southall, A. E. (2022). Reflecting on teaching in low SES areas during COVID-19: an Australian experience. *Cambridge Journal of Education*, 1–17. <https://doi.org/10.1080/0305764x.2022.2092071>

Abstract: School closures and the move to remote learning during the COVID-19 pandemic transformed teaching and learning in Australian schools. Educators experienced personal and professional challenges as they rapidly responded to the needs of their school communities and managed their own emotional reactions.

Eleven educators at two Victorian schools in areas of low socioeconomic status discussed in focus groups the impact of school closures and explored their perceptions of responses from leaders and colleagues who supported their wellbeing. While naming the significance of uncertainty, constant change and increased workloads, these educators acted creatively to ensure their students had access to specifically developed learning materials to suit their needs. Educators demonstrated that they could use existing reflective structures that fostered mutual support to sustain their wellbeing and create supportive environments for themselves and their wider school communities in times of crisis, as well as remain open to sometimes-surprising learning opportunities.

Keywords: Teacher wellbeing, COVID-19, remote teaching, teaching and learning, education

4. Yang, J., & Hoskins, B. (2022). Does university participation facilitate young people's citizenship behaviour in the UK? *Cambridge Journal of Education*, 1–19. <https://doi.org/10.1080/0305764x.2022.2093837>

Abstract: Universities can be understood as a key site for the transmission of democratic values by helping young people participate directly in democratic activities and education. Thus, it is important to understand whether and how citizenship learning takes place at universities in the UK. This article uses citizenship in transition (CiT) data to examine the possible ways in which university experiences influence student citizenship from a constructivist learning perspective. Based on Habermas' theories of communicative action and communities of practice, the article proposes that the experience of participating in activities and organisations and the self-identity that is gained by reaching understanding, coordinating interaction, and effecting socialisation at universities are able to promote citizenship learning in the UK. Building on a quantitative analysis, this article shows that students' sense of belonging to their universities and their participation in organisations generally lead to more civic behaviour in the future.

Keywords: Citizenship learning, community of practice, participation, identity

5. Hodgen, J., Adkins, M., & Ainsworth, S. (2022). Can teaching assistants improve attainment and attitudes of low performing pupils in numeracy? Evidence from a large-scale randomised controlled trial. *Cambridge Journal of Education*, 1–21. <https://doi.org/10.1080/0305764x.2022.2093838>

Abstract: The use of teaching assistants (TAs) is widespread in many education systems, but the ways that TAs can support learning effectively are poorly understood. Much evidence indicates that most TA support has no, or negative, effects on pupil attainment. A small but growing body of evidence shows that structured TA intervention programmes can be effective. This paper reports the results of a large-scale randomised controlled trial of Catch Up® Numeracy, an intervention delivered one-to-one by TAs, compared to a control in which TAs provided matched-time numeracy support. The trial involved 1794 low-attaining pupils (aged 7–10) and 300 TAs from 150 English primary schools. Pupils in the intervention group showed no gains in attainment compared to the matched-time control, but there was some

evidence to suggest a positive impact in pupils' attitudes. The implications for future TA interventions to address low attainment in numeracy are discussed.

Keywords: Teaching assistants, education paraprofessionals, numeracy, low attainment, improving attainment, low-performing pupils.

6. Sandholm, D., Simonsen, J., Ström, K., & Fagerlund, Å. (2022). Teachers' experiences with positive education. *Cambridge Journal of Education*, 53(2), 237–255. <https://doi.org/10.1080/0305764x.2022.2093839>

Abstract: Positive education is the teaching of both traditional school skills and skills for enhancing well-being. This study examines teachers' (N = 72) experiences with training in positive education. Qualitative content analysis was used to provide an in-depth understanding of the experiences, and quantitative measures investigated teachers' well-being. Results show that teachers experienced both personal and professional growth. They also saw positive changes in their students. Teachers used methods of positive education e.g. when communicating with students and co-workers, and when supporting the students' socioemotional development. Challenges with implementing positive education practices mostly consisted of lack of time or support from colleagues. The authors argue that positive education is an effective tool for enhanced well-being both for participating teachers and their students and could therefore be utilised on a larger scale. Future studies could focus on whether teachers continue systematic implementing of positive education methods long-term, and the reasons behind continued or discontinued.

Keywords: Positive education, positive psychology, well-being, teachers, school staff.

7. North, C., Hill, A., Cosgriff, M., Watson, S., Irwin, D., & Boyes, M. (2022). Conceptualisations and implications of 'newness' in education outside the classroom. *Cambridge Journal of Education*, 1–18. <https://doi.org/10.1080/0305764x.2022.2094893>

Abstract: Newness was a key theme identified in a comprehensive national study of education outside the classroom (EOTC) in Aotearoa New Zealand. This paper examines what newness means from the perspectives of students, educators and school leaders. Findings reveal that newness in EOTC was valued because of the difference to everyday routines, as well as to students' learning and positive emotions; it also deepened students' understanding of the wider world, and their place in it. Consumption of newness occurred when educators and students framed EOTC through new locations because the potential for learning was quickly 'used up'. Newness also potentially undermined learning for some students because of discomfort and fear. The authors encourage educators and students to engage in the process of understanding newness in EOTC in order to harness the learning opportunities of both familiar and unfamiliar experiences.

Keywords: Experience, novelty, outdoor learning, student engagement

CONTEMPORARY EDUCATIONAL PSYCHOLOGY

1. Azevedo, R., Rosário, P., Núñez, J. C., Vallejo, G., Fuentes, S., & Magalhães, P. (2023). A school-based intervention on elementary students' school engagement. *Contemporary Educational Psychology*, 73, 102148. <https://doi.org/10.1016/j.cedpsych.2023.102148>

Abstract: Prior research has reported signs of low engagement in the early stages of schooling. The present study assessed the effectiveness of a school-based intervention that promotes cognitive, emotional, and behavioral engagement in elementary school children through a story tool. The study followed a cluster-randomized design with 259 fourth graders nested in 12 classes; the classes, not the individuals, were randomly assigned to an intervention or control group. Both groups were assessed in four waves in two measures for each engagement dimension. Data were analyzed with a multilevel approach. Findings show that the intervention enhanced students' cognitive, emotional, and behavioral engagement. Still, there is a delay before the intervention program exhibits a beneficial effect. Moreover, gender discrepancies were found. Before the intervention, girls showed higher cognitive and emotional engagement, but boys exhibited higher emotional engagement after the intervention. In addition, current results indicate that the program benefited the boys more than the girls. Finally, there was no evidence that the engagement outcomes differed depending on the parent's educational level. Findings provide valuable information for future research and educational practice.

Keywords: School engagement, School-based intervention, Story tool, Self-regulated learning, Elementary school students.

2. Griffiths, C. M., Murdock-Perriera, L. A., & Eberhardt, J. L. (2023). "Can you tell me more about this?": Agentic written feedback, teacher expectations, and student learning. *Contemporary Educational Psychology*, 73, 102145. <https://doi.org/10.1016/j.cedpsych.2022.102145>

Abstract: Teachers are not only tasked with communicating facts, figures, and skills to their students, but they are also responsible for equipping students to be self-sufficient learners who believe in their own capacity to learn and improve. In this paper, we propose that written feedback that offers students agency (what we call 'agentic feedback') can be a way for teachers to build more independent and self-efficacious learners, and to instill in students the trust that their teacher believes in them. In the first study, we develop a novel qualitative coding scheme to measure the degree of agency offered in teachers' written feedback ($N = 136$) and produce a coherent 'agentic feedback' variable. In the second study, we find that middle and high school students ($N = 1,260$) are sensitive to the amount of agency provided in teachers' feedback: they perceive that agentic feedback affords more choice and requires more effort for revision, encourages greater learning and improvement on writing, and that teachers who offer more agentic feedback have higher expectations. We discuss implications for future research and application in classrooms.

Keywords: Feedback, Teacher attitudes and expectations, Teacher-student interactions, teaching practices, Writing, Student perceptions

3. Kuklick, L., & Lindner, M. A. (2023). Affective-motivational effects of performance feedback in computer-based assessment: Does error message complexity matter? *Contemporary Educational Psychology*, 73, 102146. <https://doi.org/10.1016/j.cedpsych.2022.102146>

Abstract: The impact of computer-based performance feedback on students' affective-motivational state may be very different, depending on the positive or negative direction of the feedback message and its specific content. This experiment investigated whether more elaborated error messages improve students' affective-motivational response to negative (i.e., corrective) feedback. We systematically varied the presence and complexity of *corrective* feedback messages (1×4 between-subjects design) and analyzed the effects of the provided feedback on students' emotions, task-related perceived usefulness, and expectancy-value beliefs. University students ($N = 439$) worked on a low-stakes test with 12 constructed-response geometry tasks. They received either no feedback or different complexities of immediate corrective feedback after incorrect responses (i.e., *Knowledge of Results* [KR], *Knowledge of Correct Response* [KCR], or *Elaborated Feedback* [EF]), paired with immediate confirmatory KCR feedback after correct responses (i.e., confirming their response). Our data showed that students' task-level performance moderated the emotional impact of feedback (i.e., beneficial effects after correct responses; detrimental effects after incorrect responses). Students' performance further moderated several feedback effects on students' expectancy-value beliefs. Regarding error message complexity, we found that students reported higher levels of positive emotions after receiving EF or KCR compared to KR, while only EF decreased students' level of negative emotions compared to KR and increased students' task-related perceived usefulness compared to all other groups. Overall, our results suggest that performance feedback is likely to improve students' affective-motivational state when the feedback confirms a correct response. Moreover, when reporting an error, EF (or KCR messages) were more beneficial to affective-motivational outcomes than simple KR notifications.

Keywords: Computer-based assessment, Low-stakes assessment, Automated performance feedback, Feedback type, Error message complexity, Emotion and motivation

4. Ehrhart, T., & Lindner, M. A. (2023). Computer-based multimedia testing: Effects of static and animated representational pictures and text modality. *Contemporary Educational Psychology*, 73, 102151. <https://doi.org/10.1016/j.cedpsych.2023.102151>

Abstract: Static representational pictures (RPs) have been focused in research on the multimedia effect in testing and might be especially important in arithmetical word problems, which require a multi-stage mental processing to segment the task. To further highlight the task segments visually, dynamic visualizations could help. However, conventional animations might not apply to this context and the role of dynamic visualizations with temporal segmentations (i.e., animated RPs) is unexplored. This classroom experiment with 456 students investigated multimedia and modality effects in 24 mathematical word problems. Our 3×2 mixed design included three multimedia conditions (static RPs, animated RPs, and text-only) and two modality conditions (written text vs spoken text). We investigated effects on response correctness, metacognitive ratings, item-solving satisfaction and time on task. Both static and animated RPs increased response correctness, item-solving

satisfaction, and metacognitive ratings compared to text-only. Time on task was affected in distinctive ways in both RP conditions and also varied depending on text modality. Spoken text barely increased response correctness in animated RP items but not at all in static RP items. Moderator analyses revealed that the effects of static and animated RPs on response correctness were dependent on the text modality but varied across school types and the level of mathematical prior knowledge. For students at non-academic-track schools or with low prior knowledge, static and animated RPs improved response correctness compared to text-only across both modalities. For students at academic-track schools or with high prior knowledge, mainly combinations of static or animated RPs with spoken text were effective.

Keywords: Multimedia effect, Representational pictures, Animations, Modality effect, Digitalization

5. Tong, X., Chiu, M. M., & Tong, X. (2023). Synergetic effects of phonological awareness, vocabulary, and word reading on bilingual children's reading comprehension: A three-year study. *Contemporary Educational Psychology*, 73, 102153. <https://doi.org/10.1016/j.cedpsych.2023.102153>

Abstract: Using comparable measures of first language (L1) Chinese and second language (L2) English, this three-year longitudinal study examined the synergetic effects of phonological awareness, vocabulary, and word reading on reading comprehension development among 227 Hong Kong Chinese-English bilinguals from Grades 2-4. Structural equation growth modeling revealed that all three factors were significantly linked to one another and to initial reading comprehension for each language. Across languages, L1 Chinese vocabulary was directly linked to initial L2 English reading comprehension, while L1 Chinese phonological awareness was indirectly linked to initial L2 English reading comprehension via L2 English vocabulary and word reading. These findings underscore the synergetic effects of early phonological and lexical skills in determining early reading comprehension ability in both L1 and L2.

Keywords: Reading comprehension development, Phonological awareness, Vocabulary, Biliteracy acquisition

6. McKeown, D., Wijekumar, K., Owens, J., Harris, K. R., Graham, S., Lei, P. W., & FitzPatrick, E. (2023). Professional development for evidence-based SRSD writing instruction: Elevating fourth grade outcomes. *Contemporary Educational Psychology*, 73, 102152. <https://doi.org/10.1016/j.cedpsych.2023.102152>

Abstract: Writing is a critical skill for success in all areas of life, but it is one of the least taught skills in school. Teachers consistently report being unprepared to teach writing. In this study, set in a Southern U.S. boomtown, teachers received two days of practice-based professional development for a ten-week implementation of self-regulated strategy development (SRSD), an evidence-based writing intervention, to support student persuasive and informational writing as well as performance on the state standardized writing exam. This multi-site cluster randomized controlled study evaluated the effectiveness of SRSD on student writing outcomes including prompt adherence, elements, and holistic quality. Multilevel modeling analysis was used to evaluate data from 418 fourth -grade students (256 treatment, 162 control) nested

across 33 classes ($n = 17$ treatment taught by 8 departmentalized teachers; 16 control, 9 departmentalized teachers) within 11 schools randomly assigned to condition. Teachers implemented SRSD with high fidelity ($M = 92\%$; range 91–100%). SRSD had a statistically significant and large effect on prompt adherence ($p < .001$; Hedges' $g = 1.87$), elements ($p < .001$; Hedges' $g = 0.84$) and holistic scores ($p < .001$; Hedges' $g = 0.87$), while holding gender and pretest scores constant. Effects of SRSD on all writing measures were not significantly moderated by students' gender, students' pretest scores, or schools' pretest scores. There were complications with teacher observations, especially related to technology. Limitations and future directions are discussed.

Keywords: Writing, Professional development, Practice-based professional development, Self-regulated strategy development, SRSD.

