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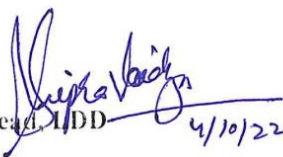
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The Library and Documentation Division (LDD) of NIE, NCERT is pleased to bring out “**Indexing & Abstracting Service of Periodicals**” for the month of **August, 2022**. This information product of LDD is the collection of Articles in the area of Educational Research, Elementary Education, Inclusive Education, ICT in Education, Educational Psychology, Science Education and Teacher Education.

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INDEXING & ABSTRACTING OF PERIODICALS

COMPUTER EDUCATION

1. Ruipérez-Valiente, J. A., Staubitz, T., Jenner, M., Halawa, S., Zhang, J., Despujol, I., Maldonado-Mahauad, J., Montoro, G., Peffer, M., Rohloff, T., Lane, J., Turro, C., Li, X., Pérez-Sanagustín, M., & Reich, J. (2022, April). Large scale analytics of global and regional MOOC providers: Differences in learners' demographics, preferences, and perceptions. *Computers & Education*, 180, 104426. <https://doi.org/10.1016/j.compedu.2021.104426>

Abstract: Massive Open Online Courses (MOOCs) remarkably attracted global media attention, but the spotlight has been concentrated on a handful of English-language providers. While Coursera, edX, Udacity, and Future Learn received most of the attention and scrutiny, an entirely new ecosystem of local MOOC providers was growing in parallel. This ecosystem is harder to study than the major players: they are spread around the world, have less staff devoted to maintaining research data, and operate in multiple languages with university and corporate regional partners. To better understand how online learning opportunities are expanding through this regional MOOC ecosystem, we created a research partnership among 15 different MOOC providers from nine countries. We gathered data from over eight million learners in six thousand MOOCs, and we conducted a large-scale survey with more than 10 thousand participants. From our analysis, we argue that these regional providers may be better positioned to meet the goals of expanding access to higher education in their regions than the better-known global providers. To make this claim we highlight three trends: first, regional providers attract a larger local population with more inclusive demographic profiles; second, students predominantly choose their courses based on topical interest, and regional providers do a better job at catering to those needs; and third, many students feel more at ease learning from institutions they already know and have references from. Our work raises the importance of local education in the global MOOC ecosystem, while calling for additional research and conversations across the diversity of MOOC providers.

Keywords: Learning analytics, educational data mining, Massive, open online courses, large scale analytics, Cultural factors, Equity, Distance learning

2. Turk, M., Heddy, B. C., & Danielson, R. W. (2022, April). Teaching and social presences supporting basic needs satisfaction in online learning environments: How can presences and basic needs happily meet online? *Computers & Education*, 180, 104432. <https://doi.org/10.1016/j.compedu.2022.104432>

Abstract: This study examined the hypothesized relationships between perceived teaching presence and social presence accounting for social-contextual factors in online learning environments and online students' basic psychological needs satisfaction. Participants enrolled in online courses at universities in the United States responded to an online survey and the survey data (N = 462) were analyzed using three hierarchical multiple regressions. Findings indicated that perceived teaching presence was a significant positive predictor of the basic psychological needs for autonomy, competence,

and relatedness, with greater contribution than social presence to the perceived satisfaction of the need for competence. Social presence was also a significant positive predictor of the three basic psychological needs, with greater contributions than teaching presence to the perceived satisfaction of the needs for autonomy and relatedness. These results point to the significance of both teaching presence and social presence as two key online presences that can positively influence students' basic psychological needs satisfaction, which is known to be crucial to higher-quality self-determined motivation and engagement. Our findings have implications for CoI theory development and practical implications for online teaching and learning.

Keywords: Teaching presence, social presence, Online learning, Basic psychological needs

3. Sun, J. C. Y., & Lin, H. S. (2022, April). Effects of integrating an interactive response system into flipped classroom instruction on students' anti-phishing self-efficacy, collective efficacy, and sequential behavioral patterns. *Computers & Education*, 180, 104430. <https://doi.org/10.1016/j.compedu.2022.104430>

Abstract: The purpose of this study was to explore the effect of different interactive response systems integrated with flipped classroom instruction on students' self-efficacy, collective efficacy, and sequential behavioral patterns, as well as to investigate the relationship among these three aspects. A quasi-experimental research design was adopted. The anti-phishing learning self-efficacy scale, the anti-phishing collective efficacy scale, and an analysis of students' sequential behavioral patterns in the classroom were conducted. The participants were 87 7th-grade students who were assigned to a non-interactive response system (IRS) group, an individual IRS group, and a shared-IRS group, with 29 participants in each group. Flipped classroom instruction was incorporated into all three groups. For the classroom activities, the non-IRS group underwent a traditional polling method—that is, the polling activities were conducted by writing on small whiteboards. The individual IRS group used a personal interactive response system to carry out the classroom polling activities, while the shared-IRS group used a group-sharing-based interactive response system. The results indicated that when incorporating the interactive response system into the flipped classroom, peer support behavior was the key to enhanced self-efficacy. Meanwhile, the shared-IRS approach helped motivate students to interact with the teacher after the voting activity. However, the link between knowledge construction behaviors among peers and behaviors when using the interactive response system was weak. It is suggested that in addition to using educational technologies for teaching, teachers may guide their peers to demonstrate mutual recognition and obtain knowledge of effective communication skills in order to enhance students' self-efficacy and collective efficacy.

Keywords: Cooperative/collaborative learning, Improving classroom teaching, Interactive learning environments, Teaching/learning strategies

4. Chevalier, M., Giang, C., El-Hamamsy, L., Bonnet, E., Papaspyros, V., Pellet, J. P., Audrin, C., Romero, M., Baumberger, B., & Mondada, F. (2022, April). The role of feedback and guidance as intervention methods to foster computational thinking in educational robotics learning activities for primary school. *Computers & Education*, 180, 104431. <https://doi.org/10.1016/j.compedu.2022.104431>

Abstract: Computational thinking (CT) is considered an emerging competence domain linked to 21st-century competences, and educational robotics (ER) is increasingly recognised as a tool to develop CT competences. This is why researchers recommend developing intervention methods adapted to classroom practice and providing explicit guidelines to teachers on integrating ER activities. The present study thus addresses this challenge. Guidance and feedback were considered as critical intervention methods to foster CT competences in ER settings. A between-subjects experiment was conducted with 66 students aged 8 to 9 in the context of a remote collaborative robot programming mission, with four experimental conditions. A two-step strategy was employed to report students' CT competence (their performance and learning process). Firstly, the students' CT learning gains were measured through a pre-post-test design. Secondly, video analysis was used to identify the creative computational problem-solving patterns involved in the experimental condition that had the most favourable impact on the students' CT scores. Results show that delayed feedback is an effective intervention method for CT development in ER activities. Subject to delayed feedback, students are better at formulating the robot behaviour to be programmed, and, thus, such a strategy reinforces the anticipation process underlying the CT.

Keywords: Collaborative learning, Elementary education, Improving classroom teaching, Teaching/learning strategies, 21st-century abilities

5. Argelagós, E., Garcia, C., Privado, J., & Wopereis, I. (2022, April). Fostering information problem solving skills through online task-centred instruction in higher education. *Computers & Education*, 180, 104433. <https://doi.org/10.1016/j.compedu.2022.104433>

Abstract: The competence to perform an academic literature review task in a digital context is of paramount importance for higher education students. However, both undergraduate and graduate students have difficulty finding, analysing, and processing such information for their academic tasks. Recent studies propose a task-centred approach to teach relevant knowledge and skills to perform review tasks. This paper presents a quasi-experimental study on the effects of an online task-centred course on the IPS skills development and self-efficacy perception of 80 graduate students in educational sciences. The Information Problem Solving (IPS) and Four-Component Instructional Design (4C/ID) models have been applied for course design and development. The results indicate that, after the course, students in the experimental group outperformed the control group on planning and search activities. These students also seemed to do better at defining research questions and processing the information found, though these results were not statistically significant. Finally, no differences were found related to the ability to present information. In addition, self-efficacy related to the IPS skills needed to perform an academic literature review task developed positively in

the experimental group. Implications for instruction on these IPS skills in higher education are discussed.

Keywords: Digital information, Task-centred instruction, Information problem solving, Higher education, Online education, Literature review

6. Kosko, K. W., Heisler, J., & Gandolfi, E. (2022, April). Using 360-degree video to explore teachers' professional noticing. *Computers & Education, 180*, 104443. <https://doi.org/10.1016/j.compedu.2022.104443>

Abstract: Professional noticing is an essential skill for teachers that is enacted by teachers via their embodied senses (sight, sound, etc.). To better understand the nature of teacher noticing, 44 preservice teachers (PSTs) viewed a 360 video of an elementary mathematics lesson while wearing virtual reality headsets. PSTs writings of what they noticed and recordings of where they turned their head while wearing the headsets during the recorded scenario were examined. Findings suggest that how PSTs positioned students and the teacher in their field of view interacted with whether and how such events were described in writing.

7. Lu, H., & Wang, Y. (2022, April). The effects of different interventions on self-regulated learning of pre-service teachers in a blended academic course. *Computers & Education, 180*, 104444. <https://doi.org/10.1016/j.compedu.2022.104444>

Abstract: Self-regulated learning (SRL), as one of the most crucial factors of students' academic performance, has received much concern in blended learning (BL), especially for pre-service teachers. Therefore, finding effective ways to improve pre-service teachers' SRL is of great importance. Ninety-five pre-service teachers participated in this study. We developed a learning diary and a training plus pre-warning system (TPS) based on a process model of SRL in BL. The objective was to investigate the effects of the learning diary and the TPS on fostering pre-service teachers' SRL skills in BL. The effects were evaluated by means of analysis of variance and time-series analyses. Results showed that the TPS improves more sub-skills of SRL than the learning diary. The present study suggests that the TPS generates an effective way to help pre-service teachers become self-regulated learners.

Keywords: Self-regulated learning, Blended learning, Pre-warning system, Learning diary, Time series analysis

8. Fujs, D., Vrhovec, S., Žvanut, B., & Vavpotič, D. (2022, May). Improving the efficiency of remote conference tool use for distance learning in higher education: A kano based approach. *Computers & Education, 181*, 104448. <https://doi.org/10.1016/j.compedu.2022.104448>

Abstract: During the COVID-19 pandemic, higher education institutions around the world were challenged to shift from traditional to distance teaching processes. This was

not an easy task as educational institutions had to face many technology and human related challenges. The purpose of this paper is to present an approach that helps teachers to use remote conference tools (RCT) for a particular course more efficiently. The approach enables both teachers and students to be more effective in online education in general and during pandemics. The proposed approach leans on the Kano model and specifically focuses on evaluation of RCT features (RCTF) from students' and teachers' perspectives. Such evaluation enables development of recommendations for effective RCTF use. The approach was tested in three different case studies: Case 1 (computer and information science – software development; 39 students, 2 teachers), Case 2 (criminal justice and security – introduction to information systems; 130 students, 2 teachers), Case 3 (applied kinesiology – statistics; 44 students, 2 teachers). In all three cases, the results clearly demonstrated the benefits of the proposed approach and showed that the use of RCTF should be adapted to the specifics of each course where lectures and tutorials need to be considered separately.

Keywords: Distance education and online learning, Evaluation methodologies, Pedagogical issues, post-secondary education

9. Tsai, C. Y., Shih, W. L., Hsieh, F. P., Chen, Y. A., Lin, C. L., & Wu, H. J. (2022, May). Using the ARCS model to improve undergraduates' perceived information security protection motivation and behavior. *Computers & Education, 181*, 104449. <https://doi.org/10.1016/j.compedu.2022.104449>

Abstract: The ARCS (attention, relevance, confidence, and satisfaction) model was used to design an information security (InfoSec) course, and its effects on students' perceived InfoSec protection motivation and their InfoSec behavior were explored. A quasi-experimental design was adopted in this research. The participants were 147 undergraduates who took liberal arts courses in a university in southern Taiwan. There were 68 students in the experimental group and 79 in the control group. The specific teaching strategies of the ARCS model based on the Protection Motivation Theory were used to explore students' learning outcomes. The results of the study revealed that after attending the course that applied the ARCS model, the experimental group students outperformed their counterparts in terms of perceived InfoSec protection motivation (perceived severity, vulnerability, response efficacy, self-efficacy, and response costs). Meanwhile, the experimental group students' self-report frequencies of problematic InfoSec behavior were lower than those of the control group students. These findings imply that InfoSec education using the ARCS model in the liberal arts education courses of universities has potential.