7. Harris, K. R., Kim, Y., Yim, S., Camping, A., & Graham, S. (2023). Yes, they can: Developing transcription skills and oral language in tandem with SRSD instruction on close reading of science text to write informative essays at grades 1 and 2. *Contemporary Educational Psychology*, 73, 102150. <https://doi.org/10.1016/j.cedpsych.2023.102150>

Abstract: This randomized controlled trial with first- and second-grade students is the first experimental study addressing long-running disagreements about whether primary grade students should develop transcription and oral language abilities before learning to compose. It is also the first study at these grade levels to teach close reading (using science text aligned to the Next Generation Science Standards) to plan and write a timed informative essay. Theoretically and evidence-based multi-component writing instruction was developed, termed “Self-Regulated Strategy Development (SRSD) Plus.” SRSD Plus integrates evidence-based practices for transcription (handwriting and spelling) and oral language skills (vocabulary and sentence structure) with SRSD instruction for close reading to learn and then write informative essays. A total of 93 children in Grade 1 ($n = 46$, 50% female) and Grade 2 ($n = 47$, 51% female) in a high poverty school participated in the study (50% boys; mean age = 6.68; $SD = 0.48$). Students were randomly assigned to either teacher-led SRSD Plus or business-as-usual (writers workshop) condition within class in each grade. SRSD Plus was implemented with small groups for 45 min, three times a week, for 10 weeks. Outcomes examined included: instructional fidelity, spelling, handwriting fluency, vocabulary, sentence proficiency, discourse knowledge, planning, writing quality, structural elements in informative essays, number of words written, use of transition words, expository text comprehension, and use of source text. Results showed moderate to large effect sizes in writing outcomes, oral language skills (vocabulary and sentence proficiency), spelling, and discourse knowledge. Differential effects due to grade, gender, and race are examined, and directions for future research are discussed.

Keywords: Close reading, Writing, Beginning writers, Self-regulated strategy development, Oral language, Transcription, Professional development

8. Liu, D., Wang, L., Xu, Z., Li, M., Joshi, R. M., Li, N., & Zhang, X. (2023b). Understanding Chinese children's word reading by considering the factors from cognitive, psychological and ecological factors. *Contemporary Educational Psychology*, 73, 102163. <https://doi.org/10.1016/j.cedpsych.2023.102163>

Abstract: Reading is a complex activity that is related to factors from the cognitive, ecological, and psychological domains. However, few studies have investigated the mechanisms underlying word learning by including the factors from the three domains in Chinese children. One hundred and ninety-four Chinese first graders completed tasks on cognitive abilities and word reading ability and a questionnaire relating to the psychological domain, their parents answered questionnaires relating to the psychological and ecological domains. The cognitive factors in the present study involved general (i.e., working memory) and reading-specific (i.e., vocabulary and morphological awareness) abilities. As ecological factors, the parent-reported family socioeconomic status (SES) and home literacy environment (HLE) were used to indicate parents' resource characteristics of the literacy interactions at home. As psychological factors, an overall mental status was measured by the Conners' Parent Rating Scale-Revised and reading self-efficacy were used to indicate children's demand and force characteristics in the literacy interactions. The results of path analysis showed that, after controlling for age and nonverbal intelligence, the reading-specific cognitive abilities had a direct effect on word reading. Working memory, HLE, and reading self-efficacy contributed to word reading through the reading-specific cognitive abilities. Family SES facilitated HLE, which subsequently benefited the reading-specific cognitive abilities, and then assisted word reading.

Keywords: Family socioeconomic status, Home literacy environment, Reading self-efficacy, Word reading, Chinese early reader

9. Henschel, S., Jansen, M., & Schneider, R. (2023). How gender stereotypes of students and significant others are related to motivational and affective outcomes in mathematics at the end of secondary school. *Contemporary Educational Psychology*, 73, 102161. <https://doi.org/10.1016/j.cedpsych.2023.102161>

Abstract: We examined associations between the explicit mathematics-related gender stereotypes of students, parents, teachers, and classmates and students' motivational-affective outcomes in mathematics (self-concept, interest, anxiety) at the end of Grade 9. Based on representative data from the German Trends in Student Achievement 2018 study ($N = 30,019$), results of latent multilevel mixture models show that boys' and girls' explicit beliefs in the stereotype favoring their own gender in-group (i.e., boys'/girls' belief that boys/girls do better at mathematics) were related to higher levels of self-concept and interest and to lower anxiety. Parents' gender stereotypes showed an incremental association with all three outcomes for girls but only with mathematics self-concept for boys. Gender stereotypes of teachers were not related to students' outcomes. However, classmates' stereotypes favoring girls or boys in mathematics were negatively associated with outcomes of the positively stereotyped group. Thus, a male student in a classroom with classmates who share the traditional stereotype that boys do better at mathematics than girls would hold a lower self-concept and interest and higher anxiety level after controlling for the beneficial individual association of himself having the same belief and his motivational and affective outcomes. Similarly, a girl's motivational-affective outcomes would be more

favorable in the same environment characterized by the shared traditional stereotype of mathematics as a male domain after controlling for the negative individual association. Shared stereotypes in the classroom could thus trigger social comparison processes to which students are more susceptible than to stereotypes of their teachers.

Keywords: Gender stereotypes, Mathematics, Self-concept, Interest, Mathematics anxiety

10. Wu, Y., & Schunn, C. D. (2023). Passive, active, and constructive engagement with peer feedback: A revised model of learning from peer feedback. *Contemporary Educational Psychology*, 73, 102160. <https://doi.org/10.1016/j.cedpsych.2023.102160>

Abstract: To deepen understanding of learning through peer feedback, the current study investigated the relationships between different peer feedback activities (organized into constructive vs active activities) and learning (i.e., transfer to new tasks), examining the nature of activities within provided feedback, received feedback, and revisions in response to feedback. Across five US high schools, 367 students in Advanced Placement classes participated, implementing common assignments and peer assessment rubrics. Provided/received comments and revisions in one assignment, and writing improvements observed in a second assignment were exhaustively coded and subjected to hierarchical model regression analyses. Results showed that constructive activities (providing explanations and making revisions after receiving explanations or providing suggestions) were consistently associated with learning, whereas passive (e.g., receiving feedback without making revisions) or active activities (e.g., implementing specific suggestions) were not. Further, the effects of received feedback on learning were mediated by the number of revisions. Theoretical and practical implications of the findings are discussed.

Keywords: Peer feedback, Explanations, Suggestions, Revisions, Learning

11. Kuhlmann, S., Bernacki, M. L., Greene, J. A., Hogan, K. A., Evans, M., Plumley, R. D., Gates, K. M., & Panter, A. T. (2023). How do students' achievement goals relate to learning from well-designed instructional videos and subsequent exam performance? *Contemporary Educational Psychology*, 73, 102162. <https://doi.org/10.1016/j.cedpsych.2023.102162>

Abstract: Well-designed instructional videos are powerful tools for helping students learn and prompting students to use generative strategies while learning from videos further bolsters their effectiveness. However, little is known about how individual differences in motivational factors, such as achievement goals, relate to how students learn within multimedia environments that include instructional videos and generative strategies. Therefore, in this study, we explored how achievement goals predicted undergraduate students' behaviors when learning with instructional videos that required students to answer practice questions between videos, as well as how those activities predicted subsequent unit exam performance one week later. Additionally, we tested the best measurement models for modeling achievement goals between traditional confirmatory factor analysis and bifactor confirmatory factor analysis. The bifactor model fit our data best and was used for all subsequent analyses. Results indicated that stronger mastery goal endorsement predicted performance on the practice questions in the multimedia learning environment, which in turn positively

predicted unit exam performance. In addition, students' time spent watching videos positively predicted practice question performance. Taken together, this research emphasizes the availing role of adaptive motivations, like mastery goals, in learning from instructional videos that prompt the use of generative learning strategies.

Keywords: Multimedia learning, Instructional videos, Achievement goals, Generative strategies, Bifactor confirmatory factor analysis

12. Zuidema, P. M., Hornstra, L., Schuitema, J., & Poorthuis, A. M. G. (2023). Attributional profiles: Considering multiple causal attributions for success and failure at the beginning of secondary school. *Contemporary Educational Psychology*, 73, 102164. <https://doi.org/10.1016/j.cedpsych.2023.102164>

Abstract: Students typically perceive their successes and failures to have multiple causes. The present study examined students' profiles of causal attributions for success and failure during the first year of secondary school. The stability of attributional profile membership was assessed across three timepoints. Furthermore, it was examined whether students characterized by different attribution profiles differed in their levels of school engagement, self-esteem, and school performance. Latent profile analyses and latent transition analyses among 657 first-year Dutch secondary school students ($M_{\text{age}} = 12.6$, $SD = 0.4$) identified four attributional profiles, which were similar across the three timepoints. The profiles were labelled *uncontrollable failure*, *controllable failure*, *uncontrollable success*, and *undifferentiated*. About half of the students (52 %) remained member of the same profile across the three timepoints. Students in the *uncontrollable success* profile reported significantly lower levels of school engagement and self-esteem, and performed less well in school compared to students in the other profiles. Students in the *uncontrollable failure* profile and the *controllable failure* profile did not differ from each other with regard to school engagement, self-esteem, and school performance. The findings suggest that attributional retraining interventions may want to shift their focus from changing uncontrollable failure attributions to changing students' external, uncontrollable attributions for success.

Keywords: Attributional profiles, Multiple causal attributions, School transition, School engagement, Self-esteem, School performance

13. Diprossimo, L., Ushakova, A., Zoski, J., Gamble, H., Ireys, R., & Cain, K. (2023). The associations between child and item characteristics, use of vocabulary scaffolds, and reading comprehension in a digital environment: Insights from a big data approach. *Contemporary Educational Psychology*, 73, 102165. <https://doi.org/10.1016/j.cedpsych.2023.102165>

Abstract: Scaffolding features that provide multimodal support for the pronunciation and meaning of words are increasingly common in digital reading environments. These vocabulary scaffolds are intended to aid the accurate pronunciation and understanding of individual words in context, thus supporting both vocabulary development and comprehension of text. However, the evidence on their efficacy remains inconclusive. The present study adds to the evidence base by examining: 1) whether child characteristics predict the use of vocabulary scaffolds; 2) whether the use of vocabulary scaffolds is associated with reading comprehension performance;

and 3) whether the association between the use of scaffolds and reading comprehension is modulated by child and/or item characteristics. A large cohort ($N \sim 120,000$) of 5- to 8-year-old children in the United States interacted with a gamified digital reading environment with embedded vocabulary scaffolds, thereby generating a large observational dataset of user log files. Confirmatory analyses with Generalized Linear Mixed Models (GLMMs) indicated that children with lower literacy skills, beginning readers, girls, and bilingual students were more likely to use the scaffold. Overall, the use of scaffolds was associated with better reading comprehension performance. The association between the use of scaffolds and reading comprehension was modulated by both child and item characteristics. We conclude that vocabulary scaffolds may be promising tools to facilitate reading comprehension and reduce performance differences amongst diverse learners in digital reading environments. Educational implications and recommendations for future research are discussed.

Keywords: Vocabulary, Reading comprehension, Scaffolding features, Multimedia learning, Big data

14. Benden, D. K., & Lauermann, F. (2023). Searching for short-term motivational alignment and spillover effects: A random intercept cross-lagged analysis of students' expectancies and task values in math-intensive study programs. *Contemporary Educational Psychology*, 73, 102166. <https://doi.org/10.1016/j.cedpsych.2023.102166>

Abstract: Students' expectancy and value beliefs about math influence their academic choices and success in math-intensive study programs. Short-term declines in these motivational beliefs can serve as early warning signs of academic difficulties and dropout. However, such short-term motivational changes are underresearched. Based on Eccles et al.'s (2020) situated expectancy-value theory, this study analyzed *within-person* changes in the associations among students' course-specific (summative) or week-specific (situated) expectancies and task values in gateway math courses for students in physics, math, or math teacher education majors ($N = 773$). Random intercept cross-lagged panel models showed increasing within-person alignment between students' course-specific expected success and intrinsic/utility values (but not costs) over one semester. This alignment was linked to unidirectional spillover (i.e., cross-lagged) effects from expectancy to intrinsic/utility values. Students' week-specific expectancy-value beliefs, reported at the beginning of the semester, showed no significant alignment and spillover effects. Differences in students' course- or week-specific expectancy-value beliefs favored male and higher-achieving students and were largely time-invariant. Alignment between course-specific expectancy and value beliefs was higher for students who failed or dropped out of their math courses compared to those who succeeded. Greater motivational alignment can thus indicate greater disengagement from (math) coursework in challenging academic contexts. These findings highlight the importance of differentiating between-person and within-person motivational processes, suggest that summative versus situation-specific assessments of motivational beliefs may show different developmental patterns, and demonstrate that motivational alignment and spillover effects can be a sign of maladaptive motivational processes concerning students' persistence in challenging STEM contexts.

Keywords: Situated expectancy-value theory, Situation-specific assessments, Summative assessments, Random intercept cross-lagged panel model, Motivation, STEM

15. Schickel, M., Minkley, N., & Ringeisen, T. (2023). Performance during presentations: A question of challenge and threat responses? *Contemporary Educational Psychology*, 73, 102168. <https://doi.org/10.1016/j.cedpsych.2023.102168>

Abstract: The current study investigated how changes in psychological (cognitions and emotions) and physiological (cortisol concentrations) threat/challenge responses develop over the course of a presentation and whether initial intensity levels and their changes are related to self-efficacy and presentation performance. Based on the Trier Social Stress Test (TSST), 123 students held video-recorded presentations about their dream job, which were evaluated by three raters. Self-efficacy was measured before the TSST, saliva cortisol concentrations and psychological threat and challenge responses three times during the TSST. Data were analyzed with latent growth modeling. Threat and cortisol increased during the presentation, while challenge decreased. The growth curve coefficients of challenge correlated negatively with the respective coefficients of threat. Also, initial intensity of challenge responses correlated positively with corresponding cortisol concentrations. Higher self-efficacy was associated with higher initial intensity of challenge responses, lower corresponding concentrations of cortisol, and a smaller cortisol increase, but neither with the growth curve coefficients of threat responses nor with presentation performance. Better performance was associated with lower initial intensity of threat and a smaller increase in cortisol. Threat responses and increasing cortisol concentration appear to inhibit presentation performance, while self-efficacy may strengthen challenge responses and reduce corresponding levels of cortisol concentration as well as its increase.