10. Bhutoria, A., & Aljabri, N. (2022, May). Patterns of cognitive returns to Information and Communication Technology (ICT) use of 15-year-olds: Global evidence from a Hierarchical Linear Modeling approach using PISA 2018. *Computers & Education, 181*, 104447. <https://doi.org/10.1016/j.compedu.2022.104447>

Abstract: Existing literature shows varying impacts of Information and Communication Technology (ICT) on learning outcomes depending on the type and quality of technology used. However, current research on the optimal level of ICT use for the cognitive development of students is scarce and has remained country-specific, primarily focusing on developed economies. This paper undertakes a cross-country comparison across 79 nations, investigating ICT use and its association with cognitive gain patterns as determined by reading, mathematics, and science test scores of 15-year-olds. The Programme for International Student Assessment (PISA) 2018 dataset collected by the Organisation of Economic Cooperation and Development (OECD) has been used by applying two-stage regression analysis. The first stage involves a three-level Hierarchical Linear Modeling (HLM) factoring for data nested at the student-, school-, and country-level. The second stage of the empirical model involves a heterogeneity analysis to evaluate variance in ICT use patterns across different groups of countries, clustered on the basis of their level of ICT development. The results show a positive impact of ICT engagement on the test scores of students across all the subjects. However, returns to ICT use tend to start diminishing after the engagement level of students crosses a medium threshold of using ICT several times within a week. Furthermore, the heterogeneity analysis supports conspicuous diminishing patterns in ICT use irrespective of the economic status of the students. Cross-country comparisons show that diminishing returns to ICT use are more prominent in countries with well-developed ICT infrastructure than in less-developed ones. Where diminishing returns hold, excessive use of ICT in education is not an optimal choice, and significant cognitive gains can be achieved by using the complementarity between traditional learning techniques with ICT-based learning in different blended settings.

Keywords: Information and communication technology (ICT), Programme for international student assessment (PISA), Hierarchical linear modeling (HLM), Concave returns, Organisation of economic cooperation and development (OECD)

11. Sun, L., Hu, L., & Zhou, D. (2022, May). Programming attitudes predict computational thinking: Analysis of differences in gender and programming experience. *Computers & Education, 181*, 104457. <https://doi.org/10.1016/j.compedu.2022.104457>

Abstract: Programming attitude has received increasing attention in programming and computational thinking (CT) education. However, at present, analysis remains scant on the correlation between students' programming attitudes and their CT skills, and less attention is paid to the influencing effects of gender and programming experience. This study first validated a newly developed programming attitudes scale ($\chi^2/df = 2.308$, RMSEA = 0.073, CFI = 0.925, TLI = 0.912) among 1180 seventh-grade students (12–13 years old). It then analyzed the relationship between students' programming attitudes and CT skills considering gender differences. Students' programming attitudes significantly predicted their CT skills. Girls have higher CT skills than boys, but their more negative programming attitudes may affect their continued skill development. Third, the relationship among programming experience, programming attitudes, and CT skills was discussed among the sample (N = 175) with programming experience, revealing that

programming attitudes played an intermediary role between programming experience and CT skills. Two specific factors of programming experience (first time learning programming and programming learning duration) had differing effects on students' programming attitudes and CT skills. For programming attitudes, the grade in which students got started with programming had no effect on their programming attitudes, but programming attitudes rose with increased programming learning time. For CT, students who learned programming starting in second grade possessed the highest CT level. In addition, there is an inverted U-shaped curve between students' programming learning duration and CT skills, peaked at the fourth year of programming learning career. Implications for promoting junior high school students' CT skills and their positive attitudes toward programming are also discussed.

Keywords: Computational thinking, Programming attitudes, Programming experience, Gender, Students, Junior high school

12. Zhao, L., Liu, X., Wang, C., & Su, Y. S. (2022, May). Effect of different mind mapping approaches on primary school students' computational thinking skills during visual programming learning. *Computers & Education*, 181, 104445. <https://doi.org/10.1016/j.compedu.2022.104445>

Abstract: Computational thinking (CT) skills help students both understand and utilize computing in various domains to cope with the challenges posed by the complex digital world. This study applied mind mapping to programming language instruction in a primary school, and explored the effects of mind mapping on students' CT skills when learning programming with Scratch as a programming tool. Two types of mind mapping, construct-by-self mind mapping (CBS-MM) and construct-on-scaffold mind mapping (COS-MM), were proposed to compare which type is more effective in terms of students' CT skills. Seventy-three public primary school fifth-grade students aged 10 to 11 participated in the study. The CBS group included 33 students learning with the CBS-MM instructional approach, while the COS group comprised 40 students learning with the COS-MM instructional approach. Data were obtained from nine topic Scratch programming assignments and pre- and post-CT skills surveys completed by the two groups. Paired sample *t* tests were used to analyze whether the two types of mind mapping approach could improve both groups' CT skills. One-way ANCOVA and one-way ANOVA were used to examine the difference in the two groups' CT skills. The results showed that both CBS-MM and COS-MM can improve students' CT skills; however, the COS group students could better improve their CT skills with the assistance of the COS-MM method compared with the CBS group students who learned with the CBS-MM method. The findings of this study can provide some enlightenment for relevant instructors to design instruction and implement programming teaching with different kinds of mind mapping support that facilitates students' CT.

Keywords: Computational thinking, Mind mapping, Improving classroom teaching, Pedagogical issues, Teaching strategies

13. Jamet, E., & Michinov, E. (2022, May). Effects of verbal and visual support on learning by tablet-based drawing. *Computers & Education*, 181, 104460. <https://doi.org/10.1016/j.compedu.2022.104460>

Abstract: The use of drawing has emerged as a promising approach to promoting generative learning. However, findings have been mixed, especially when no support is provided for the drawing task or when this generative task is performed on a computer. The aim of the present two studies was to assess the effect of visual (Study 1) or verbal (Study 2) support on different learning outcomes among college students working with pen-based tablets. The results of the first study ($N = 73$) showed that engaging students in a tablet-based drawing task improved their learning of pictorial information, compared with a condition where the picture was provided, but visual support (predrawn background) had no beneficial effect. In the second study ($N = 116$), providing instructions about which elements to draw first (verbal support) improved the drawings' quality and the recall of pictorial information. No effect of drawing or support on comprehension was observed in either study. Results also revealed a focused processing effect, as the learning-by-drawing strategy had a negative impact on the memorization of nonpictorial information in the text. These studies indicate that suitable support can improve the effectiveness of the drawing-based learning strategy. Further research is needed to elucidate the effects of this strategy on different learning outcomes.

Keywords: Teaching/learning strategies, Pedagogical issues

14. Suárez-Perdomo, A., Ruiz-Alfonso, Z., & Garcés-Delgado, Y. (2022, May). Profiles of undergraduates' networks addiction: Difference in academic procrastination and performance. *Computers & Education*, 181, 104459. <https://doi.org/10.1016/j.compedu.2022.104459>

Abstract: Social networks are a source of distraction in personal, academic, and professional tasks. In the university context, they can lead to academic procrastination behaviour and undermine students' academic performance. The aims of this study are a) to identify profiles of students with similar values in excessive use, lack of control and obsession with social networks, and b) analyse whether there are significant differences in procrastination behaviours and academic performance of the identified profiles. A total of 1784 students from 24 Spanish universities took part in the study. The Social Network Addiction Questionnaire and the Spanish version of the Procrastination Assessment Scale-Student test were used. Profiles were identified through Latent Profile Analysis and differences between groups were analysed through the three-step Bolck-Croon-Hagenaars method. The results showed three profiles regarding the excessive use of social networks: low addiction, moderate addiction and high addiction. Significant differences were found between the three latent profiles in academic procrastination, showing that the higher the addiction to social networks, the higher the procrastination behaviour. However, there were no significant differences between the groups with respect to academic performance. In conclusion, although the addiction to social networks is related to procrastination behaviour, it is considered that they could be a useful resource in the initial training process of undergraduates.

Keywords: Social network, Addiction, Academic performance, Academic procrastination, Latent profile, Undergraduates

15. Cebollero-Salinas, A., Cano-Escoriaza, J., & Orejudo, S. (2022, May). Are emotional e-competencies a protective factor against habitual digital behaviors (media multitasking, cybergossip, phubbing) in Spanish students of secondary education? *Computers & Education*, 181, 104464. <https://doi.org/10.1016/j.compedu.2022.104464>

Abstract: Increased Internet use has introduced several behavior patterns into the daily routines of adolescents, such as phubbing, cybergossip, and media multitasking during homework. These habits can potentialize risks, particularly in post-pandemic situations. Socio-emotional competencies can act as protective factors against cybernetic risks; however, they have not yet been studied in relation with habitual digital behavior. To fill that gap, this study's objective is to analyze, across a sample of 776 students of secondary education (12–16 years old), to what extent socio-emotional competencies in digital interaction (“socio-emotional e-competencies”) are related to phubbing, cybergossip, and media multitasking during academic tasks, while being able to predict those behaviors in function of gender and age. We also propose to elicit whether those three behaviors can be regarded as indicators of habitual digital behavior in general. Our structural equation model results indicate that they act as a sole variable, which we denote as “habitual digital behavior”. On the other hand, emotional e-regulation and e-self-control of impulsiveness act as protective factors in adolescence, whereas emotional e-independence is crucial in girls and older students, and emotional e-awareness is important in boys. To close, we discuss the relevance of educating students in the matter of e-socio-economic competencies.

Keywords: Media multitasking, Phubbing, Cybergossip Social and emotional competencies, School, Digital behavior Gender

16. Liu, S., Liu, Z., Peng, X., & Yang, Z. (2022, May). Automated detection of emotional and cognitive engagement in MOOC discussions to predict learning achievement. *Computers & Education*, 181, 104461. <https://doi.org/10.1016/j.compedu.2022.104461>

Abstract: In the MOOC forum discussions, emotional and cognitive engagement are two prominent aspects of learning engagement. Moreover, emotional and cognitive engagement have an interactive relationship and can jointly predict learning achievement. However, these interwoven relationships have not been thoroughly explored. Furthermore, the limitations on detection methods for emotional and cognitive engagement have hindered the practice and theory progress. This study aimed to develop a novel text classification model to automatically detect emotional and cognitive engagement and investigate their complex relationships with achievement, which are beneficial for improving learning engagement and historically low completion rates of MOOCs. Firstly, this study proposed a robust and interpretable NLP model called the

bidirectional encoder representation from the transformers-convolutional neural network (BERT-CNN). Compared with models in previous studies, it improved the F1 values of emotional and cognitive engagement recognition tasks by 10% and 8%, respectively. Secondly, this study used BERT-CNN to analyze 8867 learners' discussions in a MOOC forum. Structural equation modeling indicated that emotional and cognitive engagement have an interactive relationship and a combined effect on learning achievement. Specifically, positive and confused emotions contributed more to higher-level cognition than negative emotions. Co-occurring emotion and cognition indicators jointly predicted learning achievement with higher reliability. In summary, this study has significant methodological implications for the automated measurement of emotional and cognitive engagement. Moreover, the study revealed the dominant role of emotional engagement on cognitive engagement and provided suggestions for improving MOOC learners' achievement.

17. Sysoev, I., Gray, J. H., Fine, S., Makini, S. P., & Roy, D. (2022, June). Child-driven, machine-guided: Automatic scaffolding of constructionist-inspired early literacy play. *Computers & Education*, 182, 104434. <https://doi.org/10.1016/j.compedu.2022.104434>

Abstract: Child-driven approaches to learning, such as constructionism, can greatly contribute to children's positive relationship with the subject via personally meaningful and grounded learning experiences. However, these approaches typically need scaffolding to ensure learners' progress. Providing scaffolding is nontrivial and time-consuming, typically requiring real-time, one-on-one involvement of the scaffolder. Can scaffolding procedures be at least partially automated? We explored this question in the special case of a constructionist-inspired early literacy app designed for 4- to 6-year-old children. We created scaffolding mechanisms for word building while attempting to preserve the open-ended and child-driven nature of interaction. The system was evaluated during an 11-week-long design study in kindergarten classrooms. We found that scaffolding mechanisms facilitated creative expression and literacy-related social interactions between children, as well as enabled highly autonomous play for some of them. However, despite the scaffolding aid, children with low executive functioning (EF) and phonological awareness (PA) were prone to engage with the app in an impulsive and unsystematic manner, hindering their learning. We discuss possible strategies to mitigate the negative effects of low PA and EF. Despite these challenges, the child-driven, machine-guided approach appears to be promising.

Keywords: Early years education, Games, Human-computer interface, Informal learning, Mobile learning

18. Tai, K. H., Hong, J. C., Tsai, C. R., Lin, C. Z., & Hung, Y. H. (2022, June). Virtual reality for car-detailing skill development: Learning outcomes of procedural accuracy and performance quality predicted by VR self-efficacy, VR using anxiety, VR learning interest and flow experience. *Computers & Education*, 182, 104458. <https://doi.org/10.1016/j.compedu.2022.104458>

Abstract: While virtual reality (VR) training has been used in many examples of specialized skills training, its learning effect has also been explored with a focus on gross motor performance. Using VR can develop technical students' procedural knowledge in a safe environment while also saving the real materials, which is an essential issue of sustainability. However, the procedural accuracy and performance quality of learning outcomes of practicing VR have not been extensively examined. To address this gap, the present study designed VR for car detailing to explore how two types of learning outcomes could be predicted by students' self-efficacy that drives their learning interest and situational anxiety mediated by flow experience while practicing with VR. Based on a single group quasi-experiment study, the learning outcome tests were administered in the first, second, and fifth weeks after four rounds of practice to 143 technical students who had undergone VR car-detailing training. Data were subjected to confirmatory factor analysis with structural equation modeling. Results revealed that when VR was used for car-detailing training, the learning outcomes of procedural accuracy and performance quality could be predicted by participants' flow experience. Learners' flow experience could be positively predicted by VR learning interest and VR using anxiety. Lastly, VR self-efficacy was positively related to VR learning interest, but negatively related to VR using anxiety. It is expected that the results can be applied to other technical training designs.

Keywords: Augmented and virtual reality Human-computer interface Improving classroom teaching Teaching/learning strategies

19. Bygstad, B., Øvrelid, E., Ludvigsen, S., & Dæhlen, M. (2022, June). From dual digitalization to digital learning space: Exploring the digital transformation of higher education. *Computers & Education*, 182, 104463. <https://doi.org/10.1016/j.compedu.2022.104463>

Abstract: Inspired by the fast digitalization during the Covid-19 crisis, we investigate a key aspect of digital transformation of higher education – the emergence of a digital learning space. In developing our analysis, we focus on two streams of digitalization in higher education; digitalization of education and digitalization of subjects. We call this dual digitalization, which has been an obstacle for digital transformation of the sector, and made it challenging to develop a shared digital space. Our research question is, how can we develop a shared digital learning space in higher education? We conducted our study at the University of Oslo, where we analysed three phases of digitalization. We identified three underlying forces of the digital learning space. First, the alignment of digital education and digital subjects provided a technical foundation. Second, the digital learning space was enacted and harnessed by redefinition of roles between students and teachers, allowing for new and deeper learning forms. And third, the digital learning space enables universities to transcend the physical and institutional borders, and engage in interactions with the broader society.

20. Rodríguez, M. F., Nussbaum, M., Yunis, L., Reyes, T., Alvares, D., Joublan, J., & Navarrete, P. (2022, June). Using scaffolded feedforward and peer feedback to improve problem-based learning in large classes. *Computers & Education*, 182, 104446. <https://doi.org/10.1016/j.compedu.2022.104446>

Abstract: The growing demand for access to higher education has seen institutions turn increasingly towards large classes. Implementing active, problem-based learning in this context can be difficult as it requires the lecturer to attend to every student's individual needs. Given the lack of tools for providing personalized feedback, this represents a significant challenge. The aim of this study is to see how best to support lecturers in giving timely feedback to students in a large class during problem-based learning. To meet this goal, we propose a model that combines feedforward, scaffolded using an automated summarization tool, with peer feedback. In this sense, the lecturer first provides feedforward through a series of general comments before an anonymous peer gives personalized feedback. The results show that, despite not giving personalized feedback, the lecturer is able to provide enriched formative feedforward thanks to the summary generated by the automated system. Furthermore, in more qualitative terms, the students show that they appreciate the opportunity to both give and receive feedback. Finally, the students' critical thinking skills are also shown to improve progressively from one activity to the next. Given the research gap regarding how lecturers use the reports generated by automated summarization tools, our study contributes to the literature by proposing a strategy for lecturers to use such reports to provide feedforward. Additionally, this study also contributes to the literature by proposing a model that can be fully integrated in both synchronous and asynchronous online learning.

21. Liu, T., & Israel, M. (2022, June). Uncovering students' problem-solving processes in game-based learning environments. *Computers & Education*, 182, 104462. <https://doi.org/10.1016/j.compedu.2022.104462>

Abstract: As one of the most desired skills for contemporary education and career, problem-solving is fundamental and critical in game-based learning research. However, students' implicit and self-controlled learning processes in games make it difficult to understand their problem-solving behaviors. Observational and qualitative methods, such as interviews and exams, fail to capture students' in-process difficulties. By integrating data mining techniques, this study explored students' problem-solving processes in a puzzle-based game. First, we applied the Continuous Hidden Markov Model to identify students' problem-solving phases and the transition probabilities between these phases. Second, we employed sequence mining techniques to investigate problem-solving patterns and strategies facilitating students' problem-solving processes. The results suggested that most students were stuck in certain phases, with only a few able to transfer to systematic phases by applying efficient strategies. At the beginning of the puzzle, the most popular strategy was testing one dimension of the solution at each attempt. In contrast, the other two strategies (remove or add untested dimensions one by one) played pivotal roles in promoting transitions to higher problem-solving phases. The findings of this study shed light on when, how, and why students advanced their effective problem-solving processes. Using the Continuous Hidden Markov Model and sequence mining techniques, we provide considerable promise for uncovering students' problem-solving processes, which helps trigger future scaffolds and interventions to support students' personalized learning in game-based learning environments.

Keywords: Games, Human-computer interface, Data science, applications in education

22. Jacob, L., Lachner, A., & Scheiter, K. (2022, June). Do school students' academic self-concept and prior knowledge constrain the effectiveness of generating technology-mediated explanations? *Computers & Education*, 182, 104469. <https://doi.org/10.1016/j.compedu.2022.104469>

Abstract: Asking students to generate explanations to fictitious others by means of different technologies (e.g., instant messenger, video) has gained popularity in schools. Although the potential of these technology-mediated explaining activities is appealing, less is known whether generating these explanations is effective for school students. Additionally, empirical evidence regarding general effects of learning-by-explaining proposes that generating explanations is constrained by different boundary conditions. In this experimental field study, we investigated the effectiveness of technology-mediated explaining with seventh grade students ($N = 129$). More importantly, we contrasted different implementation modalities of explaining (i.e., written versus oral explaining) and examined the moderating role of cognitive and motivational prerequisites (i.e., prior knowledge, academic self-concept). After assessing prior knowledge and academic self-concept, students attended a lesson on photosynthesis. Then, students were randomly assigned to explain the contents in written versus oral form in a mock-up messenger or to retrieve the contents by taking notes (control condition). We neither obtained an effect of explaining, nor did the explanatory modality account for students' learning. However, exploratory moderation analyses showed that academic self-concept but not prior knowledge moderated the explaining effect on comprehension, as only students with low self-concept profited from explaining. In contrast, students with high self-concept benefited most from retrieving the provided contents. The findings highlight that technology-mediated explaining is not necessarily an effective learning activity for school students, but might depend on students' motivational prerequisites, such as their academic self-concept.

Keywords: Learning by explaining, Learning by teaching, Generative learning, Modality effect, Academic self-concept

23. Pavlič, L., Beranič, T., Brezočnik, L., & Heričko, M. (2022, June). Towards a novel catalog of assessment patterns for distant education in the information technology domain. *Computers & Education*, 182, 104470. <https://doi.org/10.1016/j.compedu.2022.104470>

Abstract: This paper presents a research and its results in the domain of higher education's pedagogical patterns for remote assessments - precisely in the computer science, software engineering and informatics-related courses. This research was motivated by the COVID-19 crisis, which separated teachers, teaching assistants, and students physically. During this period, remote knowledge assessment was one of the most challenging among all educational activities. The lack of available resources and advice on remote knowledge assessment revealed a need for a specialized assessment pattern catalog.

The main result of the research is the assessment pattern catalog that started to grow organically at the Institute of Informatics, where we teach IT-related courses. We started with the initial set of patterns, identified by analyzing recurring practices, applied by teaching staff for remote assessments in the period from March 2020 till December 2020. The patterns were aggregated and gradually refined using a systematic approach. In addition to guided workshops, a systematic literature review was employed, followed by catalog refinements, and, finally, an extensive survey was carried out among teachers and teaching assistants. The latter was used as a validation of the correctness of the novel assessment pattern catalog, as well as the presented patterns' suitability and popularity among users.

The resulting assessment pattern catalog presented in this paper boasts 47 patterns, classified into four main categories, that support the whole process of (remote) assessment. It is organized and documented systematically. It also boasts several indicators per each pattern to demonstrate its suitability for distant assessments, popularity rankings among teachers, teaching assistants, and top picks in every category per teachers and teaching assistants.

The survey that we performed revealed a subset of patterns that are important for a successful remote assessment, validated in the IT-related courses. Based on the results, the presented assessment pattern catalog showed itself to be useful not only for the remote assessment but also for judging knowledge in the classroom successfully.

Keywords: Distance education and online learning, Improving classroom teaching, Pedagogical issues, Teacher professional development, post-secondary educations

24. Raffaghelli, J. E., Rodríguez, M. E., Guerrero-Roldán, A. E., & Bañeres, D. (2022, June).

Applying the UTAUT model to explain the students' acceptance of an early warning system in Higher Education. *Computers & Education*, 182, 104468. <https://doi.org/10.1016/j.compedu.2022.104468>

Abstract: Artificial intelligence systems such as early warning systems are becoming more common in Higher Education. However, the students' reactions to such technopedagogical innovations are much less explored in settings beyond the development and testing. This paper analyses the students' acceptance of an early warning system developed at a fully online university. Following a pre-usage and post-usage experimental design based on the Unified Theory of Acceptance and Use of Technology model and the Structural Equation Modelling, we observed how, within four courses (839 participants in the academic year 2019–20, of which 347 participants answered both a pre- and post-usage questionnaire), the students' acceptance changed overtime. Our findings revealed a disconfirmation effect in the acceptance of the early warning system, namely, a difference between expectations surrounding the technology pre- and post-usage, and shed light on the ways artificial intelligence systems should be integrated within Higher Education virtual classrooms.

Keywords: UTAUT, Students' acceptance, Early warning system, Higher education.

25. Hou, J., Lee, J. F., & Doherty, S. (2022, June). A study of the effects of mobile media on L2 text processing: Beyond offline comprehension accuracy measures. *Computers & Education*, 182, 104466. <https://doi.org/10.1016/j.compedu.2022.104466>

Abstract: Recent research on the processing effects of mobile media has incorporated offline research methods to demonstrate that reading on mobile media is as effective as reading on computers or paper in accuracy of text comprehension. The present study uses an eye-tracking methodology to compare the effects of reading on mobile media (mobile phone and tablet) and traditional media (paper and computer) on cognitive processing behaviours as well as on accuracy. Chinese L2 learners of English ($n = 156$) read an English novel, *The Elephant Man*, in one of the four reading conditions (mobile phone: 41, tablet: 39, computer: 38, and paper: 38) while their eye movements were recorded. Between-condition comparisons showed that mobile-assisted reading performance was equally accurate, fast and efficient to process texts, and fast to respond to posttests. Statistically significantly shorter mean fixation duration of mobile-assisted than computer-assisted reading suggests slightly more efficiency in cognitive processing. The overall findings of the present study add to other strong evidence that mobile-assisted reading is effective in text processing. We discuss the implications of our results and provide directions for future research and insights into mobile-assisted language learning, including online learning, e.g., during the COVID-19 global pandemic.