Keywords: Self-efficacy, Threat, Challenge, Presentation performance, Cortisol, Concentration

16. St Omer, S. M., & Chen, S. (2023). Examining the dynamics of mathematics anxiety, perceived cost, and achievement: A control-value theory approach. *Contemporary Educational Psychology*, 73, 102169. <https://doi.org/10.1016/j.cedpsych.2023.102169>

Abstract: Concerns about the influence of students' perceived negative consequences of engagement in a task (i.e., cost) on their emotions, motivation, and cognition have increased in the last decade. The use of longitudinal models is needed to provide new insights into the role of perceived cost in mathematics learning. Grounded in the control-value theory, this study examined cross-lagged relations of mathematics anxiety, perceived cost, and mathematics achievement. The participants ($N = 335$) reported their mathematics anxiety and perceived cost four times during Grades 7 and 8, and their mathematics grades were attained from their school records. Cross-lagged panel model analysis revealed evidence of a long-term positive reciprocal relationship between mathematics anxiety and effort/emotional cost, a gradually diminished relationship between effort/emotional cost and mathematics performance, and a positive achievement to anxiety link during the transition between grade levels. Moreover, mathematics performance is a distal predictor of mathematics anxiety through effort/emotional cost rather than a proximal predictor or an outcome of

anxiety. This study also clarified the distinction in the central role of effort/emotional versus opportunity cost in the interrelatedness of mathematics anxiety and performance, where the latter failed to demonstrate significant paths. Specific timing for interventions was discerned. Early cost prevention interventions along with considerations of academic achievement to alleviate both anxiety and perceived effort/emotional are highlighted as crucial for a positive high school mathematics experience.

Keywords: Adolescents, Control-value theory, Learning emotion, Longitudinal, Mathematics, Motivational belief

17. Marsh, H. W., Lüdtke, O., Pekrun, R., Parker, P. D., Murayama, K., Guo, J., Basarkod, G., Dicke, T., Donald, J. N., & Morin, A. J. S. (2023). School leaders' self-efficacy and job satisfaction over nine annual waves: A substantive-methodological synergy juxtaposing competing models of directional ordering. *Contemporary Educational Psychology*, 73, 102170. <https://doi.org/10.1016/j.cedpsych.2023.102170>

Abstract: The school principal's job is increasingly demanding and complex, but school principal well-being is understudied. Self-efficacy and job satisfaction are critical constructs for studying school principals' well-being, and self-efficacy is a core predictor of job satisfaction. Cross-sectional research typically assumes a unidirectional ordering; self-efficacy predicts (and leads to) job satisfaction, not the reverse. However, this unidirectional ordering is inconsistent with theoretical models positing a bidirectional (reciprocal) ordering. Furthermore, the assumption is largely untested with appropriate longitudinal data and statistical models. We evaluated the directional ordering of job satisfaction and self-efficacy for a large ($N = 5663$), nationally representative, longitudinal (nine annual waves) sample of Australian school leaders. Job satisfaction and self-efficacy were moderately correlated within waves and over time. Consistently with theoretical models and a priori predictions, the two constructs were reciprocally related over time; prior measures of each had small statistically positive effects on subsequent measures of the other, with no evidence of directional predominance of one over the other. Support for reciprocal effects was remarkably consistent across competing cross-lag-panel models, multiple tests of the consistency of effects over time (measurement invariance and stationarity), control for covariates, and the addition of lag-2 paths. Methodologically, we critique competing models that estimate cross-lagged effects and evaluate directional ordering from within- and between-person perspectives. We demonstrate the value of both approaches in achieving a robust framework for assessing longitudinal panel models. Our substantive-methodological synergy has important substantive implications for theory, policy, and practice—showing that school-leader job satisfaction and self-efficacy are mutually reinforcing.

Keywords: Self-efficacy, Job satisfaction, School principal health and well-being, Cross-lagged panel models of reciprocal effects, Measurement invariance and stationarity, Within- and between-person perspectives

EDUCATIONAL ASSESSMENT, EVALUATION AND ACCOUNTABILITY

1. Rudd, G., Meissel, K., & Meyer, F. (2022). Investigating the measurement of academic resilience in Aotearoa New Zealand using international large-scale assessment data. *Educational Assessment, Evaluation and Accountability*, 35(2), 169–200. <https://doi.org/10.1007/s11092-022-09384-0>

Abstract: Academic resilience captures academic success despite adversity and thus is an important concept for promoting equity within education. However, our understanding of how and why rates of academic resilience differ between contexts is currently limited by variation in the ways that the construct has been operationalised in quantitative research. Similarly, comparing the strength of protective factors that promote academic resilience is hindered by differing approaches to the measurement of academic resilience. This methodological variation has complicated attempts to reconcile disparate findings about academic resilience. The current study applied six commonly used operationalisations of academic resilience that combined different thresholds of high risk and high achievement, to three international large-scale assessments, to explore how these different operationalisations impacted the findings produced. The context of Aotearoa New Zealand was chosen as a case study to further academic resilience research within this context and investigate how academic resilience manifests in an education system with relatively high levels of average achievement alongside low levels of educational equity. Within international large-scale assessment datasets, prevalence rates differed markedly across subject areas, grade levels, and collection cycles, as a function of the measure of academic resilience employed, while the strength of protective factors was more consistent. Thresholds that were norm-referenced produced more consistent findings across the different datasets compared to thresholds that were criterion-referenced. High levels of missing data prevented the analysis of some datasets, and differences in the way that key constructs were measured undermined the comparability of findings across international large-scale assessments. The findings emphasise the strengths and limitations of utilising international large-scale assessment data for the study of academic resilience, particularly within the Aotearoa New Zealand context. Furthermore, the study highlights that researchers' methodological decisions have important impacts on the conclusions drawn about academic resilience.

2. Miller, T., & Yan, Y. (2022). Factors influencing the accuracy of Canada's large-scale assessment data: Policies and practices of exclusion, absenteeism, and social promotion. *Educational Assessment, Evaluation and Accountability*, 35(2), 201–231. <https://doi.org/10.1007/s11092-022-09381-3>

Abstract: The purpose of this study was to examine patterns and factors influencing exclusion rates and achievement on large-scale assessments in Canada. Data analysis employed a case study to examine policies and practices of exclusion, absenteeism, and social promotion related to large-scale assessments at the international, national, and provincial levels. In addition, information was solicited from assessment experts regarding exclusion rate practices. Findings revealed significant increases in student performance, which paralleled significant increases in exclusion rates. At the provincial level, the analysis led to the discovery of the relationship between social promotion policies and a document guiding assessment practices in Canada (i.e.,

Principles of Fair Assessment Practices). This relationship was the rationale given for excluding poor performing students, not learning or physically disabled students, from participating in large-scale assessments. Recommendations include an alignment of exclusion policies between the three levels of administration, documenting students who are unable to participate on large-scale assessment because they are operating too far below grade level as a result of being social promoted, and to over sample provinces and schools with high absenteeism on assessment days.

Keywords: Large-scale assessment, Exclusion rates, Exemption rates, Mathematics achievement, social promotion

3. Karakus, M., Courtney, M., & Aydin, H. (2022). Understanding the academic achievement of the first- and second-generation immigrant students: a multi-level analysis of PISA 2018 data. *Educational Assessment, Evaluation and Accountability*, 35(2), 233–278. <https://doi.org/10.1007/s11092-022-09395-x>

Abstract: The present study explores the antecedents of first- and second-generation (1G and 2G) immigrant students' academic performance using PISA 2018 data. The study draws on an international sample of 11,582 students from 534 schools in 20 countries and focuses on PISA schools that catered to a mix of 1G and 2G students. The study explores the role that student attributes, student-perceived peer and parental support, school provisions, and school equity-oriented policies have on immigrant student academic achievement. The analysis involved specifying three separate stepwise multi-level regression models for mathematics, science, and reading achievement. Findings suggested that, at the within-school level, perceived parental support and teacher enthusiasm and the adaption of instruction were associated with improved academic performance, while student experience of bullying was associated with more substantive negative academic outcomes. At the between-school level, the opportunity to participate in creative extracurricular activities was associated with improved academic performance. In contrast, a higher proportion of 1G students and the overall perceived level of bullying of immigrant students were associated with substantively negative academic outcomes between schools. Tests of moderation effects suggested that parental emotional support appeared to be of particular relevance to 1G students' math and reading outcomes, while enhanced SES status appeared to be specifically relevant to improved science and reading outcomes for 1G students. Implications for policy and practice are discussed.

Keywords: Immigrant students, OECD PISA, Mathematics, Science, Reading, Achievement, multi-level modelling.

4. Gleeson, J., Cutler, B., Rickinson, M., Walsh, L., Ehrich, J., Cirkony, C., & Salisbury, M. (2023). School educators' engagement with research: an Australian Rasch validation study. *Educational Assessment, Evaluation and Accountability*, 35(2), 281–307. <https://doi.org/10.1007/s11092-023-09404-7>

Abstract: There are growing expectations in Australia and internationally that school educators will engage with and use research to improve their practice. In order to support educators to respond to such expectations, there is a need to be able to accurately assess the levels of educators' research engagement. At present, however, few psychometrically sound instruments are available. Drawing on two studies of Australian educators ($n = 1,311$) and utilising Rasch analysis, supported by

confirmatory factor analysis, this paper reports on the development of a brief eight-item scale that demonstrates validity and reliability and evidenced unidimensionality in the second study. The scale is intended as a quick, easy-to-use tool for educators to gain insights into their beliefs about the value of engaging with research, their actions around using research, and their confidence in finding, interpreting, and judging the quality of relevant research. Notwithstanding the need for further testing, this paper argues that the scale has the potential to be applicable to other educational contexts and to contribute to future research into educators' research engagement and its assessment. The scale can also provide school and education system leaders, as well as evaluators and researchers, with data regarding educators' research engagement over time, allowing for research use supports and resources to be better targeted.

Keywords: Rese4arch engagement, Research use, School educators, Scale development, Rasch analysis, Assessment.

EDUCATIONAL PSYCHOLOGY IN PRACTICE

1. Fletcher, M., Bond, C., & Qualter, P. (2023). User perspectives of robotic telepresence technology in schools: A systematic literature review. *Educational Psychology in Practice*, 1–18. <https://doi.org/10.1080/02667363.2022.2155932>

Abstract: There is a growth in the use of robotic telepresence technology, allowing users to remotely access an environment, to support the inclusion/attendance of school pupils experiencing physical/emotional difficulties in the UK. Educational psychologists (EPs) are likely to encounter robotic telepresence technology due to their role in supporting pupil inclusion. Despite the Department for Education exploring this technology as a form of alternative provision, there is a lack of research exploring perceptions around robotic telepresence technology. The current review explores perspectives of users. Database searches were conducted between July 2021 and September 2021, identifying studies published within the last ten years. Eleven papers met the inclusion criteria. The review identified four inductive themes: potential for robotic telepresence technology to promote inclusion; potential for robotic telepresence technology to facilitate engagement; technical design factors influencing utility; and acceptability of robotic telepresence technology to users. Findings are discussed alongside implications for educational psychologists/future research.

Keywords: Telepresence, robotic avatar, user perspectives, emotional based school avoidance, physical/emotional health, schools

2. Fleming, H., Paton, A., & Rowley, J. D. (2023). Exploring young people’s experiences of the Tree of Life narrative intervention through participatory research. *Educational Psychology in Practice*, 1–19. <https://doi.org/10.1080/02667363.2023.2167810>

Abstract: This small-scale, qualitative, participatory study explored a group of young people’s experiences of the Tree of Life narrative intervention and ways of conducting participatory research with this particular group. The research was carried out with five co-researchers (aged 12–13 years) who attend a specialist secondary school for students with autism/social communication needs and related social, emotional and mental health needs. Visual approaches were used to answer the research question: “What did we think of the Tree of Life group?” The data were analysed using an adaptation of thematic analysis and the findings included the following themes: friendship, knowledge, fun, and self-expression. The findings suggest implications for educational psychologists regarding the usefulness of the Tree of Life approach to improve friendships, group cohesion and foster self-reflection. The research also has implications for EPs as practitioner researchers in supporting the use of participatory approaches to promote the autonomy of young people.

Keywords: Educational psychology, Tree of Life, narrative, autism, young people’s participation, transformative research.

3. Mekonnen, A. M. (2023). Dyslexia assessment in Amharic. *Educational Psychology in Practice*, 1–24. <https://doi.org/10.1080/02667363.2023.2176827>

Abstract: This exploratory study aimed at developing a dyslexia assessment tool in the Amharic language and to collect initial reliability and validity data on the tool designed to identify dyslexia in Grade 3. The developed battery consists of 10 tests. Data were collected from 121 Amharic-speaking children, aged 9 -12 years. Evidence of construct validity was obtained through factor analyses. Results showed that letter-naming was the most significant predictor of word-level literacy (WLL) skills in Amharic, followed by word-reading measures. Factor analysis revealed four factors: phonological-naming and decoding, comprehension, verbal short-term memory, and orthographic processing. In Amharic, which uses an alpha syllabary writing system, letter-naming is not only a vital WLL skill but also serves as a necessary foundational prerequisite for the acquisition of other WLL skills. The findings substantiate the account that even if the underlying cognitive factor responsible for dyslexia is similar among humans, its manifestations vary across languages and orthographies.

Keywords: Dyslexia, Assessment-tool, orthography, Validation, Amharic

4. Morgan, R. (2023). How do adolescent autistic girls construct self-concept and social identity? A discourse analysis. *Educational Psychology in Practice*, 1–23. <https://doi.org/10.1080/02667363.2023.2181316>

Abstract: A recent UK study found that 28% of autistic children were diagnosed with autism after starting secondary school, a stage where self-concept and social identity are the main developmental tasks. This study uses Foucauldian Discourse Analysis to explore the discourses ten girls with a diagnosis of autism use in their constructions of self-concept and social identity in interviews and written journals. The actions that are made possible through the discourses employed are considered. Three discourses which participants draw upon are: a diagnostic discourse; an individualistic discourse; and a normativity discourse. These discourses were used to construct the self as a “legitimised autistic”, as “a person with support needs”, as “uniquely individual”, as a person “in the process of becoming” and as a “self in hiding from a hostile world”. Social identities based around constructs of “fitting in” and “sticking out” were identified. Implications for practice are suggested.