Keywords: Eye-tracking, Cognitive processes, L2 text processing, Mobile-assisted language learning

26. Rosenthal, S., & Ratan, R. A. (2022, June). Balancing learning and enjoyment in serious games: Kerbal Space Program and the communication mediation model. *Computers & Education*, 182, 104480. <https://doi.org/10.1016/j.compedu.2022.104480>

Abstract: When designed well, serious games can support effective learning. This study used the communication mediation model to examine the process and outcomes of playing serious games, in this case, the science-themed game, *Kerbal Space Program*. During a 4-h research session, 241 undergraduate students played through the game's tutorial missions and completed surveys to measure variables of interest. Results of structural equation modeling showed that game progress was positively related to self-efficacy in computer gaming ($\beta = 0.26$) and ordinary science intelligence ($\beta = 0.13$). Knowledge acquisition was positively related to game progress ($\beta = 0.21$) and positively predicted experiential attitude ($\beta = 0.35$) and instrumental attitude ($\beta = 0.35$) toward the game. Finally, gaming continuance intention was positively related to experiential attitude ($\beta = 0.68$). In addition to those direct effects, there were several indirect effects consistent with the communication mediation model. These findings echo past scholarship on balancing the serious side and the gaming side of serious games but emphasize player traits and other psychological factors of the gaming experience.

Keywords: Serious games, Self-directed learning, Informal learning, Communication mediation model, Kerbal space program

27. Gruchel, N., Kurock, R., Bonanati, S., & Buhl, H. M. (2022, June). Parental involvement and Children's internet uses - Relationship with parental role construction, self-efficacy, internet skills, and parental instruction. *Computers & Education*, 182, 104481. <https://doi.org/10.1016/j.compedu.2022.104481>

Abstract: Internet use is significant in the everyday lives of children and can be distinguished into different uses (e.g., entertainment-related, informative or school-related). When considering the literature on internet inquiries, the family as an informal place of learning is of particular importance. Although some predictors within the family (e.g., structural factors) are widely researched, comprehensive results on the influence of parental involvement, especially parental instruction as a form of parental support during information-related internet activities, on different internet uses are still lacking. Therefore, the study investigates (1) the relationship of parental role construction, self-efficacy, internet skills, and parental instruction in information-related internet use perceived by parents and children and (2) the relationship of parental role construction, self-efficacy, internet skills, parental instruction, and children's internet uses at home (entertainment-related, practical and school-or-learning-related). The mediation effects of parental instruction were also tested. A paper-and-pencil questionnaire was answered by 361 German children and their parents. Structural equation modeling was applied to answer the research questions. We observed that children's perceived parental instruction was positively associated with children's practical and school-or-learning-related internet use. Parents' motivational factors were the strongest predictors for parents' perceived parental instruction. The findings have significant implications for research and practice on how parents can be more active in fulfilling their role as supporters for children's internet use.

Keywords: Information literacy, Informal learning, Mobile learning, Media in education, Secondary education

28. Lee, S. W. Y., Hsu, Y. T., & Cheng, K. H. (2022, June). Do curious students learn more science in an immersive virtual reality environment? Exploring the impact of advance organizers and epistemic curiosity. *Computers & Education*, 182, 104456. <https://doi.org/10.1016/j.compedu.2022.104456>

Abstract: Past studies have found mixed results of the impact of immersive virtual reality (IVR) environments on students' learning. In this study, we examined the effect of using concept maps, a kind of advance organizer, on students' learning of science via IVR. In this exploratory and immersive learning environment, we also explored the roles played by learners' epistemic curiosity and other affective factors. Seventy-four sixth-grade students participated in this research and were randomly assigned to the advance organizer group (AO; experimental group) and the non-advance organizer group (NAO; control group). Data collection included survey questionnaires and a science test for assessing students' understanding of plants. We examined the structural relationships among students' curiosity and affective factors (including presence, control and active learning, positive emotional engagement, and negative emotional engagement), and

compared the learning outcomes of the experimental and control groups. We used analysis of covariance (ANCOVA) and partial least squares-structural equation modeling (PLS-SEM) for the data analysis. The results showed that students in the AO group had significantly higher scores for science concepts than those in the NAO group. In both groups, the interest-type curiosity and control and active learning positively predicted emotional engagement. Moreover, in the AO group, positive emotional engagement positively predicted the scientific knowledge of plant concepts. Implications for future research and instructional design are suggested in the study.

Keywords: Immersive virtual reality, Concept map, Epistemic curiosity.

29. Al Hakim, V. G., Yang, S. H., Liyanawatta, M., Wang, J. H., & Chen, G. D. (2022, June). Robots in situated learning classrooms with immediate feedback mechanisms to improve students' learning performance. *Computers & Education, 182*, 104483. <https://doi.org/10.1016/j.compedu.2022.104483>

Abstract: Because of time and space restrictions and the limited interaction capabilities of robots, it is preferable for teachers to construct a learning environment using digital reality in conjunction with robots. Doing so enables students to learn and interact in any scenario relevant to textbook material that can be effectively digitalized, while also promoting human-robot interaction. Here, an interactive situated learning approach was developed to improve students' learning performances. The students and robot role-played characters and immersed themselves in digital situated learning tasks and challenges. This approach included a real-time feedback mechanism to guide and evaluate the knowledge application of the students. The evaluation was performed during interactions with the robot, virtual objects, and virtual characters based on textbook context and content. The experiment was conducted during an English as a second language course for junior high school students. A total of 101 students were assigned to three groups with different approaches and their learning performance was evaluated. The experimental results indicated that students who learned with the proposed approach exhibited better learning achievement and significant positive effects in terms of learning motivation and engagement. Furthermore, interaction with physical robots improved student learning achievements significantly compared with virtual interaction. Moreover, motivation in the learning process could be enhanced using authentic objects and scenarios in the digital situated learning environment.

Keywords: Augmented and virtual reality, Human-computer interface, Teaching/learning strategies, Improving classroom teaching, Cooperative/collaborative learning

30. Schürmann, L., & Quaiser-Pohl, C. (2022, June). Digital badges affect need satisfaction but not frustration in males in higher education. *Computers & Education, 182*, 104484. <https://doi.org/10.1016/j.compedu.2022.104484>

Abstract: Digital badges are debated as a possible motivator in higher education, but their impact on basic psychological need satisfaction and frustration still requires research. Particularly need frustration has not been addressed systematically yet, specifically in relation to gender. Investigating whether and how badges affect both need satisfaction and need frustration, this study extends existing research on badges, motivation, and gender and discusses implications for theory and practice. During a digital seminar lasting for 8 weeks, we conducted a mixed-method experiment with $N = 64$ (32 women) undergraduates ($M = 22.95$ years, $SD = 4.06$). Participants were divided into an experimental (badges) and a control condition (no badges). We measured need satisfaction and frustration with pre-post online questionnaires. Univariate two-way analyses of variance revealed no effects of condition or gender. In the badge condition only, we used repeated-measurement analyses of variance and qualitative content analyses. Females and males estimated the seminar as equally need-satisfying, but males perceived working with badges as less need-satisfying than working for the seminar overall. Need frustration was not affected. Qualitative data implied that the needs for autonomy, competence, and relatedness could be better supported by underlining the value, ease of use, and social aspects of badges. Gender effects might exist because of a male preference for competitive game elements or ease of use. Conclusively, digital badges, even if not perceived as particularly need-supportive, can be a motivator in digital learning without frustrating the basic needs. This work adds empirical evidence from the perspective of need frustration to existing research on motivation and gamification. It can be conducive to an optimal promotion of female and male students' motivation in digital learning.

Keywords: Basic needs, Need frustration, Digital badges, Higher education, Gender

31. Zhang, S., Gao, Q., Sun, M., Cai, Z., Li, H., Tang, Y., & Liu, Q. (2022, July). Understanding student teachers' collaborative problem solving: Insights from an epistemic network analysis (ENA). *Computers & Education*, 183, 104485. <https://doi.org/10.1016/j.compedu.2022.104485>

Abstract: Collaborative problem solving, as a key competency in the 21st century, includes both social and cognitive processes with interactive, interdependent, and periodic characteristics, so it is difficult to analyze collaborative problem solving by traditional coding and counting methods. There is a need for a new analysis approach that can capture the temporal and dynamic process of collaborative problem solving in diversity online collaborative learning context to provide some insights into online collaborative learning design. During an eight-week semester, a total of 42 student teachers participated in two online collaborative learning activities. Student teachers' discourse data were collected, and the data were coded based on a collaborative problem solving assessment model. This study used Epistemic Network Analysis (ENA) to explore the collaborative problem solving processes of student teachers in different online collaborative learning tasks. The results showed that both the high and low academic performance groups worked to maintain positive communication, but the students in the high academic performance groups negotiated on ideas while the students in the low academic performance groups focused on sharing resources/ideas. Moreover, fine-grained centroid analysis on a weekly basis showed that the high academic

performance groups began by maintaining positive communication, and ended by negotiating ideas, while the low academic performance groups began by sharing resources/ideas and ended by regulating problem solving activities. Finally, the implications, limitations, and future research were discussed.

Keywords: Computer-mediated communication, Cooperative/collaborative learning, Teaching/learning strategies, Pedagogical issues

32. Huang, Y. M., Silitonga, L. M., & Wu, T. T. (2022, July). Applying a business simulation game in a flipped classroom to enhance engagement, learning achievement, and higher-order thinking skills. *Computers & Education*, 183, 104494. <https://doi.org/10.1016/j.compedu.2022.104494>

Abstract: Engagement forecasts positive education outcomes such as learning and skills development. Business simulation games (BSGs) are linked to skills development, and the flipped classroom is acknowledged as a successful approach for encouraging student-centered learning through engagement. This study investigated the impact of BSGs in a flipped classroom on student engagement, learning achievement, and higher-order thinking skills (HOTS). A quasi-experimental design was employed in an undergraduate entrepreneurship course. The sample consisted of 48 students in a business university. The flipped classroom was designed for both the control and experimental groups, but the instructional material was implemented using a BSG with the experimental group. The results of quantitative and qualitative analyses indicated that the use of the BSG had positive impacts on behavioural engagement, cognitive engagement, and learning achievement and improved HOTS such as problem-solving, critical thinking, and creativity.

Keywords: Games, Simulations. Cooperative/collaborative learning, Teaching/learning strategies, Improving classroom teaching

33. Hutain, J., & Michinov, N. (2022, July). Improving student engagement during in-person classes by using functionalities of a digital learning environment. *Computers & Education*, 183, 104496. <https://doi.org/10.1016/j.compedu.2022.104496>

Abstract: The introduction of digital learning environments in higher education requires teachers to be able to optimize their use to improve student engagement in the learning process during in-person classes. In a quasi-experiment ($N = 303$), an increasing number of functionalities of a digital learning environment was used to examine the impact on changes in cognitive, affective, and behavioural student engagement between the beginning and the end of a series of lectures. The three conditions were: ‘low number of functionalities’ in which students had only to answer quizzes during the lectures; ‘moderate number of functionalities’ in which, in addition to quizzes, students could ask the teacher written questions at different moments during the lectures; ‘high number of functionalities’ which added a functionality compared to the previous two enabling students to visualize the teacher's slideshow for the course on their own device in real

time during the lectures. Results revealed that visualizing the teacher's slideshow on their own device in addition to quizzing and questioning increased affective engagement of students between the beginning and end of the lectures. Furthermore, when only quizzing activities were provided, a greater proportion of students engaged behaviourally to perform additional quizzes administered one week after the end of the last lecture to prepare exams. The discussion evokes both preventing multi-tasking activities, and the need for students to self-evaluate by performing additional quizzes depending on the functionalities used by the teacher during the lectures.

Keywords: Digital learning environment, Quizzes, Lecture, Student engagement, Wooclap

34. Dubovi, I. (2022, July). Cognitive and emotional engagement while learning with VR: The perspective of multimodal methodology. *Computers & Education*, 183, 104495. <https://doi.org/10.1016/j.compedu.2022.104495>

Abstract: This study uses a multimodal data analysis approach to provide a more continuous and objective insight into how students' engagement unfolds and impacts learning achievements. In this study, 61 nursing students' learning processes with a virtual reality (VR)-based simulation were captured by psycho-physiological data streams of facial expression, eye-tracking, and electrodermal activity (EDA) sensors, as well as by subjective self-reports. Students' learning achievements were evaluated by a pre- and post-test content knowledge test. Overall, while both facial expression and self-report modalities revealed that students experienced significantly higher levels of positive than negative emotions, only the facial expression data channel was able to detect fluctuations in engagement during the different learning session phases. Findings point towards the VR procedural learning phase as a reengaging learning activity, which induces more facial expressions of joy and triggers a higher mental effort as measured by eye tracking and EDA metrics. Most importantly, a regression analysis demonstrated that the combination of modalities explained 51% of post-test knowledge achievements. Specifically, higher levels of prior knowledge and self-reported enthusiasm, and lower levels of angry facial expressions, blink rate, and devotion of visual fixations to irrelevant information, were associated with higher achievements. This study demonstrates that the methodology of using multimodal data channels encompassing different types of objective and subjective measures, can provide insights into a more holistic understanding of engagement in learning and learning achievements.

Keywords: Eye-tracking, Facial expression, Electrodermal activity, Engagement, Virtual reality

35. Hsu, F. H., Lin, I. H., Yeh, H. C., & Chen, N. S. (2022, July). Effect of Socratic Reflection Prompts via video-based learning system on elementary school students' critical thinking skills. *Computers & Education*, 183, 104497. <https://doi.org/10.1016/j.compedu.2022.104497>

Abstract: This study designed a Socratic Reflection Prompts via Video-Based Learning System (SRP-VBLS) and investigated the effects of the SRP-VBLS on elementary school

4th graders' critical thinking skills. Participants were divided into three groups: No-SRPs (n = 46), Receiving-SRPs (n = 42), and Responding-to-SRPs (n = 40). Participants in three groups were pre-and post-tested with a critical thinking assessment particularly designed for assessing elementary school students' critical thinking skills. Results show that the Responding-to-SRPs group and the Receiving-SRPs group significantly outperformed the No-SRPs group regarding their critical thinking skill improvement. It was also found that by responding to the SRPs, one of the critical thinking core skills, the analysis skill, of the students was significantly improved. This finding suggests that the SRP-VBLS is effective in developing elementary school students' critical thinking skills, and requiring students to respond to SRPs is especially beneficial to students' analysis skill enhancement. Implications of the findings for designing a video-based learning system in line with the Socratic reflection prompts are discussed.

Keywords: Elementary education, Evaluation methodologies, Pedagogical issues, Teaching/learning strategies, 21st-century abilities

36. Oinas, S., Hotulainen, R., Koivuhovi, S., Brunila, K., & Vainikainen, M. P. (2022, July). Remote learning experiences of girls, boys and non-binary students. *Computers & Education*, 183, 104499. <https://doi.org/10.1016/j.compedu.2022.104499>

Abstract: Self-regulated learning (SRL) may determine adapting to online environments. This study is an evaluation of students' (N = 33 912) SRL and integration in remote learning in Finnish lower secondary schools when educational institutions all over the world were urgently closed and teaching was arranged in remote settings due to COVID-19. Neither the teachers nor the students had time to prepare themselves for the transition, resulting in variations in coping. To learn from experiences during the pandemic, we evaluated students' remote learning experiences by using a nationally representative survey. Results of SEM reveal that students' better preparedness for SRL and positive experiences related to clear guidelines and encouraging feedback from teachers predict more time invested in studying. Surprisingly, regulation of peer learning during remote learning period had the strongest correlation with positive experiences, indicating the need for social interaction when schools were closed. Moreover, results show that girls and non-binary students were slightly more concerned about the amount and quality of support for learning during remote learning compared to boys. Overall, when teaching is implemented via technology, students should not be left to cope with the skills they have, but instead, strategies to regulate their learning should be taught consistently. Opportunities for peer learning need to be kept in mind as they can easily be forgotten when students study online. Technology that is easy to deploy by teachers and enabling gender sensitive peer learning should be developed. An instrument measuring SRL should be updated to study learning in technology-enhanced environments.

Keywords: Self-regulated learning, Remote learning experiences, Gender, Non-binary students, Peer learning

37. Chang, C. C., & Hwang, G. J. (2022, July). A structured reflection-based graphic organizer approach for professional training: A technology-supported AQSR approach. *Computers & Education*, 183, 104502. <https://doi.org/10.1016/j.compedu.2022.104502>

Abstract: The mission of professional training is to foster learners' abilities to perform analysis and to carry out problem-solving. During the process of professional training, how to promote learners' self-efficacy, re-organization, and reflection is the key to boosting their problem-solving abilities. However, conventional professional training programs tend to rely on teachers' elaboration of basic knowledge and cases. They also use graphical organizers for knowledge organization. The main focus of this learning method aims at promoting learners' memory and assisting their comprehension of the overall structure of the knowledge. However, learners who use this method often fail to develop a deep understanding of the relationship of different cases without additional supports. To solve this problem, this study proposed a technology-enhanced Annotation, Questioning, Summarization, and Reflection (AQSR) training approach which uses a graphic organizer to guide trainees to gain knowledge during the process of comprehending and organizing learning content. To evaluate the effectiveness of these strategies, a quasi-experiment was conducted to compare the performances of the AQSR-based graphic organizer approach and the conventional graphic organizer-based training. The participants were new nursing staff who were enrolled in two classes of a training program. From the experimental results, it was found that the nursing staff who used the AQSR training approach showed significantly better learning achievements and case analysis test scores as well as more positive learning attitudes than those who used the conventional graphic organizer-based training, showing the potential of the proposed approach for professional training.

Keywords: Teaching/learning strategies, Improving classroom teaching, Pedagogical issues, Interactive learning environments

38. Wang, J., Tigelaar, D. E., Luo, J., & Admiraal, W. (2022, July). Teacher beliefs, classroom process quality, and student engagement in the smart classroom learning environment: A multilevel analysis. *Computers & Education*, 183, 104501. <https://doi.org/10.1016/j.compedu.2022.104501>

Abstract: As smart classroom learning environments enable teaching and learning processes, scholars have examined how classroom process quality affects student engagement in secondary education. Smart classroom learning environments provide a prominent signpost for how teaching and learning will be transformed to accommodate new technologies. However, a holistic model for smart classroom learning environments seems warranted. This study fills this knowledge gap by emphasizing both instructional quality and the use of technology as critical indicators of classroom process quality. A total of 1825 secondary school students and their 38 teachers participated in the study. By using teacher and student questionnaires, the relationship among teacher beliefs,

classroom process quality, and student engagement in smart classroom learning environments was investigated. Three components of classroom process quality were distinguished: cognitive activation, connectedness, and the use of technology. Results from a multilevel regression analysis revealed that students' shared perceptions of connectedness and the use of technology were linked to student engagement. Unexpectedly, it was teacher education level rather than teacher beliefs that were associated with classroom process quality. Classroom process quality could also be influenced by teacher gender and teaching grade. Students' individual perceptions of three domains of classroom process quality were related to their engagement and boys reported significantly higher engagement than girls. Multilevel mediation analysis results showed that the relationships between teacher education level and student engagement were influenced by students' shared perceptions of connectedness and the use of technology. These findings contribute to a better understanding of how to best develop engaging smart classroom learning environments, and suggestions for future research are provided.

Keywords: Student engagement, Classroom process quality, Teacher beliefs, Smart classroom learning environments, Secondary education

39. Gür, D., & Türel, Y. K. (2022, July). Parenting in the digital age: Attitudes, controls and limitations regarding children's use of ICT. *Computers & Education, 183*, 104504. <https://doi.org/10.1016/j.compedu.2022.104504>

Abstract: Today, with the development of technology, many possibilities are offered to users; however, these possibilities bring along some risks and threats. It is very important to ensure that users, especially teenagers, can benefit from the possibilities of technology at the highest level by minimizing the existing risks. At this point, the roles, attitudes and behaviors of parents have an important effect. The purpose of this study is to reveal the attitudes, behaviors, controls and limitations of middle school students' parents towards their children's use of information technologies. For this purpose, data were collected from parents through survey and interviews. The participants of the study consisted of 354 parents of 6th and 7th grade students from seven public schools and four private schools. The parents filled out a questionnaire. Also, semi-structured interviews were conducted with 13 volunteer parents. According to the results, parents' attitudes towards their children's ICT use were positive and they especially supported their use of ICT for educational purposes. However, it was revealed that parents were concerned about the possible risks and security threats that their children may encounter in virtual environments, and therefore they take precaution in order to prevent their children from possible risks by informing, controlling and limiting their children. Based on the results, while children benefit from digital opportunities, they need to prevent themselves from digital risks as well through precautions and interventions with the support of school-parent cooperation.

Keywords: Digital parenting, Information and communication technologies (ICT), Parental control, Limitations, Online risks

40. Strouse, G. A., Chesnut, S. R., Newland, L. A., Mourlam, D. J., Hertel, D., & Nutting, B. (2022, July). Preschoolers' electrodermal activity and story comprehension during print and digital shared reading. *Computers & Education, 183*, 104506. <https://doi.org/10.1016/j.compedu.2022.104506>

Abstract: Digital picture books are increasingly available for shared reading but reports on how children engage with them differ depending on the type of measurement used. The purpose of this study was to compare pre-readers' engagement during print and digital shared reading and test whether engagement mediated the relation between children's preference, familiarity with the stories, and media experience and their comprehension of the story. Using a within-subjects design with order and book title randomly assigned, we captured electrodermal activity from 83 children aged 3–5 years during shared print and digital reading with a researcher. We also asked children which medium they preferred and surveyed their parents about their child's familiarity with the picture books and weekly digital media experience. Children's baseline-adjusted electrodermal level was higher at the midpoint of print than digital reading. The level diverged across the course of the story, increasing during the print story and decreasing during the digital story. Preference, familiarity, and digital media experience did not predict electrodermal level, and electrodermal level did not predict story comprehension. However, the duration of weekly digital media exposure positively predicted comprehension of the digital story. The results are consistent with reports that pre-readers, like adults, process digital and print reading differently, even when digital books offer no interactive features. Children do not consistently prefer the medium in which they will be most engaged or learn best. Future research is needed to determine how interactive digital features and interactive co-readers impact this pattern of results.

Keywords: Early years education, Informal learning, Media in education, Mobile learning

41. Orona, G. A., Li, Q., McPartlan, P., Bartek, C., & Xu, D. (2022, July). What predicts the use of interaction-oriented pedagogies? The role of self-efficacy, motivation, and employment stability. *Computers & Education, 184*, 104498. <https://doi.org/10.1016/j.compedu.2022.104498>

Abstract: In this study we investigate college instructors' use of practices that facilitate interactions in online college courses. We begin by drawing on several strands of literature to offer a person-purpose interaction framework with two dimensions – one regarding the entities involved in the interaction (instructor, student, content) and the other regarding the pedagogical goal of the interaction (academic, social, managerial) – that result in six sub-domains of practices. Subsequently, we examine the frequency of, and factors associated with instructors' use of these six domains, using survey data collected from online college instructors (N = 126) from a large community college. The results show that instructors using more interaction-oriented practices consistently have greater employment stability and teaching load, greater self-efficacy for using learning management systems, and greater perceived benefits of online learning for students. The findings have several implications for future research examining pedagogical behavior, as

well as the design of professional development activities aimed at enhancing the use of effective online instructional practices among college instructors.

Keywords: Online interaction, Instructional practices, Higher education, Online education

42. Montazami, A., Ann Pearson, H., Kenneth Dubé, A., Kacmaz, G., Wen, R., & Shajeen Alam, S. (2022, July). Why this app? How educators choose a good educational app. *Computers & Education, 184*, 104513. <https://doi.org/10.1016/j.compedu.2022.104513>

Abstract: The study examines if educators are valuing certain benchmarks of quality (i.e., scaffolding, feedback, curriculum, development team, learning theory) when they select educational apps from app stores and evaluates how they gather information during the selection process. Pre-service and working elementary educators viewed and evaluated app store pages for 10 simulated apps while gaze data (i.e., looking at either the written descriptions or app images) were collected using an eye-tracker. Participants' value-judgements were measured by their willingness to download the app, how much they would pay, their rating, and ranking, while gaze data examined participants' fixation count and fixation duration. Results from paired-samples *t*-tests, repeated-measures ANOVAs, and nonparametric tests indicate that educators value apps with educational benchmarks over buzzwords, while judging apps with development team, scaffolding, and curriculum higher than those with an integrated learning theory and feedback. Moreover, eye tracking results revealed that educators scrutinize app images more when they feature educational benchmarks. To improve educators' app selection, professional development should target educators' views of learning theory and feedback as well as their use of app images as a source of information on app quality (cf., detailed text descriptions).