Keywords: Social identity, self-concept, autism, adolescent girls, discourse analysis

5. Purcell, R., & Kelly, C. (2023). A systematic literature review to explore pupils’ perspectives on key outcomes of the Emotional Literacy Support Assistant (ELSA) intervention. *Educational Psychology in Practice*, 1–16. <https://doi.org/10.1080/02667363.2023.2185208>

Abstract: The Emotional Literacy Support Assistant (ELSA) intervention aims to build capacity in schools and support the wellbeing of students. This systematic literature review (SLR) explores pupils’ perspectives of their outcomes from participating in ELSA and how those views were gathered. Twelve papers met the inclusion criteria; the majority explored other key stakeholders’ views alongside pupil perspectives and few studies focused explicitly on outcomes for pupils. Pupil data were analysed using thematic synthesis, producing four themes: communication skills; emotional understanding, management, and outcomes; relational and social skills; and positive school experiences. Students highlighted outcomes which the intervention intended to deliver, and additional skills. Examination of the approaches

taken to gain pupil perspectives identified semi-structured interviews as a frequent method, with standardised quantitative measures used in four of the 12 papers. The review highlighted areas to consider in relation to measures that capture progress within the ELSA intervention.

Keywords: ELSA, emotional literacy support assistant, intervention, pupil perspective, outcomes

6. Davies, E. N. (2023). Are children and young people with additional learning needs at a systemic disadvantage regarding Welsh language opportunities? *Educational Psychology in Practice*, 1–18. <https://doi.org/10.1080/02667363.2023.2186835>

Abstract: This paper explores whether children and young people (CYP) with additional learning needs (ALN) are at a systemic disadvantage regarding Welsh language opportunities. Justification pertaining to why this should be on the radar of educational psychologists (EPs) in Wales is provided. Congruent with critical realism, quantitative and qualitative research is reviewed, examining micro, eco and macrosystems. A systemic lens illuminates the context and process factors that CYP with ALN and their families may encounter regarding Welsh language opportunities. This paper is informed by the bioecological Person Process Context Time (PPCT) model, and the Constructionist Model of Informed and Reasoned Action (COMOIRA). Limitations demarcating interpretation of identified issues are highlighted, without negating their significance. Implications for EPs are offered, contemplating their role in facilitating inclusion through supporting the development of greater cohesion between Welsh Government (WG) legislation (macrosystem), and the systemic realities of CYP with ALN in Wales.

Keywords: Welsh language, additional learning needs, educational psychologists, systemic thinking, bilingualism, inclusion

7. Hattersley, E. (2023). “When I feel like I can make a difference, it’s amazing”: using IPA to explore primary school teachers’ experiences of children’s mental health in the United Kingdom. *Educational Psychology in Practice*, 1–17. <https://doi.org/10.1080/02667363.2023.2189691>

Abstract: UK government statistics illustrate that children’s mental health problems are rising. Schools are positioned as central to identifying and responding to children’s mental health problems, and teachers are seen to play a crucial role in fostering positive relationships, developing supportive environments, and implementing targeted interventions. This exploratory research considered how primary teachers in the UK conceptualise mental health, specifically children’s mental health, how they view and make sense of their role in relation to this, and approach working with children based on these understandings. Using Interpretative Phenomenological Analysis (IPA), semi-structured interviews were conducted with four primary school teachers. Four master themes were identified: environmental factors; relational approach; the impact of, and on, teachers; mental health as a personal and individual experience. The implications for teachers, schools and EPs are considered, with recommendations including developing support for teachers, creating relational primary school communities, and considering the “real-world” action EPs could take.

Keywords: Educational psychologist, mental health, mental health problems, teachers, schools, community

EUROPEAN JOURNAL OF TEACHER EDUCATION

1. Uibu, K., Salo, A., Ugaste, A., & Rasku-Puttonen, H. (2021). Observed teaching practices interpreted from the perspective of school-based teacher educators. *European Journal of Teacher Education*, 46(2), 203–221. <https://doi.org/10.1080/02619768.2021.1900110>

Abstract: A teacher supervising the school practice of student teachers is regarded as an expert who sets an example of good teaching to future teachers and chooses teaching practices that support pupils' cognitive and social development. This study examines the implementation of teaching practices and the interpretation of these practices by school-based teacher educators who supervise school practice of student teachers at universities' innovation schools. Teaching practices were examined using observation and video-stimulated recall interviews. The school-based teacher educators widely used and described in detail individual teaching practices that supported pupils' cognitive development. However, observations indicated a more limited use of collaborative teaching practices that promote pupils' social and cognitive development. Setting a good example of teaching gives school-based teacher educators the opportunity to develop both student teachers' and their own teaching competence.

Keywords: Teaching practices, school-based teacher educator SBTE, observation, stimulated recall interview.

2. Turhan, B., & Kırkgöz, Y. (2021). A critical and collaborative stance towards retrospective reflection in language teacher education. *European Journal of Teacher Education*, 46(2), 222–240. <https://doi.org/10.1080/02619768.2021.1917545>

Abstract: The focus of this paper is to investigate how teacher candidates reflect on their observations in practicum schools from a retrospective angle. First, ten English language teacher candidates, who were pairs during the practicum, wrote reflection reports considering the dynamics of a language classroom throughout a period of ten weeks. Those reports were scrutinised to reveal the criticality level of the participants' reflections. Second, the researchers conducted retrospective interviews on the reflection process with each pair twice, one in the middle of the semester and the other at the end of the semester. Third, critical incidents experienced by the participants during observations were elicited via snake interviews. All qualitative data were analysed using constant comparative analysis technique. Some slight changes in the participants' views on language teaching towards the end of observations were detected, although the participants could not reach a high level of criticality in their reflections.

Keywords: Critical reflection, collaborative reflection, language teachers

3. Spernes, K., & Afdal, H. W. (2021). Scientific methods assignments as a basis for developing a profession-oriented inquiry-based learning approach in teacher education. *European Journal of Teacher Education*, 1–15. <https://doi.org/10.1080/02619768.2021.1928628>

Abstract: Numerous studies emphasise the contribution of inquiry-based learning approaches to positive learning outcomes for students; however, in this study, we explore how a scientific methods assignment may qualify as a profession-oriented, inquiry-based learning approach in teacher education. The paper presents analysis of student teachers' reports on a scientific methods assignment completed during their fifth school placement. The student teachers were each required to conduct a focus group interview with a group of pupils. The overall aim of the assignment was to integrate aspects of inquiry-based learning and a profession-oriented approach. Our analysis demonstrates that the scientific methods assignment qualifies in some ways as a profession-oriented, inquiry-based learning assignment. However, several aspects of the assignment need to be improved and further developed to optimise its potential. The paper is concluded with some suggestions for further developments.

Keywords: Inquiry-based learning, knowledge resources, research- based teacher education, scientific methods assignment, undergraduate research and inquiry

4. Chávez, J., Niñoles, J. F., & Madrid, J. P. B. (2021). The construction of teachers' professional identity: An analysis of subjective learning experiences. *European Journal of Teacher Education*, 46(2), 256–273. <https://doi.org/10.1080/02619768.2021.1905627>

Abstract: This article explores the construction of teachers' professional identity through analysis of subjective learning experiences. In order to report on the progress of our work, we present a discourse analysis of three experiences considered to be of particular relevance by a final-year pedagogy student. The analysis yielded four important conclusions: i) The process of teachers' professional identity construction is based on comparing and contrasting different experiences and culminates in the construction of new identity positions; ii) this process must involve experiences that call into question existing meanings of self; iii) future teachers must engage in productive dialogue with other significant actors in order to identify and recognise the value of certain positional objects; and iv) certain subjective learning experiences have a greater impact on the reconstruction of identity positions. Finally, we propose an analysis model based on subjective learning experiences for the construction of teachers' professional identity.

Keywords: Teacher identity, subjective learning experiences, identity position, sociocultural perspective, teaching practicum

5. Boz, Y., & Cetin-Dindar, A. (2021). Teaching concerns, self-efficacy beliefs and constructivist learning environment of pre-service science teachers: a modelling study. *European Journal of Teacher Education*, 46(2), 274–292. <https://doi.org/10.1080/02619768.2021.1919079>

Abstract: The purpose of the study was to reveal the relationships among teaching concerns, their sense of efficacy and their preferences of a classroom environment of pre-service science teachers. Data were gathered from 623 pre-service science teachers. Based on the structural equation modelling results, the pre-service science teachers' sense of self-efficacy was negatively associated with their concerns. In addition, the pre-service science teachers' sense of efficacy was positively associated with the constructivist learning environment. Moreover, pre-service science teachers'

concerns were positively related to their constructivist learning environment. The findings shed light on pre-service teacher and teacher education experiences and outcomes.

Keywords: Pre-service science teachers, teaching concern, self-efficacy beliefs, constructivist learning environment

6. Lehane, P., Lysaght, Z., & O’Leary, M. (2021). A validity perspective on interviews as a selection mechanism for entry to initial teacher education programmes. *European Journal of Teacher Education*, 46(2), 293–307. <https://doi.org/10.1080/02619768.2021.1920920>

Abstract: Across the world, teacher quality has come to be recognised as one of the most important variables affecting student outcomes; consequently, the regulation of entry into the profession is the subject of iterative review. The traditional ‘one-off’ interview, involving an interviewee and two or more interviewers, is a common, but not unproblematic, selection mechanism in the field. In particular, the modest positive correlation between performance at interviews and in clinical settings raises questions about using interviews as a selection mechanism for Initial Teacher Education (ITE) programmes. In this paper, we draw on validity theory and some key commentaries and studies in the research literature to offer a perspective on the extent to which the traditional interview provides data that can be used to make good decisions about applicants for ITE. The paper proposes a validity-based framework for use by practitioners to enhance the conceptualisation, design and evaluation of interviews in the process of teacher selection.

Keywords: Teacher selection, interviews, teacher education policy, initial teacher education (ITE)

7. Aguilar-Mediavilla, E., Salvà-Mut, F., Imbernón, F., & Trobat, M. F. O. (2021). Influence of qualifications in initial training on the professional development and motivation of primary teachers in the Balearic Islands. *European Journal of Teacher Education*, 46(2), 308–330. <https://doi.org/10.1080/02619768.2021.1912005>

Abstract: This paper analyses, using a cross-sectional design, the relationship between academic qualifications during the initial training of primary school teachers and their professional development. Among all graduates of 13 promotions, from year 2004 to 2016, we selected the 15% of those students with the best qualifications and the 15% with the worst ones from each promotion. All participants answered the same questionnaire on employability, participation in induction programmes, participation in continuing education programmes, and professional motivation. Analyses performed included distribution analyses using chi-square and independent group comparisons with Student’s *t*-test. Participants with better grades showed higher employability rates, increased participation in initial education programmes, and more motivation towards their profession. Continuing education programmes were only slightly affected by initial grades. These results support academic positions in Spain that defend the need to apply measures to select those candidates with the best grades to become teachers.

Keywords: Teacher education, primary education, professional development, academic achievement, professional motivation

8. Gratacós, G., Mena, J., & Ciesielkiewicz, M. (2021). The complexity thinking approach: beginning teacher resilience and perceived self-efficacy as determining variables in the induction phase. *European Journal of Teacher Education*, 46(2), 331–348. <https://doi.org/10.1080/02619768.2021.1900113>

Abstract: Schools are learning spaces determined by the singularities of their students, their teachers and particular contexts. The ‘complexity thinking’ approach implies understanding that schools are complex systems determined by multiple factors and unpredictable circumstances. Teacher Resilience (TR) has been often linked to self-efficacy in dealing with such challenging scenarios, as it intercedes between the *complexities* of the contexts of practice and the *individuals’* actions. The aim of this study is to understand to what extent TR might help to increase self-perceived efficacy for beginning teachers. A total of 180 Spanish beginning teachers participated in this study. Findings reported a strong positive correlation between the two variables and statistically significant regression scores between the motivational and social dimensions of TR and self-efficacy. Therefore, TR could be a determining factor to enhance their adaptative skills to face challenging situations, leading to self-efficacy. Consequently, TR should be reconsidered in beginning teacher induction programmes.

Keywords: Teacher resilience, teacher self-efficacy, induction programmes, teacher education, beginning teachers.

GLOBALISATION, SOCIETIES AND EDUCATION

1. Vogopoulou, A., Sarakinioti, A., & Tsatsaroni, A. (2022). Quality assurance in Greek Higher Education and the imperative to use English. *Globalisation, Societies and Education*, 21(3), 307–321. <https://doi.org/10.1080/14767724.2022.2048797>

Abstract: This article examines how dominant discourses disseminated through quality assurance processes in Greek Higher Education (re)define academic work and language use in a globalised HE field. Drawing on Bernstein's theory of pedagogic discourse, we approach government-led external evaluations of university departments as official policy texts that encode the evaluative criteria of quality institutions and valorise specific forms of knowledge and conduct. Our analysis of empirical material derived from selected HE departments illustrates that performance measurement systems interlink English as a default language with mobility and research activity in a unified discourse of quality constructing a selective understanding of how Higher Education Institutions and academics are expected to attain international visibility.

Keywords: European higher education area, mobility, internationalisation, English language dominance, pedagogic discourse, academic practices and identities

2. Heng, K., Hamid, M. O., & Khan, A. (2022). Research engagement of academics in the Global South: the case of Cambodian academics. *Globalisation, Societies and Education*, 21(3), 322–337. <https://doi.org/10.1080/14767724.2022.2040355>

Abstract: Engagement in research is crucial for university academics to fulfil their tripartite roles related to teaching, research, and service. While there is a substantial literature that examines how academics perceive and engage in research, studies investigating research engagement of academics in the Global South remain limited. Employing a qualitative case study approach, this study examines Cambodian academics' research engagement. Data derived from interviews with 20 Cambodian academics from two universities show a low level of research engagement, much of which is in consultancy research. The academics' pervasive need to generate extra income through teaching and the absence of clear academic career paths at both national and institutional levels are major barriers to their research engagement. The findings of this study point to an underdeveloped and under-productive research environment, which potentially prevents Cambodia as a developing country from enhancing its competitiveness in the global knowledge economy and realising its aspirations to transform itself into a knowledge-based society.

Keywords: Research engagement, University academics, Global North, Global South, Cambodian higher education, Research and knowledge economy

3. Aparecido, J. K., & Schettini, D. (2022). Brazil's diplomacy and soft power attracting US universities' efforts in internationalisation through an in-country physical presence. *Globalisation, Societies and Education*, 21(3), 338–352. <https://doi.org/10.1080/14767724.2022.2027745>

Abstract: Through activities such as institutional partnerships, scholarships, mobility and, most recently, offshore campuses and satellite offices, universities and their

nations of origin have furthered their relationship with key-countries. This paper aims to understand what factors universities considered when choosing the host country of their satellite offices and possible interest in diplomacy. The exercise focused on the efforts of US universities in Brazil. It tested expressions of soft power versus internal elements of universities' administration to verify their significance. By checking the efforts of 131 US universities, this paper hints that non-academic elements, such as a country's foreign policy, were also statistically significant and must be taken into account when analysing universities' internationalisation strategies.