Keywords: Elementary education, Teaching, Educational apps, Mobile, Eye-tracking

43. Sigayret, K., Tricot, A., & Blanc, N. (2022, July). Unplugged or plugged-in programming learning: A comparative experimental study. *Computers & Education, 184*, 104505. <https://doi.org/10.1016/j.compedu.2022.104505>

Abstract: In recent years, computer programming has reappeared in school curricula with the aim of transmitting knowledge and skills beyond the simple ability to code. However, there are different ways of teaching this subject and very few experimental studies compare plugged-in and unplugged programming learning. The purpose of this study is to highlight the impact of plugged-in or unplugged learning on students' performance and subjective experience. To this end, we designed an experimental study with 217 primary school students divided into two groups and we measured their

knowledge of computational concepts, ability to solve algorithmic problem, motivation toward the instruction, self-belief and attitude toward science. The programming sessions were designed to be similar between the two conditions, only the tools were different. Computers and Scratch software were used in the plugged-in group while the unplugged group used paper instructions, pictures, figurines and body movements instead. The results show better learning performance in the plugged-in group. Furthermore, although motivation dropped slightly in both groups, this drop was only significant in the unplugged condition. Gender also seems to be an important factor, as girls exhibit a lower post-test motivation and a lower willingness to pursue their practice in programming outside the school context. However, this effect on motivation was only observable in the plugged-in group which suggests that educational programming software may have a positive but gendered motivational impact.

Keywords: Elementary education, Improving classroom teaching, Programming and programming languages, Teaching/learning strategies

44. Herodotou, C., Ismail, N., Aristeidou, M., Miller, G., Benavides Lahnstein, A. I., Ghadiri Khanaposhtani, M., Robinson, L. D., & Ballard, H. L. (2022, July). Online Community and Citizen Science supports environmental science learning by young people. *Computers & Education*, *184*, 104515. <https://doi.org/10.1016/j.compedu.2022.104515>

Abstract: Community and citizen science in online settings could be seen as a means for young people to engage with and contribute to authentic science. Yet, there is a limited understanding of who takes part in citizen science among young people, what they learn, and through which processes, particularly in online settings. In this exploratory study, we analysed 34 in-depth interviews and log files of young people aged 11–19 years old who took part in citizen science projects, hosted on the Zooniverse platform. Data analysis suggested that participation in online citizen science can bring environmental science learning benefits to young people, with some participants reporting evidence of agency with science, highlighted by taking action to do science in another context. Many participating youths exhibited substantial previous science experiences that helped them to take part and learn from citizen science projects. Considering findings from this study, we present a first working framework of how environmental science learning is enabled or hindered by certain types of participation, as a means to guide the design of online citizen science for young people. We recommend that the future project design, publicity and recruitment in online citizen science activities explicitly target the needs and interests of young people with diverse characteristics and competencies to truly open science to all.

Keywords: Community citizen science, young people, Informal learning, Design features

45. Huang, Y., Richter, E., Kleickmann, T., & Richter, D. (2022, July). Class size affects preservice teachers' physiological and psychological stress reactions: An experiment in a virtual reality classroom. *Computers & Education, 184*, 104503. <https://doi.org/10.1016/j.compedu.2022.104503>

Abstract: Teachers frequently express stress associated with teaching in large classrooms. Despite the time-honored tradition in teacher stress research of treating class size as a job-related stressor, the underlying premise that class size directly impacts teachers' stress reactions remains untested. In this randomized controlled experiment targeted at preservice teachers, we utilized a standardized virtual reality (VR) classroom to examine whether class size (number of student avatars) directly affected physiological (heart rate) or psychological (subjective rating) stress reactions among 65 preservice teachers. Results from linear mixed-effects modeling (LMM) showed that class size significantly predicted both their physiological and psychological stress reactions in the simulated environment: Average heart rate and subjective stress ratings were both significantly higher in the large class size condition. Further investigations into the causes of this association has been proposed. These findings may contribute to a better understanding of the effects of classroom features on preservice teachers' emotional experiences and well-being.

Keywords: Augmented and virtual reality, Simulations, Improving classroom teaching, Media in education, Pedagogical issues

46. Darmawansah, D., Lin, C. J., & Hwang, G. J. (2022, July). Empowering the collective reflection-based argumentation mapping strategy to enhance students' argumentative speaking. *Computers & Education, 184*, 104516. <https://doi.org/10.1016/j.compedu.2022.104516>

Abstract: It is crucial to design learning strategies for English as Foreign Language (EFL) learners in the context of proliferating and cultivating argumentative speaking. Argumentation mapping aims to provide a visual depiction of collaborative arguments in order to unravel students' engagement in constructing argumentative discussion. The employment of argumentation mapping is fundamental to maintaining students' virtual social practice. However, in the conventional argumentation mapping approach, the acquisition of argumentation skills does not yield successful argumentative dialogue-to-speaking practice. The collective reflection aims to promote a group of learners' reflective thinking and higher order thinking by way of collaborative tasks and group monitoring. This strategy allows students to reflect on their group works when dealing with argumentative knowledge. Hence, this study referred to the educational theory of collective reflection practice and proposed its practice in the Collective Reflection-based Argumentation Mapping (CR-AM) learning strategy. This strategy was applied to an EFL speaking course to enhance students' argumentative speaking. Twenty-four students were recruited as the CR-AM strategy group, with 22 in the conventional Argumentation Mapping (AM) strategy group. The findings indicated that the CR-AM learning strategy

could significantly improve students' argumentative speaking performance and their lexical complexity. Although students' critical thinking was at an equivalent level in both groups, students' communication and collaboration tendencies were much higher in the CR-AM strategy group. Based on the argumentation mapping discourse, it was verified that instructing students to extend their activities of classifying collective arguments and monitoring group reflection could effectively support their engagement in argumentation mapping discourse and enhance their argumentation skill performance.

Keywords: Teaching/learning strategies, Improving classroom teaching, Pedagogical issues, Interactive learning environments

47. Li, Q., Xu, D., Baker, R., Holton, A., & War Schauer, M. (2022, August). Can student-facing analytics improve online students' effort and success by affecting how they explain the cause of past performance? *Computers & Education*, 185, 104517. <https://doi.org/10.1016/j.compedu.2022.104517>

Abstract: Clickstream data have been used increasingly to present students in online courses with analytics about their learning process to support self-regulation. Drawing on self-regulated learning theory and attribution theory, we hypothesize that providing students with analytics on their own effort along with the effort and performance of relevant peers will help students attribute their performance to factors under their control and thus positively influence their subsequent behavior and performance. To test the effect of the analytics and verify the proposed mechanism, we conducted an experiment in an online undergraduate course in which students were randomly assigned to receive theoretically inert questions (control condition), attribution questions (active control condition), and the analytics with attribution questions (treatment condition). The intervention significantly increased effort attribution, reduced ability attribution, and improved subsequent effort for a subgroup of students who self-reported low performance, although there was no significant impact on their performance.

Keywords: Self-regulated learning, Attribution, Learning analytics, Online learning

48. McGrew, S., & Byrne, V. L. (2022, August). Conversations after lateral reading: Supporting teachers to focus on process, not content. *Computers & Education*, 185, 104519. <https://doi.org/10.1016/j.compedu.2022.104519>

Abstract: High school students need support learning to evaluate online information. As curricular resources are developed in this area, how teachers use these resources and engage students in learning to evaluate online information is a critical question. Research is needed that focuses on teachers in action in their classrooms, analyzing their areas of strength and identifying places they may need more support. This study analyzed whole-class conversations during four lessons in six high school social studies classes in a large U.S. district where students learned an approach to evaluating online sources called *lateral reading*. We used qualitative methods to investigate whether these conversations focused on content specific to the assigned examples or on knowledge and skills likely to apply to future experiences evaluating online information. We found that discussions focused on the original sources being investigated instead of on the process

of lateral reading. Teachers often shared and prompted details about the original sources and put less focus on how or where students uncovered those details. Faced with teaching a new approach to evaluating online information, more specific and extended supports may be required for teachers as they learn to teach lateral reading.

Keywords: Media in education, Teacher professional development, Teaching/learning strategies

49. Zamecnik, A., Kovanović, V., Grossmann, G., Joksimović, S., Jolliffe, G., Gibson, D., & Pardo, A. (2022, August). Team interactions with learning analytics dashboards. *Computers & Education*, 185, 104514. <https://doi.org/10.1016/j.compedu.2022.104514>

Abstract: Student-facing visualisations have attracted increased attention with recent developments in data-driven tools to support individual and group work. Learning analytics dashboards (LADs), a data-enhanced feedback tool that allows students to make sense of their learning by providing insights into their learning behaviours represents one of the prominent examples of this trend. While these visualisation tools are increasingly used to study and enhance students' learning in academic contexts, current research is limited regarding the effects of the LADs in K-12 environments. There is a missed opportunity to empower teams and allow instructors and researchers to understand how teams use the LAD to regulate their learning. In this study, we developed a K-12 LAD for supporting students' collaborative work and evaluated with respect to students' perceived usefulness of the proposed LAD and the association between its use and course performance. The study followed a mixed-methods approach, combining quantitative analysis of log data from the dashboard and qualitative analysis of students' perceptions using surveys and focus groups. Our results show that different roles within teams have distinguished engagement patterns with the LAD and that the tool improves the collaborative learning experience. We postulate that the implications of this study will aid future research work when investigating the behaviours of teams and optimising their learning using LADs.

Keywords: K-12, Collaboration, Dashboard, Learning analytics, blended learning

50. Ronconi, A., Veronesi, V., Mason, L., Manzione, L., Florit, E., Anmarkrud, I., & Bråten, I. (2022, August). Effects of reading medium on the processing, comprehension, and calibration of adolescent readers. *Computers & Education*, 185, 104520. <https://doi.org/10.1016/j.compedu.2022.104520>

Abstract: This study investigated the effects of reading texts on paper versus on screen on reading time, text comprehension, and calibration of performance, while controlling for relevant individual difference variables. In a within-subjects design, eighth graders ($N = 150$) read two informational texts, one printed on a sheet of paper and one on a tablet. Reading time was registered. Text comprehension was assessed with open-ended questions at three levels: main idea, key points, and other relevant information. Calibration of performance was assessed as calibration bias by subtracting participants'

actual comprehension performance from their judgment of comprehension performance. Results of linear mixed models showed that reading medium did not affect reading time, but an interaction effect of medium with gender on reading time emerged. Boys were faster when reading on screen than on paper. Reading medium affected comprehension at the level of the main idea, favoring reading on paper. Moreover, reading medium affected calibration of performance, with larger calibration bias when reading on screen. Further, an interaction of medium with gender on calibration bias showed that boys were less calibrated when reading on screen than when reading on paper. Finally, mediation analyses showed that calibration bias mediated the effects of reading medium on text comprehension at the levels of main idea and key points.

Keywords: Reading medium, Digital text, Digital reading, Text comprehension, Metacognitive calibration

51. Beege, M., Krieglstein, F., & Arnold, C. (2022, August). How instructors influence learning with instructional videos - The importance of professional appearance and communication. *Computers & Education*, 185, 104531. <https://doi.org/10.1016/j.compedu.2022.104531>

Abstract: Since distance learning takes on an ever-greater role in educational settings, learning from instructional videos has gained enormous popularity in research. In this vein, there is an ongoing discussion whether the instructor should be visible throughout the video and if so, how the instructor should be designed. Under the premise that the perceived professionalism of the instructor act as social cue activating social schemata, the appearance and communication were identified as important characteristics of the instructor. The current experiment ($N = 107$ university students) manipulated the professionalism of a video lecturer in a two factorial between-subjects design in terms of appearance and communication (professional vs. non-professional). Contrast analysis revealed that professional congruence between appearance and communication significantly fostered para-social processes, intrinsic motivation and reduced extraneous cognitive load. In addition, learning performances in retention and transfer were enhanced when the instructor had a professional appearance and professional communication. Mediation analyses were performed in order to better explain the effects of professional coherence on learning. The results of this study should help instructional designers and teachers to make their videos for learning purposes as useful as possible.

Keywords: *Instructional videos, Instructor presence, Professional appearance, Professional communication*

52. Luo, Y. F., Yang, S. C., & Kang, S. (2022, August). New media literacy and news trustworthiness: An application of importance–performance analysis. *Computers & Education*, 185, 104529. <https://doi.org/10.1016/j.compedu.2022.104529>

Abstract: Previous studies have primarily focused on the detection of fake news using artificial intelligence or identifying it through analysis of politically charged topics and their implications. However, studies have rarely systematically analyzed the

characteristics of fake news from the perspective of readers. Little empirical evidence exists demonstrating the positive role of the new media literacy (NML) in assisting adolescents in recognizing fake news. This study examined the relationship among Taiwanese students' level of NML and their performance and perception of the importance of using news trustworthiness (NT) attributes to discern fake news while interacting with media. The cross-sectional study was conducted through a questionnaire survey, and 563 responses were included in the analysis. Importance-performance analysis (IPA) and canonical correlation analysis techniques were used to validate the multidimensional relationships between NML and NT. From the IPA with data-centered quadrants and diagonal-based schemes, 31 of the 32 NT attributes were self-evaluated with lower performance than importance. Canonical correlation analysis showed just a slight correlation between NML and NT. This study seeks to provide insights into the strengths and weaknesses of students' NML and NT skills, and its findings may help to further equip digital readers with the skillset needed to discern facts from falsehoods.

Keywords: Fake news, New media literacy, Importance-performance analysis

53. Sun, C. T., Chou, K. T., & Yu, H. C. (2022, September). Relationship between digital game experience and problem-solving performance according to a PISA framework. *Computers & Education*, 186, 104534. <https://doi.org/10.1016/j.compedu.2022.104534>

Abstract: The authors recruited 267 Taiwanese elementary school students to play digital games in order to investigate the influence of prior game play experience on problem-solving performance, with specific focuses on self-regulated learning, problem-solving processes, problem contexts, and problem characteristics. Data were acquired using a self-regulated learning scale, a game experience questionnaire, a problem-solving process evaluation instrument based on the 2012 Program for International Student Assessment, a computer-based survey focused on seven problem-solving scenarios, and four digital games. Our results indicate a positive and significant effect on problem-solving performance among study participants with seven or more years of game play experience, and positive feelings toward game learning as reflected in negatively skewed self-regulated learning scores. We also found that the “representation and formulation” stage served as a significant performance predictor, the “planning and execution” and “monitoring and reflection” stages were significant predictors of dynamic/technical problems, and the “exploring and understanding” stage was a predictor for static/non-technical problems. Our data indicate significant differences in problem-solving cognitive processes across ranges of contexts and characteristics. We believe our findings will be useful for researchers studying the potential use of digital game frameworks to measure specific learning mechanisms.

Keywords: Evaluation methodologies, Games, Information literacy, Informal learning, 21st century abilities

54. Ahn, S. J. G., Nowak, K. L., & Bailenson, J. N. (2022, September). Unintended consequences of spatial presence on learning in virtual reality. *Computers & Education, 186*, 104532. <https://doi.org/10.1016/j.compedu.2022.104532>

Abstract: Research on virtual reality (VR) in education and training has found that spatial presence, the perception that the body is inside a mediated environment, increases engagement. However, experiencing spatial presence requires the allocation of limited processing resources, potentially inhibiting the processing of other information. Guided by the frameworks of Limited Capacity Model of Motivated Mediated Message Processing (LC4MP), and the cognitive theory of multimedia learning, two experiments examined the effects of different modalities on spatial presence to test the prediction that spatial presence negatively impacts recall. Study 1 ($N = 100$) found that VR elicited higher spatial presence than video, but that high spatial presence reduced recall. Individual differences (technology apprehension) moderated spatial presence. Study 2 ($N = 260$) found that pre-existing interest in the learning content and aversive responses elicited by the learning content increased spatial presence. However, segmenting the VR content to reduce processing load for participants had little effect on spatial presence or information recall. In sum, modality features and individual differences drove user experiences of spatial presence, which negatively impacted recall, but segmentation of VR content had no effect on learning outcomes.

Keywords: Augmented and virtual reality, Games, Human-computer interface, Limited capacity, Spatial presence, Recall, Simulations

55. Witsenboer, J. W. A., Sijtsma, K., & Scheele, F. (2022, September). Measuring cyber secure behavior of elementary and high school students in the Netherlands. *Computers & Education, 186*, 104536. <https://doi.org/10.1016/j.compedu.2022.104536>

Abstract: School systems may pay attention to the fact that individuals and companies using smart devices are increasingly at risk of becoming victims of cybercrime. The literature on how effective students in developed countries such as the Netherlands are taught about cyber security skills during their school career is scarce. Although curriculum materials are available, scaling up computer science education is behind. Therefore, this study explores to what extent Dutch students develop cyber secure behavior at elementary and high school. A questionnaire was used for self-assessment of cyber security behavior. After the questionnaire was completed, two group interviews were conducted to improve the interpretation of the questionnaire results. The study findings revealed that the Dutch school curriculum hardly pays attention to this topic and that students acquire their online behavior mainly through experience, instructions on the internet, through parents, and through siblings. In addition, many students developed more reckless behavior over time. We recommend that cyber security education should start at elementary school as soon as children begin to use online equipment. A subject that deserves special attention is recognizing phishing emails and phishing websites. The learners should be convinced that risky behavior on the internet may turn against them and against the organization to which they belong.

Keywords: Cyber secure behavior, Information security behavior, Cyber security education

56. Yoo, H., Jang, J., Oh, H., & Park, I. (2022, September). The potentials and trends of holography in education: A scoping review. *Computers & Education*, 186, 104533. <https://doi.org/10.1016/j.compedu.2022.104533>

Abstract: The advancement of digital hologram technology has conceded exciting possibilities in the educational sector pushing the temporal and spatial boundaries with enhanced virtual presence and interactions. The application and adaptation of the technology have started off in the classrooms mainly in medical education, science, and engineering education in the higher education sites. With this, the studies on the use of holograms and their educational effects have been also on an increase. This scoping review examines the literature in the past decade and provides a comprehensive overview of the research on using holography in educational sites. The results show that although the number of studies on the use of holography is on the rise in recent five years, studies on educational effects are limited to small age groups, subjects, and the effectiveness constructs that measure learning outcomes are still scattered. This review contributes to the bibliometric and thematic mapping of literature and the identification of gaps for future research.

Keywords: Augmented and virtual reality, Media in education

57. Zhang, I. Y., Tucker, M. C., & Stigler, J. W. (2022, September). Watching a hands-on activity improves students' understanding of randomness. *Computers & Education*, 186, 104545. <https://doi.org/10.1016/j.compedu.2022.104545>

Abstract: Introductory statistics students struggle to understand randomness as a data generating process, and especially its application to the practice of data analysis. Although modern computational techniques for data analysis such as simulation, randomization, and bootstrapping have the potential to make the idea of randomness more concrete, representing such random processes with R code is not as easy for students to understand as is something like a coin-flip, which is both concrete and embodied. In this study, in the context of multimedia learning, we designed and tested the efficacy of an instructional sequence that preceded computational simulations with embodied demonstrations. We investigated the role that embodied hands-on movement might play in facilitating students' understanding of the shuffle function in R. Our findings showed that students who watched a video of hands shuffling data written on pieces of paper learned more from a subsequent live-coding demonstration of randomization using R than did students only introduced to the concept using R. Although others have found an advantage of students themselves engaging in hands-on activities, this study showed that merely watching someone else engage can benefit learning. Implications for online and remote instruction are discussed.

Keywords: Hands-on demonstration, Computer simulation, Statistics education, Multimedia learning, Online instruction, Instructional sequence, Embodied cognition

58. Nelson, M. J., & Voithofer, R. (2022, September). Coursework, field experiences, and the technology beliefs and practices of preservice teachers. *Computers & Education*, 186, 104547. <https://doi.org/10.1016/j.compedu.2022.104547>

Abstract: Studies of technology in teacher education programs have rarely investigated how both coursework and field experiences impacted the beliefs and technology integration behaviors of preservice teachers. To address this gap, this study utilized online surveys administered to student teachers across ten different institutions to determine how the prevalence of technological pedagogical content knowledge (TPACK) in their field observations and the teacher educator technology competencies (TETCs) in their university coursework predicted preservice teachers' beliefs and teaching behaviors with technology. Analyses with structural equation modeling indicated that preservice teachers' interest in technology and beliefs in its utility predicted their TPACK application. Additionally, their self-efficacy to improve student learning with technology predicted their value beliefs and their TPACK application. While TETC prevalence in university coursework directly predicted their self-efficacy and teaching behaviors, the prevalence of TPACK in their field placements did not predict beliefs but were associated with TPACK application.

Keywords: TPACK, Teacher education, Technology integration, Beliefs, Field experience

59. Mouza, C., Coddling, D., & Pollock, L. (2022, September). Investigating the impact of research-based professional development on teacher learning and classroom practice: Findings from computer science education. *Computers & Education*, 186, 104530. <https://doi.org/10.1016/j.compedu.2022.104530>

Abstract: As the field of computer science (CS) is gaining increased attention, the need for qualified teachers is rapidly growing. Yet little is still known about the design features, implementation, and outcomes of professional development programs in computing. The purpose of this study is threefold: (a) examine a CS professional development program built around high-quality design features reported in the research literature, (b) investigate the impact of the program on participating teachers' learning and classroom practice, and (c) identify specific design features that facilitated changes in teacher learning and practice. The study employed a mixed-methods design. Data were collected from multiple sources including, pre and post survey data on teacher knowledge of CS content, pedagogy, and technology (N = 94), as well as interviews and classroom implementation data from eight case study participants. Findings from this work indicated that participants reported improvements in their knowledge of CS content, pedagogy, and technology. They also applied new learning into their practice, though implementation varied among participants. Responding on the value of the professional development design features, teachers noted the importance of focusing on CS content knowledge as well as opportunities to engage with pedagogical practices for teaching

computing. Findings also indicated the important role of contextualized follow-up classroom support in the implementation of new learning into practice. These findings have implications for the design of professional development programs grounded in best practices with the potential to support broad efforts intended to prepare teachers with the knowledge and skills needed to deliver CS education.

Keywords: Computer science education, Professional development, Teacher learning

CROSS-CULTURAL PSYCHOLOGY

1. Yakhnich, L., & Michael, R. (2022, April 14). "I Don't Want My Children to Work so Hard": Perceptions of Parent-Child Relationships and Future Parenting Among Immigrant Young Adults. *Journal of Cross-Cultural Psychology*, 53(5), 451–470. <https://doi.org/10.1177/00220221221093813>

Abstract: Immigration is a multifaceted process that alters parent-child relationships and impacts immigrant children's development. However, not much is known regarding the long-term implications of immigration on children when they reach adulthood. This phenomenological study explored the perceptions of parent-child relationships among young adults who immigrated as children to Israel, and the ways such relationships shaped their future parenting perceptions. Twenty-five young adults who immigrated to Israel in middle and late childhood from Ethiopia ($n = 14$) and from the former Soviet Union ($n = 11$) were interviewed for this study. Analysis indicated that the participants' experiences of relations with their parents may be organized into three main domains: shifting relations in the context of immigration, relations in the context of long-term adaptation and maturation, and relations in cultural context (e.g., cultural perceptions about family life and culture-related immigration challenges). Participants' perceptions of their own parenting incorporated culture-specific factors (e.g., family hierarchy and cohesiveness, child-rearing practices, and respect given to parents) as well as difficulties and strengths experienced by the participants' families during immigration. Although most participants wished to be different from their parents (not wanting their children to work so hard) they hoped to preserve some of their culture of origin's child-rearing practices. The findings have implications for professionals who work with immigrant families and for policy makers. Considering a family's specific cultural background and helping parents integrate diverse parental practices may assist immigrant families in coping with challenges of immigration and help young adults who immigrated as children in creating a coherent parenthood.