Keywords: Diplomacy, public diplomacy, soft power, internationalisation, higher education, satellite offices

4. Muhalim, M. (2022). Neoliberal ideology, faith-based higher education institutions, and English in Indonesia: negotiating English teachers' ideological formation. *Globalisation, Societies and Education*, 21(3), 353–366. <https://doi.org/10.1080/14767724.2022.2033614>

Abstract: This paper reviews the ongoing engagement of neoliberal ideology in Indonesian higher education institutions and in commodifying the global spread of English. With the growing number of faith-based higher education institutions in Indonesia, the neoliberal and English ideologies are contested and promulgated, creating ambivalent spaces. This complex entanglement of ideologies begs us to examine how they are appropriated by English teachers who are at the front line in translating the ideologies. In this respect, I argue that Bakhtin's construct of ideological becoming (Bakhtin, 1981. *The Dialogic Imagination*. Translated by Caryl Emerson and Michael Holquist. Austin, TX: University of Texas Press) has explanatory power that may help understand teachers' ideological formation.

Keywords: Neoliberalism, English education, faith-based higher education institutions, English teachers' ideology, ideological becoming

5. Bailey, L., Ledger, S., Thier, M., & Pitts, C. (2022). Global competence in PISA 2018: deconstruction of the measure. *Globalisation, Societies and Education*, 21(3), 367–376. <https://doi.org/10.1080/14767724.2022.2029693>

Abstract: Programme for International Student Assessment (PISA) results have become synonymous with quality benchmarking, determining standards and comparing performance among 15-year-old students in countries around the globe. Concern, however, exists with the utility and consequential validity of the newest measure to the suite of the OECD's PISA tests: its global competence measure. This study continues our examination of the global competence measure by deconstructing how the OECD frames it within the first global competence rankings, which are based on PISA 2018 data. Our study uses Derrida's technique of deconstructing texts to critique the five specific claims that the OECD used to underpin the importance of its measures in PISA- policy orientation, innovative concept of literacy, relevance to lifelong learning, regularity, and breadth of coverage. Our analysis exposes the measure's silences, unquestioned assumptions and inconsistencies. The aporia evident in the text is of concern for educational policy makers around the globe as it perpetuates global messaging that reinforces dominant discourses and continues to ignore contextual differences. We call for continued critique of the global competence

measure and recommend that hyperbole be replaced by contextualisation of any differences it might detect.

Keywords: Global competence, PISA, deconstruction, habitus, OECD

6. Kral, T. (2022). 'Eventually we'll all become Anglophones': a narrative inquiry into language-in-education policy in Rwanda. *Globalisation, Societies and Education*, 21(3), 377–391. <https://doi.org/10.1080/14767724.2022.2033613>

Abstract: This article recounts the lived experience of a Rwandan English teacher's journey from his village to international opportunities for scholarship and work, enabled by his agency in navigating the country's changing linguistic landscape. Using the narrative inquiry research method, the study uncovers an insider's perspective on Rwanda's switch from French to English-medium education and offers a unique participant-centred contribution to research on language-in-education policy. The respondent's story is interpreted through the intersecting conceptual themes of linguistic imperialism and cosmopolitanism, which emerge from the narrative. The decolonisation of English-medium education is envisioned through supportive, multilingual pedagogies and a rooted cosmopolitanism.

Keywords: Educational development, cosmopolitanism, decolonisation, English-medium instruction, language policy, Rwanda

7. Nishimura-Sahi, O. (2022). Assembling educational standards: following the actors of the CEFR-J project. *Globalisation, Societies and Education*, 21(3), 392–404. <https://doi.org/10.1080/14767724.2022.2037071>

Abstract: This study deploys Actor-Network Theory (ANT) to understand how educational standards take shape. To exemplify the inherently collective nature of standards and contingency in the process of standardisation, this study will present a case of the CEFR-J project launched by a group of Japanese university academics to modify the *Common European Framework of Reference for Languages* (CEFR) for English-language teaching and learning in Japan. Drawing on documentary materials and in-depth interviews, I will describe how the CEFR has become a standard for English-language teaching in Japan while various actors were brought together through the CEFR-J project.

Keywords: Standardisation, standards, Actor-Network Theory (ANT), policy transfer, CEFR, Japan

8. Gibson, M. T., & Bailey, L. (2022). Constructing international schools as postcolonial sites. *Globalisation, Societies and Education*, 21(3), 405–416. <https://doi.org/10.1080/14767724.2022.2045909>

Abstract: This paper explores the discursive construction of race in Malaysian international schools and its relationship with postcolonialism. In response to the expansion of international schooling, it analyses data from a study of international school leadership in Malaysia, a former colony, through a postcolonial lens. It draws on face-to-face interviews with twelve international school leaders, and discourse analysis of sample websites from Malaysian international schools. Malaysia is an

ethnocracy, with three distinct racial groups, and ethnicity affects many aspects of life, including education, and it is suggested that international schools offer no exception to this. The data indicate four emergent themes, these being constructions of: school identity; educational expertise; leadership; and Malaysia itself. The authors posit that international schools in Malaysia operate as postcolonial sites. Despite the origins of international schools lying within a movement committed to equality, these institutions are implicated in the construction and replication of racial divisions.

Keywords: Postcolonialism, international schools, Malaysian schooling, school leadership, race and education

9. Mukoro, J. (2022). Five narratives on the intersections between sexuality education and culture. *Globalisation, Societies and Education*, 21(3), 417–430. <https://doi.org/10.1080/14767724.2022.2027746>

Abstract: Culture is increasingly mentioned as an influence on sexuality education amongst scholars, policymakers, and sexuality education practitioners. Yet there are conflicting and sometimes unclear conceptualisations of how exactly culture affects sexuality education. Based on a systematic literature review of articles on culture and sexuality education in settings around the world, this article uncovers five narratives on how culture and sexuality education are commonly linked together. Discussing culture as a cliché, a source of conflict, an opportunity, its authority, and the politics of culture, this article highlights the multi-faceted nature of culture and its influence on sexuality education. It also outlines some implications of these narratives for scholarly work, policy and practical developments in the field of sexuality education.

Keywords: Sexuality education, culture, narratives, sexual politics

JOURNAL OF COUNSELING PSYCHOLOGY

1. Pieterse, A. L., Lewis, J. A., & Miller, M. J. (2023). Dismantling and eradicating anti-Blackness and systemic racism. *Journal of Counseling Psychology*, 70(3), 235–243. <https://doi.org/10.1037/cou0000660>

Abstract: Anti-Blackness and systemic racism are long-standing pressing social issues that have received increasing attention in the counseling psychology literature. However, the past few years have demonstrated what can only be described as an emboldening of anti-Blackness—the brutal individual and systemic threats of emotional and physical violence and loss of life that Black individuals and communities face on a daily basis—and a harsh reminder of the systemic racism that continues to threaten the well-being of Black, Indigenous, and People of Color. In this introduction for the special section on Dismantling and Eradicating Anti-Blackness and Systemic Racism, we provide readers an opportunity to pause and reflect on the ways in which those of us in the field can more intentionally seek to disrupt anti-Blackness and systemic racism. We believe that counseling psychology has an opportunity to increase its real-world relevance as an applied specialty area of psychology to the degree to which it evolves its ways of disrupting anti-Blackness and systemic racism in every content area and domain of the field. In this introduction, we review exemplars of work that helps the field re-envision its approaches to anti-Blackness and systemic racism. We also offer our perspectives on additional ways in which the field of counseling psychology can increase its relevance and real-world impact in 2023 and beyond.

2. Liu, W. M., Liu, R. Z., & Shin, R. Q. (2023). Understanding systemic racism: Anti-Blackness, white supremacy, racial capitalism, and the re/creation of white space and time. *Journal of Counseling Psychology*, 70(3), 244–257. <https://doi.org/10.1037/cou0000605>

Abstract: In this article, the authors explain systemic racism through a racial–spatial framework wherein anti-Blackness, white supremacy, and racial capitalism interlock to create and recreate white space and time. Through the creation of private property, institutional inequities become embedded and structured for the benefit of white people. The framework provides a way to conceptualize how our geographies are racialized and how time is often used against Black and non-Black people of Color. In contrast to white experiences of feeling “in-place” almost everywhere, Black and non-Black people of Color continually experience displacement and dispossession of both their place and their time. This racial–spatial onto-epistemology is derived from the knowledge and experiences of Black, Indigenous, Latinx, Asian, and other non-Black people of Color, and how they have learned through acculturation, racial trauma, and micro-aggressions to thrive in white spaces and contend with racism such as time-theft. The authors posit that through reclaiming space and time, Black and non-Black people of Color can imagine and practice possibilities that center their lived experiences and knowledge as well as elevate their communities. Recognizing the importance of reclaiming space and time, the authors encourage counseling psychology researchers, educators, and practitioners to consider their positionalities with respect to systemic racism and the advantages it confers to white people. Through the process of creating counterspaces and using counterstorytelling,

practitioners may help clients develop healing and nurturing ecologies that challenge the perniciousness of systemic racism.

3. Yi, J., Neville, H. A., Todd, N. R., & Mekawi, Y. (2023). Ignoring race and denying racism: A meta-analysis of the associations between colorblind racial ideology, anti-Blackness, and other variables antithetical to racial justice. *Journal of Counseling Psychology, 70*(3), 258–275. <https://doi.org/10.1037/cou0000618>

Abstract: One critical role counseling psychologists can play in dismantling anti-Blackness and eradicating systemic racism is to build on the field's strength in understanding individual-level processes (i.e., systems are created and maintained by individual actors). Drawing on antiracism scholarship, we aimed to better understand how colorblind racial ideology (CBRI), or the denial and minimization of race and racism, may serve as a barrier to engaging in antiracist praxis. Specifically, we conducted a meta-analysis to determine if color evasion (ignoring race) and power evasion (denying structural racism) CBRI were differentially associated with anti-Blackness and processes linked to antiracism. Findings based on 375 effects drawn from 83 studies with more than 25,000 individuals suggest different effects based on CBRI type. As hypothesized, we found that power evasion CBRI was related to increased endorsement of anti-Black prejudice ($r = .33$) and legitimizing ideologies ($r = .24$), and negatively associated with a range of other variables associated with antiracism, including social justice behaviors ($r = -.31$), multicultural practice competencies ($r = -.16$), diversity openness ($r = -.28$), and racial/ethnocultural empathy ($r = -.35$). Consistent with theory, color evasion CBRI was related to increased diversity openness ($r = .12$). We discuss limitations of our study, as well as outline future directions for research and practice to focus on the role of CBRI in sustaining and perpetuating anti-Blackness and systemic racism. Thus, this meta-analysis has implications for pushing the field of counseling psychology to build the bridge between individual ideologies and creating structural change.

4. McNeil-Young, V. A., Mosley, D. V., Bellamy, P., Lewis, A., & Hernandez, C. (2023). Storying survival: An approach to radical healing for the Black community. *Journal of Counseling Psychology, 70*(3), 276–292. <https://doi.org/10.1037/cou0000635>

Abstract: Anti-Black racism (ABR) contributes to racial trauma and to the disproportionate negative mental, physical, and social outcomes faced by Black populations (Hargons et al., 2017; Wun, 2016a). The previous literature demonstrates that storytelling and other narrative interventions are often used to promote collective healing among Black people (Banks-Wallace, 2002; Moors, 2019). Storying survival (i.e., the utilization of stories to promote liberation from racial trauma) is one such narrative intervention (Mosley et al., 2021); however, little is known about the processes by which Black people utilize storying survival to promote radical healing. Using an intersectional framework and thematic analysis from a phenomenological perspective (Braun & Clarke, 2006), the present study analyzed interviews from 12 racial justice activists in order to understand how these activists engage in storying survival to foster Black survival and healing. Results show that storying survival includes five interconnected components: storying influences, mechanisms of storying survival, content of storying survival, context of storying survival, and impact of storying survival. Each of these categories and subcategories are detailed herein and are supported with quotations. The findings and related discussion explore the concept

of storying survival and its contributions to critical consciousness, radical hope, strength and resistance, cultural self-knowledge, and collectivism among participants and their communities. This study therefore provides important and practical information about how Black people and the counseling psychologists who aim to serve them can utilize storying survival to resist and heal from ABR.

5. McGraw, J. S., Skidmore, S. J., Lefevor, G. T., Docherty, M., & Mahoney, A. (2023). Affirming and nonaffirming religious beliefs predicting depression and suicide risk among Latter-Day Saint sexual minorities. *Journal of Counseling Psychology, 70*(3), 293–306. <https://doi.org/10.1037/cou0000659>

Abstract: Sexual minorities (SMs) who are current/former members of the Church of Jesus Christ of Latter-day Saints (LDSs) report high levels of depression and risk for suicide. Recent research has suggested that specific LDS religious beliefs may be related to these negative mental health outcomes. Using two independent online samples of current/former LDS SMs (Sample 1 = 403; Sample 2 = 545), we tested associations of affirming/nonaffirming LDS beliefs with depression and suicide risk cross-sectionally (Sample 1), and then longitudinally (Sample 2) tested if religious/spiritual struggles and internalized stigma mediated these relationships. Cross-sectionally, nonaffirming LDS beliefs were associated with higher depression, but effects disappeared when religious/spiritual struggles and internalized stigma were entered in the model. Affirming LDS beliefs were unrelated to depression and suicide risk. Longitudinally, after including earlier levels of internalized stigma, religious/spiritual struggles, depression, and suicide risk as controls, nonaffirming beliefs indirectly predicted more depression 2 months later (Time 3) through internalized stigma at 1 month (Time 2). These results suggest LDS beliefs may play an important role in the development and experience of depression for LDS sexual minorities.

6. Escudero, V., Friedlander, M. L., Kivlighan, D. M., Abascal, A., & Orlowski, E. (2023). Family therapy for maltreated youth: Can a strengthening therapeutic alliance empower change? *Journal of Counseling Psychology, 70*(3), 307–313. <https://doi.org/10.1037/cou0000574>

Abstract: We tested the process of change in Alliance Empowerment Family Therapy (AEFT; Escudero, 2013), a systemic, team-based approach for treating child welfare involved families. Since building and balancing strong personal and within-family therapeutic alliances are crucial for motivating and sustaining change in these multistressed, overburdened families, we assessed alliance perceptions over time in relation to two indices of therapy outcome, youth functioning, and family-specific goal attainment. Specifically, we administered the self-report version of the System for Observing Family Therapy Alliances (Friedlander et al., 2006) following Sessions 3, 6, and 9 to 156 Spanish families seen by 20 therapists in six agencies whose mission is to serve child welfare referred maltreated youth. Results showed that AEFT delivered in $M = 11.04$ sessions ($SD = 3.29$) was effective in attaining family-specific goals and improving child functioning, $d = 1.16$, as rated by the therapist team in coordination with the referring caseworker. A unique aspect of the study was the modeling, at each time point, of the shared therapeutic system alliance, a latent variable consisting of the therapist's rating of the alliance as well as the alliance ratings of the youth and primary caregiver. As we hypothesized, shared alliance

perceptions strengthened with time and positively predicted posttreatment outcomes. Moreover, a comparison of linear growth models with and without the therapist's perspective showed that inclusion of the therapist ratings in the shared alliance variables improved the predictability of child and family outcomes.

7. Frazier, P. A., Liu, Y., Selvey, A., Meredith, L., & Nguyen-Feng, V. N. (2023). Randomized controlled trials assessing efficacy of brief web-based stress management interventions for college students during the COVID pandemic. *Journal of Counseling Psychology, 70*(3), 314–324. <https://doi.org/10.1037/cou0000652>

Abstract: The purpose of this study was to evaluate the efficacy of brief, self-guided web-based interventions for decreasing distress among U.S. college students during the pandemic. Three randomized controlled trials were conducted during the spring (Study 1), summer (Study 2), and fall (Study 3) 2020 terms, and were combined into one sample to increase power ($N = 775$). We evaluated a web-based intervention that focused on increasing present control that had been shown to be effective in several studies prior to the pandemic (e.g., Nguyen-Feng et al., 2017). This intervention was compared to an active comparison condition (psychoeducation about and reminders to engage in Centers for Disease Control and Prevention (CDC)-recommended stress management techniques) in Study 1, to a waitlist comparison in Study 2, and to both comparison conditions in Study 3. Participants were undergraduate psychology students at two campuses of a midwestern state university system. Outcomes—perceived stress (primary); depression, anxiety, and stress symptoms (secondary); and boredom (tertiary)—were assessed at pretest and posttest (and 3-week follow-up in Study 3). Differences across conditions were significant for perceived stress, stress symptoms, and boredom (but not depression or anxiety). Contrary to hypotheses, the Present Control and CDC stress management interventions were equally effective. Both were more effective than no intervention (between-group $ds = -0.27$ and -0.42). Both interventions were more effective for students with higher baseline stress levels. Completion and adherence rates were high for both conditions. Results suggest that very brief, self-guided stress management interventions can be effective in reducing stress among college students.

JOURNAL OF CROSS-CULTURAL PSYCHOLOGY

1. Kryś, K., Yeung, J. C., Haas, B. W., Van Osch, Y., Kosiarczyk, A., Kocimska-Zych, A., Torres, C., Selim, H. A., Zelenski, J. M., Bond, M. H., Park, J., Lun, V. M., Maricchiolo, F., Vaclair, C., Šolcová, I. P., Sirlopú, D., Xing, C., Vignoles, V. L., Van Tilburg, W. A., . . . Uchida, Y. (2023). Family First: evidence of consistency and variation in the value of family versus personal happiness across 49 different cultures. *Journal of Cross-Cultural Psychology*, 54(3), 323–339. <https://doi.org/10.1177/00220221221134711>

Abstract: People care about their own well-being and about the well-being of their families. It is currently, however, unknown how much people tend to value their own versus their family’s well-being. A recent study documented that people value family happiness over personal happiness across four cultures. In this study, we sought to replicate this finding across a larger sample size ($N = 12,819$) and a greater number of countries ($N = 49$). We found that the strength of the idealization of family over personal happiness preference was small (average Cohen’s d s = .20, range $-.02$ to .48), but present in 98% of the studied countries, with statistical significance in 73% to 75%, and variance across countries $<2\%$. We also found that the size of this effect did vary somewhat across cultural contexts. In Latin American cultures highest on relational mobility, the idealization of family over personal happiness was very small (average Cohen’s d s for Latin America = .15 and .18), while in Confucian Asia cultures lowest on relational mobility, this effect was closer to medium (d s $> .40$ and .30). Importantly, we did not find strong support for traditional theories in cross-cultural psychology that associate collectivism with greater prioritization of the family versus the individual; country-level individualism–collectivism was not associated with variation in the idealization of family versus individual happiness. Our findings indicate that no matter how much various populists abuse the argument of “protecting family life” to disrupt emancipation, family happiness seems to be a pan-culturally phenomenon. Family well-being is a key ingredient of social fabric across the world, and should be acknowledged by psychology and well-being researchers and by progressive movements too.

2. Bakir-Demir, T., Reese, E., Sahin-Acar, B., & Taumoepeau, M. (2022). How I Remember My Mother’s Story: A Cross-National Investigation of vicarious family Stories in Turkey and New Zealand. *Journal of Cross-Cultural Psychology*, 0022022122113283. <https://doi.org/10.1177/00220221221132833>

Abstract: Stories that have not been personally experienced by children and are only told by their parents are called *vicarious family stories*. An emerging body of literature has shown that vicarious family stories are an important part of children’s narrative ecology. However, to date, only two studies from the same cross-cultural project have examined the role of culture in vicarious family stories. The aims of this study were to examine vicarious mother stories in Turkey and New Zealand (NZ) and to investigate individual variations in national groups with regard to the internalization of cultural orientations (i.e., self-construals). There were 108 Turkish and 79 NZ women in this study. We found that Turkish women’s stories were more thematically coherent and included more social interactions and other-related words than NZ women’s. When reporting reasons for why they thought family members told stories, didactic purposes and expressing emotions were more common reasons for

Turkish women, whereas sharing family history and entertainment were more common reasons for NZ women. However, Turkish and NZ women's vicarious stories were similar in terms of identity connections and affective tone. Unexpectedly, we did not find a significant role of individuals' self-construals in the link between national groups and vicarious stories. This study contributes to the growing area of research on family narratives by showing the commonalities and differences in the construction of vicarious stories across national groups.

3. Günsoy, C., Cross, S. E., Castillo, V. A., Uskul, A. K., Wasti, S. A., Salter, P. S., Gul, P., Carter-Sowell, A. R., Yegin, A., Altunsu, B., Crist, J. D., & Perez, M. J. (2022). Goal derailment and goal persistence in response to honor threats. *Journal of Cross-Cultural Psychology*, 54(3), 365–384. <https://doi.org/10.1177/00220221221137749>

Abstract: In honor cultures, maintaining a positive moral reputation (e.g., being known as an honest person) is highly important, whereas in dignity cultures, self-respect (e.g., competence and success) is strongly emphasized. Depending on their cultural background, people respond differently to threats to these two dimensions of honor. In two studies, we examined the effects of morality-focused and competence-focused threats on people's goal pursuit in two honor cultures (Turkey, Southern United States, and Latinx) and in a dignity culture (Northern United States). In Study 1, Turkish participants were more likely to reject a highly qualified person as a partner in a future task if that person threatened their morality (vs. no-threat), even though this meant letting go of the goal of winning an award. Participants from the U.S. honor and dignity groups, however, were equally likely to choose the people who gave them threatening and neutral feedback. In Study 2, Turkish and U.S. honor participants were more likely to persist in a subsequent goal after receiving a morality threat (vs. no-threat), whereas U.S. dignity participants were more likely to persist in a subsequent goal after receiving a competence threat (vs. no-threat). These results show that people's responses to honor threats are influenced by the dominant values of their culture and by the tools that are available to them to potentially restore their reputation (e.g., punishing the offender vs. working hard on a different task). This research can have implications for multicultural contexts in which people can have conflicting goals such as diverse work environments.

4. Tummala-Narra, P., Gonzalez, L. D., & Nguyen, M. N. (2022). Experience of sexual violence among women of Mexican heritage raised in the United States. *Journal of Cross-Cultural Psychology*, 54(3), 385–406. <https://doi.org/10.1177/00220221221142867>

Abstract: Sexual violence against women is a significant public health crisis that is understudied among Mexican American communities. Yet, there has been little attention directed to sociocultural factors that shape conceptualizations of and responses to sexual violence among Mexican American women. Guided by an integrative contextual framework, this qualitative study aimed to expand knowledge of how second generation Mexican American women conceptualize, experience, and respond to sexual violence. Semistructured interviews focused on conceptualizations of sexual violence, socialization concerning gender, sex, and sexual violence, experiences, and impact of sexual violence, coping, and help-seeking were conducted with 16 women between 20 and 38 years of age ($M = 27.13$). The interview data, analyzed using qualitative conventional content analysis, revealed four broad

domains: (a) implicit and explicit messages about sexuality and sexual violence, (b) psychological consequences of sexual violence, (c) barriers to disclosing violence and seeking help, and (d) sources of resilience and healing. Findings indicated that conceptualizations of sexual violence and coping were influenced by complex interactions among several sociocultural contexts, including families, religious and ethnic communities, and the mainstream U.S. context.

5. Collings, P., Ready, E., & Medina-Ramírez, O. M. (2023). An ethnographic model of stress and stress management in two Canadian Inuit communities. *Journal of Cross-Cultural Psychology*, 54(3), 407–428. <https://doi.org/10.1177/00220221231155105>

Abstract: As part of the first stage of a community-based participatory research project with two communities in the Canadian Arctic—Kangiqsujuaq, Nunavik, and Ulukhaktok, Northwest Territories—we conducted 57 interviews eliciting residents’ perceptions of pressing issues facing their communities, problems affecting health and wellbeing, and how researchers or other organized groups could help alleviate those problems. A recurrent theme that emerged during these interviews was having “no one to talk to.” Here, we focus on understanding why communication was a central theme using a grounded-theory approach to develop a model of Inuit stress management. Inuit in both Kangiqsujuaq and Ulukhaktok codify stress as *isumaaluttuq*, or excess worry, which often manifests physically and leads to social withdrawal. Because stress is believed to accumulate in the body, managing it involves decisions about whether to “Get It Out” or “Keep It In.” Keep It In is a potentially dangerous strategy because, if the problem does not resolve itself, accumulated stress may have harmful consequences. Inuit viewed talking to others as the most effective means to Get It Out, but respondents also identified numerous barriers to doing so. One important reason for this is that stress is transferable: Talking to others about a problem potentially increases the burden of stress on them. Consequently, Inuit may choose to Keep It In to avoid the potential negative consequences (for others or for oneself) of sharing bad thoughts. Based on this preliminary model, we consider questions for further inquiry and implications for community-based mental health programming in Inuit communities.

JOURNAL OF SCHOOL PSYCHOLOGY

1. Sabnis, S., Tanaka, M. L., Beard, K., & Proctor, S. L. (2023). Women of color and the hidden curriculum of school psychology doctoral programs. *Journal of School Psychology, 98*, 1–15. <https://doi.org/10.1016/j.jsp.2023.02.004>

Abstract: Doctoral training programs educate future practitioners, scholars, and researchers. They therefore are an important site of inquiry for critical school psychologists interested in interrogating and confronting the inequities that exist within the field. We conducted four focus groups with 15 Black, Indigenous, and Women of Color (BIWOC) students in various APA-accredited school psychology Ph.D. programs to understand how they experienced their programs. We argue that the programs delivered a hidden curriculum to the participants through various socializing, vicarious, and disciplinary events, in addition to the official curriculum delivered to all students. Data analysis indicated that the hidden curriculum was delivered in four settings and consisted of six lessons, including (a) you do not belong here, (b) you cannot be trusted, (c) you are on your own, (d) you are not safe here, (e) you are a token, and (f) you will only get performative allyship from us. We discuss each of these lessons and contemplate on ways in which programs and faculty can combat their deleterious impact on the students.

2. Chen, M., Pustejovsky, J. E., Klingbeil, D. A., & Van Norman, E. R. (2023b). Between-case standardized mean differences: Flexible methods for single-case designs. *Journal of School Psychology, 98*, 16–38. <https://doi.org/10.1016/j.jsp.2023.02.002>

Abstract: Single-case designs (SCDs) are a class of research methods for evaluating the effects of academic and behavioral interventions in educational and clinical settings. Although visual analysis is typically the first and main method for analysis of data from SCDs, quantitative methods are useful for synthesizing results and drawing systematic generalizations across bodies of single-case research. Researchers who are interested in synthesizing findings across SCDs and between-group designs might consider using the between-case standardized mean difference (BC-SMD) effect size, which aims to put results from both types of studies into a common metric. Currently available BC-SMD methods are limited to treatment reversal designs with replication across participants and across-participant multiple baseline designs, yet more complex designs are sometimes used in practice. In this study, we extend available BC-SMD methods to several variations of the multiple baseline design, including the replicated multiple baseline across behaviors or settings, the clustered multiple baseline design, and the multivariate multiple baseline across participants. For each variation, we describe methods for estimating BC-SMD effect sizes and illustrate our proposed approach by re-analyzing data from a published SCD study.

3. Robson, D. A., Johnstone, S. J., Putwain, D. W., & Howard, S. W. (2023). Test anxiety in primary school children: A 20-year systematic review and meta-analysis. *Journal of School Psychology, 98*, 39–60. <https://doi.org/10.1016/j.jsp.2023.02.003>

Abstract: This study sought to systematically review the full body of research on test anxiety in primary (elementary) school children aged 5–12 years. A comprehensive electronic and manual literature search identified 76 studies (85 independent samples; $N = 53,617$ children) that satisfied inclusion criteria. Inverse-variance

weighted random effects meta-analysis showed that test anxiety related negatively to academic achievement in Mathematics ($r = 0.21$) and Literacy ($r = -0.20$), academic self-concept ($r = -0.41$), and self-efficacy ($r = -0.39$), and related positively to general anxiety ($r = 0.62$), social anxiety ($r = 0.57$), and depression ($r = 0.45$). Test anxiety was higher among girls than boys ($d = 0.21$) and in Asian samples compared to European and North American samples. There was some evidence of publication bias and heterogeneity across meta-analyses. Random effects meta-regression models further showed that the association between test anxiety and mathematics achievement was stronger among older children compared to younger children, and that gender differences in test anxiety scores were more prevalent in North American samples compared to Asian samples. Intervention studies targeting anxiety reduction have been successful in reducing test anxiety and improving test anxiety-related outcomes. Overall, findings from this systematic review and meta-analysis provide evidence that test anxiety varies in magnitude across populations and relates to multiple educational and psychosocial outcomes. We recommend further experimental studies that target the reduction of test anxiety among primary school children.

4. Smith, L. H., Bottiani, J. H., Kush, J. M., & Bradshaw, C. P. (2023). The discipline gap in context: The role of school racial and ethnic diversity and within school positionality on out-of-school suspensions. *Journal of School Psychology, 98*, 61–77. <https://doi.org/10.1016/j.jsp.2023.02.006>

Abstract: Disparities in exclusionary discipline practices are well-documented; however, variation in Black students' disciplinary experiences across different racial and ethnic school compositions remains understudied. Utilizing a state-wide dataset ($N = 769,050$ students in $J = 1296$ schools), we examined student- and school-level factors that contribute to suspensions for Black students across schools with varying racial and ethnic diversity. Consistent with prior research, we found that Black students were disproportionately suspended more often, for more days, and more likely for soft offenses. We also found that students in majority Black schools (i.e., those where $>50\%$ of the students were Black) had the highest unadjusted rates of suspension. However, when controlling for multiple other student- and school-level characteristics, including overall suspension rates, we found that Black students attending majority White schools had a higher adjusted risk of suspension than in majority Black or heterogenous diverse schools, suggesting higher rates of differential treatment in White majority schools. We discuss the implications of these results and the role school psychologists play in supporting professional development, training, and data-based decision making to reduce disproportionality.

5. Li, Y., Kendziora, K., Berg, J., Greenberg, M. T., & Domitrovich, C. E. (2023). Impact of a schoolwide social and emotional learning implementation model on student outcomes: The importance of social-emotional leadership. *Journal of School Psychology, 98*, 78–95. <https://doi.org/10.1016/j.jsp.2023.01.006>

Abstract: The present study examined the impact of the CASEL *School Guide*, an innovative model of implementation support for systemic SEL, on the social, emotional, and academic development of elementary grade students in schools implementing the evidence-based PATHS® Program. The study tested a 2-year intervention model in a cluster randomized design with 28 low-performing, urban,

high-poverty elementary schools. We expected that the *School Guide* model of support would promote greater fidelity of PATHS implementation by teachers and improvement in students' social-emotional, behavioral, and academic outcomes compared to schools delivering PATHS with the standard model of support. We examined whether staff perceptions of administrative social-emotional leadership at baseline had a direct effect on outcomes and moderated the effect of the *School Guide*. The analytic approach included 3-level growth curve models and hierarchical linear modeling. A consistent 3-way interaction of time, condition, and baseline leadership level emerged for most outcomes. Specifically, students in schools with low levels of social-emotional leadership at the beginning of the study were more likely to be rated as gaining social-emotional competence and attentional skills over time if the school was receiving the *School Guide* model of support compared to the standard support for PATHS. A similar pattern was true for teacher ratings of aggression, which decreased over time at a more rapid rate for students in *School Guide* schools where the administration had lower baseline levels of social-emotional leadership. PATHS implementation was similar regardless of support condition so other mechanisms must be driving the improvements in student outcomes. Implications for practice and research are discussed.

6. Chan, R. C. H., & Suen, Y. T. (2023). Effects of identity disclosure on school victimization and long-term educational outcomes among lesbian, gay, bisexual, transgender, and intersex students in China. *Journal of School Psychology, 98*, 96–112. <https://doi.org/10.1016/j.jsp.2023.02.005>

Abstract: This study examined identity disclosure among lesbian, gay, bisexual, transgender, and intersex (LGBTI) students in China and investigated the effects of coming out on school victimization as well as current academic performance and long-term educational outcomes. The study drew on a national sample of 9260 Chinese LGBTI students (age range = 12–42 years) and 9668 LGBTI individuals who were not in education (age range = 14–85 years). The results showed that LGBTI students were more likely to come out to their fellow students (61.4%) than to their teachers (42.4%). Approximately 40.2% of LGBTI students reported having encountered victimization in school, and they also were more likely to report school dropout and lower levels of educational attainment than those who did not experience school victimization. Transgender and gender nonconforming students and intersex students were particularly vulnerable to the experiences and adverse effects of school victimization. In addition, the findings indicated that although students who came out in school were more likely to experience school victimization, identity disclosure was related to better long-term educational outcomes. This study is one of the first to document the identity disclosure, victimization experiences, and school outcomes of LGBTI students in China. The results show that identity concealment may bring short-term benefits by protecting LGBTI students from school victimization but may be harmful to them in the longer run. To foster a supportive climate and a safe school environment, it is important to enact sexual and gender diversity education, inclusive school policies, and teacher training programs at different levels of schooling.

7. Krammer, I., Schrank, B., Pollak, I., Stiehl, K., Nater, U. M., & Woodcock, K. (2023). Early adolescents' perspectives on factors that facilitate and hinder friendship development with peers at the time of school transition. *Journal of School Psychology, 98*, 113–132. <https://doi.org/10.1016/j.jsp.2023.03.001>

Abstract: Supportive peer relationships are fundamental for mental health and well-being. Hence, peers and friends are a valuable resource, especially at the time of transition from primary to secondary school. Yet, current literature lacks both novel approaches to studying friendship development and how to involve early adolescents in research that is being conducted about them. Within the present study we used novel participatory research methods involving early adolescents who were active in the analysis of their own generated data. We aimed to better understand their perspectives on factors that facilitate and hinder friendship development with peers during the time of school transition between primary and secondary schools. A total of 916 pupils ($M_{age} = 10.44$ years, range = 9–16) participated in 54 participatory workshops that were conducted in Austria. We used reflexive thematic analysis to analyze qualitative data from portions of a large series of participatory workshop activities. Moreover, we actively involved participants in the analysis of their own generated data. Themes were structured into personal, interpersonal, and external factors. We found that early adolescents valued kind peers that (a) give them a feeling of safety, (b) show supportive and empathic actions, (c) manage conflicts, (d) avoid negative behavior, (e) spend time with them, and (f) communicate in the offline and online environments. Although shared norms of behavior can support friendship development, friendship jealousy and tolerating bigger friendship groups were identified as important potential barriers. Additionally, external factors (i.e., given circumstances), such as similarities, physical proximity, and duration of acquaintance were included in our data but were perceived as less important by early adolescents. Our results supplement the existing peer relationship literature by showing which factors early adolescents themselves chose as most relevant for friendship development. We conclude with a discussion regarding the implications for school psychology practice and future research.

8. Lee, K., McMorris, B. J., Chi, C., Looman, W. S., Burns, M. K., & Delaney, C. W. (2023). Using data-driven analytics and ecological systems theory to identify risk and protective factors for school absenteeism among secondary students. *Journal of School Psychology, 98*, 148–180. <https://doi.org/10.1016/j.jsp.2023.03.002>

Abstract: Chronic absenteeism is an administrative term defining extreme failure for students to be present at school, which can have devastating long-term impacts on students. Although numerous prior studies have investigated associated variables and interventions, there are few studies that utilize both theory-driven and data-informed approaches to investigate absenteeism. The current study applied data-driven machine learning techniques, grounded in “The Kids and Teens at School” (KiTeS) theoretical framework, to student-level data ($N = 121,005$) to identify risk and protective variables that are highly associated with school absences. A total of 18 risk and protective variables were identified; all 18 variables were characteristics of the microsystem or mesosystem, emphasizing school absences' proximity to variables within inner ecological systems rather than the exosystem or macrosystem. Implications for future studies and health infrastructure are discussed.

9. Ștefan, C. A., Dănilă, I., & Cristescu, D. (2023). Assessing the effectiveness and the mechanisms of the Social-Emotional Prevention Program for Preschoolers: Findings from a universal school-based intervention. *Journal of School Psychology, 98*, 206–223. <https://doi.org/10.1016/j.jsp.2023.04.005>

Abstract: The Social-Emotional Prevention Program (SEP) encompasses a multifaceted approach (classroom curriculum, with teacher and parent training) intended to increase preschool children's social adjustment, as well as to reduce risk of emotional and behavioral problems. The present study's focus was on implementing the technology-assisted SEP version and was aimed at (a) investigating the program's effectiveness on children's social-emotional competencies and parental practices, as well as (b) testing the program's conceptual framework, with an emphasis on children's emotion regulation (ER) skills and parental emotion socialization practices as explanatory intervention mechanisms. A randomized-controlled trial (RCT) was conducted with five schools assigned to either the intervention or to a comparison condition (wait-list control). Structural equation models (SEM) and complier average causal effects (CACE) were conducted to evaluate SEP effectiveness on teacher- and parent-rated child outcomes (primary outcomes) and parenting behaviors (secondary outcomes). Findings from the present study indicated that (a) SEP fosters increased social-emotional competencies and increased use of adaptive ER strategies, with teacher and parent ratings converging to support these outcomes; (b) parental participation in the program increased the use of reappraisal and emotion coaching strategies; and (c) children's ER mediated the intervention's effect on social competence, whereas parental coaching and parental ER mediated SEP effects on children's ER. This study's findings suggest that the SEP may be an effective universal intervention for promoting preschoolers' social-emotional competence and may provide emerging evidence to support the program's hypothesized mechanisms of change.

10. Rudasill, K. M., McGinnis, C. M., Cheng, S., Cormier, D. R., & Koziol, N. A. (2023). White privilege and teacher perceptions of teacher-child relationship quality. *Journal of School Psychology, 98*, 224–239. <https://doi.org/10.1016/j.jsp.2023.04.002>

Abstract: In this study, we investigated differences in teachers' perceptions of the teacher-child relationship from kindergarten through second grade as a function of child race and gender from the perspective of critical race theory and the cultural synchrony hypothesis. Given the extensive evidence of White privilege and anti-Black racism in the US education system, we expected that teachers, particularly White teachers, would perceive their relationships with White children more positively than with Black children. Controlling for family SES and child gender, results supported this hypothesis. Black boys had the highest risk of being perceived by teachers as having poor relationships with teachers in kindergarten (highest conflict and lowest closeness) and White girls had the lowest risk. In addition, teachers perceived relationships with Black boys as increasing in conflict across first and second grades at higher rates than with White and female children. These findings remained after examining teacher-child racial match as a moderator. Our results indicate that racism and sexism work together to explain the perceptions teachers have of children in the early elementary grades. Implications for training teachers and school psychologists on anti-racism and cultural competency are discussed.

11. Hall, G. J., & Clark, K. N. (2023). Demystifying longitudinal data analyses using structural equation models in school psychology. *Journal of School Psychology, 98*, 181–205. <https://doi.org/10.1016/j.jsp.2023.03.003>

Abstract: Structural equation models (SEM) are a method of latent variable analysis that offer a high degree of flexibility in terms of modeling methods for applied research questions. Recent advancements associated with longitudinal SEM have unlocked innovative ways to decompose variance and to estimate mean trends over time (e.g., Allison et al., 2017; Berry & Willoughby, 2017; Hamaker et al., 2015; McArdle & Nesselroade, 2014). However, these longitudinal methods are not necessarily readily accessible to scholars seeking to advance theory and practice in school psychology. Importantly, not all longitudinal data are the same and not all longitudinal SEMs are the same; thus, analytic approaches must be appropriately matched to specific research aims to meaningfully inform school psychology theory and practice. The present article highlights recent advances in longitudinal SEMs, clarifies their similarities to other—perhaps more familiar—methods, and matches their applications to specific types of research questions. The intent of this work is to promote careful thinking about the correspondence between estimands, developmental theory, and practical applications to foster specificity in testing quantitative questions in school psychology research and advance a more rigorous evaluation of longitudinal trends relevant to research and practice in the field.

PHYSICS EDUCATION

1. Saputra, H., Suhandi, A., Setiawan, A. R., Permanasari, A., & Firmansyah, J. (2023). Online physics practicum supported by wireless sensor network. *Physics Education*, 58(3), 035001. <https://doi.org/10.1088/1361-6552/acb5dc>

Abstract: This study proposes an online practicum model supported by Wireless Sensor Network (WSN) to implement a physics practicum after the Covid 19 Pandemic. This system is guided by exploratory inquiry questions to help structure students' mindsets in answering investigative questions. Online practicum is also integrated with video conferencing, chat, evaluation system, and lab inquiry stages. The sensor measurement process is carried out directly via live streaming video, where the sensor measurement results are sent in real-time to the website via an internet connection. This study was conducted on 25 students (10 male and 15 female) who were prospective physics teachers. This study used a pre-experimental method with a one-group pretest and post-test design. The study results show that the online practicum model supported by WSN can effectively increase the inquiry skill of prospective physics teacher students. Usability test results obtained an average score of SUS 91.63, which means the practicum system can be categorized as having a user acceptance level of Excellent.

2. Isik, H. (2023). Comparing the images formed by uses of lens surfaces. *Physics Education*, 58(3), 035002. <https://doi.org/10.1088/1361-6552/acb87d>

Abstract: In this study, university students' experiences with conventional and novel applications for the surfaces of biconvex and biconcave lenses were examined. This work used practical tools to depict refraction and reflection processes that occur on lens surfaces. In the main activity, the surfaces of each lens were used by the students to examine a single image created by refracted light rays and then two images created by reflected light rays. When the students compared the properties of virtual and real images, they discovered that viewing both real and virtual images at the same time is more beneficial and simulating than viewing each image type separately.

3. Montagnani, S., Stefanel, A., Chiofalo, M. L., Santi, L., & Michelini, M. (2023). An experiential program on the foundations of quantum mechanics for final-year high-school students. *Physics Education*, 58(3), 035003. <https://doi.org/10.1088/1361-6552/acb5da>

Abstract: Teaching and learning quantum mechanics is one of the most demanding educational and conceptual challenges, in particular in secondary schools where students do not possess an adequate mathematical background to effectively support the description of quantum behaviour. Educational research shows that traditional approaches, generally based on historical and narrative perspectives, are only partially effective. The reason is that they do not address in depth those basic quantum concepts that radically question the fundamentals of classical physics. A research-based educational program has been proposed to two final-year classes of an Italian scientific high school. In order to build the main concepts of quantum mechanics and their formal basic representation via real and simulated experiments, the program uses the light polarization as a context. A quantum game was then integrated in the educational program, to support students' learning. Their conceptual paths, monitored

by means of tutorials and questionnaires, show significant student learning especially on the concept of state and on appropriating the formalism meaning, whereas students more frequently referred to the geometrical vector representation instead of the algebraic-analytic formula. The quantum game has emerged to support intuition and operative experience in distinguishing the foundational concepts of superposition and entanglement.

4. Lohani, V., & Pathak, P. (2023). Image formation by two plane mirrors. *Physics Education*, 58(3), 035004. <https://doi.org/10.1088/1361-6552/acb8fa>

Abstract: We revisit the problem of image formation of a point object by two plane mirrors meeting at a convex angle θ . Although a complete solution to the problem already exists in the literature, the simple formula $n = 360^\circ / \theta - 1$ is often assumed to be the universal formula that counts the number of images, irrespective of θ or the location of the object. A survey, involving both school students and teachers, shows that the simple formula in conjunction with rounding off to the closest integer(s) is still widely thought of as the correct way to count the number of images formed. In order to address this rampant misconception, we rederive the correct formula for an arbitrary mirror angle θ and arbitrary location of the object in an elementary way. The proof is easily communicable to high school students. We justify the formula using a physical setup and capturing real-life images. Finally, we provide a simulation written in an open source software GeoGebra as an additional visual aid in understanding the problem and its solution.

5. Suárez, M., Pandiella, S., & Benegas, J. (2023). Tutorials + PhET: a simple and efficient active-learning approach for the teaching of kinematics of circular motion in a technically-oriented high school. *Physics Education*, 58(3), 035005. <https://doi.org/10.1088/1361-6552/acb8f8>

Abstract: A quasi-experimental group comparison experiment was conducted to improve the conceptual learning of rotational kinematics by 11th grade students of a technically-oriented high school in Argentina. The experimental instruction complemented the original Tutorials in Introductory Physics activities with the PhET simulation Ladybug Revolution. Conceptual learning was determined with pre and post instruction application of the multiple-choice test Rotational Kinematics Inventory (RKI). This procedure allowed for the determination of a large difference in normalized learning gain between the experimental ($g = 0.48$) and control ($g = 0.17$) groups. It is also shown that the final conceptual knowledge of the experimental group is clearly higher than that of the students and teachers samples used in developing the RKI. An analysis of the institutional evaluation showed that this important difference in conceptual learning between the two groups did not affect the problem-solving performance of the experimental group. These results indicate the convenience of affecting part of the problem-solving classroom time in the proposed experimental instruction. A few recommendations to improve the experimental teaching approach are given.

6. Bartholomew, A., & Zürcher, U. (2023). Measuring the pressure inside a party balloon with a ruler. *Physics Education*, 58(3), 035006. <https://doi.org/10.1088/1361-6552/acb87c>

Abstract: We measure the radius of a party balloon after consecutive exhalations. We use the stress–strain relation for latex, and argue that the inflation is consistent with a constant volume of air exhaled in a single breath. We find its value and determine the gauge pressure of the balloon by applying the principle of least work. We compare elastic properties of party balloons with those of the aorta. The experiment illustrates methods from metrology in a context suitable for the introductory sequence.

7. Kok, K., & Priemer, B. (2023). Using measurement uncertainties to detect incomplete assumptions about theory in an experiment with rolling marbles. *Physics Education*, 58(3), 035007. <https://doi.org/10.1088/1361-6552/acb87b>

Abstract: In this lab activity, carbon copy paper is used to record the horizontal distance a marble flies off a table after rolling down an incline. The minimal scatter of the dots visually shows the high precision—i.e. the small uncertainty—of the measurements to students. The theoretical prediction of this distance will be too big if students forget to include rotational energy in the energy balance when they calculate the marble's speed at the bottom of the incline. This results in a discrepancy between the predicted horizontal distance and the measurement result. The precision of the experiment and the absence of overlap with the theoretical prediction is evidence that the prediction has to be wrong. Including rotational energy and taking a 10% energy loss due to friction into account, makes the measurement result overlap with the theoretical prediction, bringing them into agreement. Thus, measurement uncertainties guide the process of comparing the measurement result with the prediction: overlap between the theory-based prediction and the measurement result indicates agreement, whereas no overlap implies discrepancy. The lab activity presented here is an activity where measurement uncertainties are used in a meaningful, indispensable manner. The experimental result is evidence that forces students to rethink their assumptions, in this case about the conservation of energy. This leads to the revision of their calculation, emphasizing the necessity to include rotational energy and friction. Without it, the highly precise measurement result is in disagreement with the theoretical prediction. A procedure such as this—comparing empirical data with theory—is an authentic and common practice in science and should thus find its way into the physics classroom; but it cannot be done without an analysis of measurement uncertainties.

8. Riad, I. F. (2023d). Measuring g using magnetic induction. *Physics Education*, 58(3), 035008. <https://doi.org/10.1088/1361-6552/acb033>

Abstract: In this article we present an open source setup for measuring the acceleration due to gravity g utilising Faraday's law of induction. The signal is acquired using an Arduino Uno board, then displayed and analysed using a Python based graphical user interface. The acceleration due to gravity g is calculated by measuring the crossing times of a bar magnet as it falls simultaneously through a number of coils.

9. Ng, Y. (2023). Questioning authority through a scientific inquiry on heliocentrism. *Physics Education*, 58(3), 035009. <https://doi.org/10.1088/1361-6552/acb9c9>

Abstract: In this paper, we present an outline for students to apply the iterative process of scientific inquiry to the study of a few models that describe our Universe.

Ultimately, they will falsify some of the models such as the geocentric model, and appreciate why the heliocentric model is the most up-to-date and accepted description of our Universe. As far as possible, emphasis is also placed on allowing students to question authority, to explore alternate explanations, and to challenge well-established conclusions. The approach presented in this paper should help students improve in their critical thinking abilities, and in the process, train them to become the better scientists that we want them to be.

10. Chakrabarti, S., Pal, S., & Sarkar, S. (2023). An accurate determination of the refractive indices of water and glass by smartphone photography. *Physics Education*, 58(3), 035010. <https://doi.org/10.1088/1361-6552/acb8f9>

Abstract: A smartphone can be used for many physics experiments by using the sensors built into the phone. The complementary metal oxide semiconductor (CMOS) (charge-coupled device, CCD) sensor of the camera records the images of objects photographed in pixels. The width of the image can be read off with micron level accuracy with the help of software available freely from the internet. If the dimensions of the object in the direction transverse to the viewing direction of the camera are known, the magnification of the object photographed can be determined accurately. A smartphone camera is a compound lens comprising a number of very thin lenses. A single thin lens is equivalent, as far as the transverse magnification is concerned, to a compound lens of the smartphone, when the thin lens has the same focal length as the effective focal length of the compound lens and is placed at its first principal plane. This property allows us to find experimentally the effective focal length of the compound lens of the camera accurately, using the thin lens equation. Once the focal length of the camera is known, the distance of an object can be determined by finding its magnification from the photograph. We have determined the refractive index of water accurately by photographing the apparent position of an object immersed in it. By determining the magnifications, we have found the real and apparent depths of the object. The ratio of these depths gives the refractive index. We have determined the refractive index of glass also using some thin glass slides.

11. Marín-Sepúlveda, C. F., Castro-Palacio, J. C., Giménez, M. H., & Monsoriu, J. A. (2023). Acoustic determination of g by tracking a free-falling body using a smartphone as a 'sonar.' *Physics Education*, 58(3), 035011. <https://doi.org/10.1088/1361-6552/acbaf6>

Abstract: The gravitational constant is determined by tracking the movement of a free-falling body in an aluminium pipe. For this purpose, a smartphone is used to generate sound waves of a specific frequency and to simultaneously detect the sound wave resonances in the tube. The ability of smartphones to generate and receive the sound waves to track a moving body, like a 'submarine SONAR' does, is an essential point in this work. Concepts of kinematics and acoustics are combined to determine the gravitational acceleration within 1% when the result is compared with the reported value.

12. Bøe, M. V. (2023). Staying recognised as clever: high-achieving physics students' identity performances. *Physics Education*, 58(3), 035012. <https://doi.org/10.1088/1361-6552/acbad9>

Abstract: Physics is criticized for a strong disciplinary culture that many students struggle to identify with. This study uses 12 longitudinal interviews with four high-achieving students in Norway, following them from secondary physics and into university science, technology, engineering, and mathematics (STEM) studies, exploring how they perform their identities within physics. Data were analysed thematically, and findings include that recognition as clever at something difficult motivated the students to engage with physics in certain ways, mainly doing what it takes to excel on tests and get top marks. When they entered prestigious university STEM programmes with different demands and peers, the students modified their behaviour to maintain recognition as clever. I argue that the way these students engage with physics is formed by a culture of achievement, and that by working to be and stay recognised as clever at something difficult, the students contribute to reinforcing the same culture. Implications include broadening what is recognised in our classrooms as being good at physics, especially moving beyond solving problems correctly and including scientific practices such as asking questions, collaboration, and argumentation.

13. Buggé, D., Rutberg, J., Ahmed, S. H., Zisk, R., & Jammula, D. (2023). Development of hypothetico-deductive skills in an ISLE-based lab taught by novice instructors. *Physics Education*, 58(3), 035013. <https://doi.org/10.1088/1361-6552/acb9ca>

Abstract: The Investigative Science Learning Environment (ISLE) approach to learning and teaching holds as one of its core tenets that students should learn physics by engaging in the same processes through which physicists develop new knowledge. One key skill necessary for this is hypothetico-deductive reasoning. In this study, we explored how the experience and familiarity of a lab instructor with the ISLE approach impacted students' development of key scientific abilities related to making and testing hypotheses.

14. Scowcroft, V., Davies, S. R., Mathlin, G., & Sloan, P. (2023). Case study of developing an affordable undergraduate observatory. *Physics Education*, 58(3), 035014. <https://doi.org/10.1088/1361-6552/acbf1b>

Abstract: Astronomy is one of the few sciences where the data (star-light) can be seen by all. Yet, there is a disconnect between a typical undergraduate lecture and, for example, where a planet may be in the sky and how to observe it. With the advent of moderate cost, high-quality 'back-garden' astronomy, and standard computers powerful enough to produce original research, we show it is possible to build a small observatory capable of actual astrophysical research for a modest budget \approx £30000. We detail the iterative process of planning, funding, results and student-projects, that we followed over 4 years from a Raspberry Pi camera and home-owned telescope, to a permanent roll-top observatory with two fully automated telescope systems capable of undergraduate use and astronomical science. We report on projects ranging from early-years projects based on observational planning, data analysis and some restricted actual observations, to more open-ended final-year projects to observe, e.g. planetary transits, variable stars or high-resolution planetary imaging. We hope this work may act as a blue-print or encourage and aid other small to medium sized higher-education institutions and astrophysics groups to also develop their own undergraduate observatory.

15. Riggs, P. J. (2023). Energy and mass misconceptions. *Physics Education*, 58(3), 035015. <https://doi.org/10.1088/1361-6552/acc0c3>

Abstract: Eight misconceptions involving energy and mass are identified and corrected. Examples are included in order to illustrate errors in the presented misconceptions. It is important to identify such misconceptions so that physics/chemistry courses and textbooks do not perpetuate them.

16. Chhabra, M., & Das, R. (2023). Students' understanding of electrostatic force as a vector quantity at the undergraduate level. *Physics Education*, 58(3), 035016. <https://doi.org/10.1088/1361-6552/acc0c2>

Abstract: Electrostatic force is the preliminary and fundamental topic that forms the bedrock on which the conceptual framework of *electromagnetism* is built. Being a 'vector' quantity, electromagnetic force naturally inherits direction as well as magnitude. The conceptualization of such physical quantities may pose a challenge. The present work explores how students conceptualize the construct of electrostatic force from the viewpoint of its vector nature. Our effort is directed towards engaging students in problems aimed at their understanding of the concept of electrostatic force (a physical quantity) and analyse their responses for identifying the conceptual challenges. Our observations reveal that a significant fraction of conceptual difficulties in the concept of electrostatic force are due to insufficient understanding of operations involving vector quantities. The implications of this work indicate that the pedagogical aspects in physics classroom and curriculum design needs to be researched holistically so as to bridge-in the gaps obstructing the desired cognitive framework of students.

17. Rivera-Ortega, U., Hernández-Montero, P., & Hugo-Teutli. (2023). Interactive STEM educational resource regarding to the projectile motion phenomenon on inclined plane. *Physics Education*, 58(3), 035017. <https://doi.org/10.1088/1361-6552/acbf1c>

Abstract: In this manuscript it is proposed a simple and low-cost computer-based simulation regarding to the concept of projectile motion (including also a game mode) on its more general case, that is, on inclined plane; with the aim of easing the learning-teaching process regarding to this physical phenomenon. The novelty of this proposal relies on the use of an external control that changes the projectile shooting angle, the initial velocity and inclination of the plane. This educational resource is coded in Scratch for Arduino (S4A), while its electronic interface is based on Arduino UNO.

18. Wild, G. (2023). Is that lift diagram correct? A visual study of flight education literature. *Physics Education*, 58(3), 035018. <https://doi.org/10.1088/1361-6552/acbad8>

Abstract: With a complex topic such as aerodynamics, subtle points are critical. In this work images illustrating air flow around wings and aerofoils were studied to explore misunderstandings in aerodynamics education. While these images are common in textbooks and popular science media, this study was limited to the 135 physics education articles on the topic of lift, of which 49 contained illustrations of air flow around an aerofoil or wing. These 49 cases were included for qualitative comparison using visual semiotics. It was found that 28% of images did not include

upwash, and only 44% included stagnation points. For the case of 2D flow around aerofoils 30% were illustrated correctly, while for wings 75% were correct. These results excluded the seven completely incorrect illustrations where common misconceptions were presented as facts. Most illustrations of flow around an aerofoil incorrectly depicted flow around a wing.

19. Eff-Darwich, A., Goded-Merino, A., & González-Pérez, S. (2023). A demonstration of the Faraday's law of induction by means of a magnetized fidget spinner. *Physics Education*, 58(3), 035019. <https://doi.org/10.1088/1361-6552/acc298>

Abstract: We propose a simple demonstration to explain to prospective primary teachers the basic ideas behind Faraday's law of induction and the generation of electricity. In this conceptual activity, a rotating magnetized fidget spinner induces voltage in a copper coil. In an attempt to make this demonstration more motivating and surprising, the voltage was not measured and analysed with a voltmeter; instead, we used a loudspeaker to listen to and understand the induction of electricity. It is therefore a variation of the classical experiment of the bar magnet sweeping through a solenoid.

20. Atkin, K. (2023). LCR transients in theory and practice. *Physics Education*, 58(3), 035020. <https://doi.org/10.1088/1361-6552/acb5db>

Abstract: In this paper I shall demonstrate how the transient behaviour of an *LCR* series circuit may be taught from both mathematical and laboratory perspectives. The mathematical analysis uses a straightforward step-wise approach without recourse to advanced calculus. Experimentally, the practical problem of electrical noise which arises during switching is solved by very simple means.

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