Keywords: immigrant children, immigrant parents, future perceptions, parent-child relations, culture

2. Fang, X., Sauter, D. A., Heerdink, M. W., & van Kleef, G. A. (2022, April 29). Culture Shapes the Distinctiveness of Posed and Spontaneous Facial Expressions of Anger and Disgust. *Journal of Cross-Cultural Psychology*, 53(5), 471–487. <https://doi.org/10.1177/00220221221095208>

Abstract: There is a growing consensus that culture influences the perception of facial expressions of emotion. However, relatively few studies have examined whether and how culture shapes the *production* of emotional facial expressions. Drawing on prior work on cultural differences in communication styles, we tested the prediction that people from the Netherlands (a low-context culture) produce facial expressions that are more distinct across emotions compared to people from China (a high-context culture). Furthermore, we examined whether the degree of distinctiveness varies across posed and spontaneous expressions. Dutch and Chinese participants were instructed to either pose facial

expressions of anger and disgust, or to share autobiographical events that elicited spontaneous expressions of anger or disgust. Using a supervised machine learning approach to categorize expressions based on the patterns of activated facial action units, we showed that both posed and spontaneous facial expressions of anger and disgust were more distinct when produced by Dutch compared to Chinese participants. Yet, the distinctiveness of posed and spontaneous expressions differed in their sources. The difference in the distinctiveness of posed expressions appears to be due to a larger array of facial expression prototypes for each emotion in Chinese culture than in Dutch culture. The difference in the distinctiveness of spontaneous expressions, however, appears to reflect the greater similarity of expressions of anger and disgust from the same Chinese individual than from the same Dutch individual. The implications of these findings are discussed in relation to cross-cultural emotion communication, including via cultural products.

Keywords: culture, facial expressions, emotion, posed, spontaneous

3. Hernández Dubon, R. E., Willis, K., Moreno, O., Everhart, R. S., & Corona, R. (2022, April 23). Does Religious Commitment Mediate the Association Between Acculturative Stress and Latinx Young Adults' Tobacco Use? *Journal of Cross-Cultural Psychology*, 53(5), 488–502. <https://doi.org/10.1177/00220221221093814>

Abstract: Tobacco use is a public health priority in the Latinx community. Identifying factors associated with less tobacco use could help inform community-based prevention efforts. The present study examined whether religious commitment (intrapersonal and interpersonal) mediated the association between acculturative stress and tobacco use among 224 Latinx young adults. Participants completed a battery of measures that included cultural stressors, religious commitment, and tobacco use. Controlling for age and gender, mediation analyses revealed a significant indirect effect in that acculturative stress predicted greater intrapersonal religious commitment, which in turn predicted less tobacco use. There was no direct relationship between acculturative stress and tobacco use. Interpersonal religious commitment was negatively related to tobacco use, but did not mediate the association between acculturative stress and tobacco use. Findings support the need for initiatives to decrease tobacco use among Latinx young adults that include a focus on intrapersonal religious commitment in response to acculturative stress.

Keywords: latinx, young adults, acculturative stress, religious commitment, tobacco use

4. Shange, S., & Ross, E. (2022, March 25). “The Question Is Not How but Why Things Happen”: South African Traditional Healers' Explanatory Model of Mental Illness, Its Diagnosis and Treatment. *Journal of Cross-Cultural Psychology*, 53(5), 503–521. <https://doi.org/10.1177/00220221221077361>

Abstract: While there is relatively high patronage of traditional healers in South Africa, their approaches toward mental illness remain shrouded in mystery. The research therefore explored the beliefs and practices of traditional healers at Dube Village, Soweto, South Africa regarding the reasons for and treatment of mental illness and was

guided by an Afrocentric theoretical perspective. Qualitative interviews with 14 traditional healers revealed that mental illness could be identified by throwing the bones, observations, and history-taking. They attributed mental illness to spiritual, socio-cultural, psychosocial, and physical factors. Methods used to treat mental illness included removing evil spirits through washing, steaming, induced vomiting, and administering herbal remedies. Findings suggest that while there are many similarities with biomedicine, traditional healing differs in terms of its links with spirituality and the efforts of healers to answer the question why things happen from a collectivist perspective.

Keywords: traditional healing, traditional healers, mental illness, Black South Africans, cultural explanatory model, Afrocentric perspectives

5. Gilliam, A., Schwartz, D. B., Godoy, R., Boduroglu, A., & Gutchess, A. (2022, March 30). Does State Tightness-Looseness Predict Behavior and Attitudes Early in the COVID-19 Pandemic in the USA? *Journal of Cross-Cultural Psychology*, 53(5), 522–542. <https://doi.org/10.1177/00220221221077710>

Abstract: We investigated how tightness-looseness, reflecting strictness of social norms, of state of residence in the USA predicts behaviors and attitudes related to COVID-19. Because individual-level tightness may better capture current attitudes during the pandemic, whereas state-level archival measures reflect historical factors, we assessed the extent to which tightness-looseness at both levels predicted adherence to public health guidelines and biases toward outgroups related to COVID-19. In Spring 2020, 544 mTurk participants, primarily from the 13 tightest and 13 loosest states, completed survey questions about health behaviors in response to COVID-19, endorsement of future policy changes, feeling of responsibility for lives, and attitudes toward groups marginalized during the pandemic (i.e., Asians, older adults). State-level results indicated some associations with attitudes toward Asians and older adults, but effects were not robust. Results based on individuals' ratings of the tightness of their state indicated that higher levels of perceived tightness were associated with higher levels of protective self-reported public health behaviors (e.g., mask wearing, handwashing) during COVID-19, more endorsement of future policy changes to contain the pandemic, higher reported feelings of responsibility for one's life, and stronger negative attitudes toward Asians. The relations between tightness and health outcomes persisted after controlling for political attitudes and demographics. Thus, individual, more than state, tightness-looseness accounted for some degree of public health behaviors (unique contribution of individual tightness: $R^2 = .034$) and attitudes toward marginalized groups ($R^2 = .020$) early during the COVID-19 pandemic. The implications of these findings for interventions to support behavior change or combat anti-Asian bias are discussed.

Keywords: COVID-19, culture, behavior change, attitudes, outgroup

ECONOMIC & POLITICAL WEEKLY

1. Gupta, S., & Kamate, V. (2022, July 16). The Role of Socio-economic Status in Shaping Macroeconomic Beliefs of Indian Households. *Economic & Political Weekly*, 57(29), 13–17. <https://www.epw.in/journal/2022/29/commentary/role-socio-economic-status%2%A0-shaping-macroeconomic.html>

Abstract: Using a household-level panel data set on Indian households, it is shown that households' macroeconomic beliefs—their expectations regarding country-level macroeconomic developments—depend on their socio-economic status. Households with higher income and with more educated members are more optimistic not only with respect to the overall future business conditions of the economy but also with respect to their future family finances. In addition to socio-economic status, the rural–urban divide also plays an important role in shaping Indian households' macroeconomic expectations.

2. Dutta, N., & Kar, S. (2022, July 16). An Analysis of Rural Shocks in India during the Pandemic. *Economic & Political Weekly*, 57(29), 18–21. <https://www.epw.in/journal/2022/29/commentary/analysis-rural-shocks-india-during-pandemic.html>

Abstract: Utilising the third round of World Bank Survey data collected during September 2020, the employment shocks in rural India are analysed based on the gender, age, caste, and income quartile of individuals. Using graphical representations and simple mean tests, it is found that, on average, females in rural areas did not have an occupation relative to males in most of the states that feature in the survey. Older females and Scheduled Castes, Scheduled Tribes, and Other Backward Classes show a lower probability of retaining regular salaried jobs during the lockdown and were adversely affected owing to disruptions in daily wage work.

3. Desai, B. H, Sharma, M., Upadhyay, S., & Mandal, M. (2022, July 16). On Ensuring Protection of Women in NRI Marriages. *Economic & Political Weekly*, 57(29), 22–27. <https://www.epw.in/journal/2022/29/commentary/ensuring-protection-women-nri-marriages.html>

Abstract: The study examines the legal remedial measures for women trapped in the non-resident Indian marriages under private and public international law as well as the Indian legal and institutional framework, including a comprehensive legislation and a monitoring mechanism in the Prime Minister's Office.

4. Bhan, G., Chakraborty, H., & Parushya. (2022, July 16). Spatialising Urban Vulnerability Perspectives from COVID-19 Food Relief in Delhi. *Economic & Political Weekly*, 57(29), 35–41. <https://www.epw.in/journal/2022/29/perspectives/spatialising-urban-vulnerability%2%A0perspectives.html>

Abstract: To address hunger, the Government of Delhi had issued temporary ration e-coupons in the first COVID-19 lockdowns of 2020. This article uses a data set of nearly 17 lakh households that applied for e-coupons to measure and spatialise food insecurity in the city. It does so to measure unmet demand for social protection as well as to draw learnings for the design of urban social protection systems.

5. Pal, D. (2022, July 16). Formal Financial Outreach in Rural India. *Economic & Political Weekly*, 57(29), 99–106. <https://www.epw.in/journal/2022/29/special-articles/formal-financial-outreach-rural-india.html>

Abstract: The conventional wisdom is that opening up new branches is the best way to extend outreach of the formal financial sector to rural areas. Using a survey data set, this paper challenges the conventional view by concluding that relatively resource-rich rural households from distant locations availed multiple loans from formal lenders rather than the households located closer to them as often believed.

6. Malu, G. (2022, July 16). Disparities in Social Development in Maharashtra: A District-level Analysis. *Economic & Political Weekly*, 57(29), 107–114. <https://www.epw.in/journal/2022/29/special-articles/disparities-social-development-maharashtra.html>

Abstract: Regional imbalances within states have attracted the attention of researchers and policymakers alike. But the scarcity of district-level studies leaves much to be desired. Districts are the first stage of policy implementation, making it imperative to understand and analyse development at this third tier of administration. With some modification, this paper follows the methodology adopted by the Council for Social Development to construct a six-dimensional social development index for an analysis of development in the districts of Maharashtra. In addition to supporting existing evidences, this study finds interesting variations among the districts across all dimensions. Evidences of disparity across social dimensions even within pockets of prosperity are found in this study.

7. Das, P., & Saha, M. (2022, July 16). Occupation, Earning, and Gender: An Analysis with the Labour Force Survey in India. *Economic & Political Weekly*, 57(29), 115–122. <https://www.epw.in/journal/2022/29/special-articles/occupation-earning-and-gender.html>

Abstract: This study analyses the employment distribution of the working-age women by occupations across their activities in usual principal status in the Periodic Labour Force Survey for 2017–18 by taking into account the household-specific factors and workers' personal characteristics by using a multinomial logit model. The study infers that gender differences in returns to schooling are in favour of female workers, but they earned less than male workers in almost every occupation and employment status. The effect of education is stronger in selecting high-paying jobs.

8. Kumar, A. Prasanna. (2022, July 23). Of Judicial Courage in Testing Times. *Economic & Political Weekly*, 57(30), 10–12.
<https://www.epw.in/journal/2022/30/law-and-society/judicial-courage-testing-times.html>

Abstract: With respect to the independence of the judiciary, there is a tendency to conflate the independence of the institution with that of the individual in the institution. An independent judiciary requires not only systems and norms designed to prevent interference but also individuals prepared to uphold such independence at great cost. One such individual was Justice Syed Mahmood who served in the Allahabad High Court during British Rule.

9. Wahab, G. (2022, July 23). The Agnipath Scheme: Driven by Compulsions and a Recipe for Disaster. *Economic & Political Weekly*, 57(30), 17–20.
<https://www.epw.in/journal/2022/30/commentary/agnipath-scheme.html>

Abstract: Far from being driven by a vision for the reform of the armed forces, the Agnipath scheme is an outcome of compulsions born out of severe financial and strategic shortcomings. It could have a destabilising impact on the military's ethos, war-preparedness, and the ability of its leadership to stand by their personnel.

10. Sridhar, V. (2022, July 23). Fixing Appropriate Reserve Prices for 5G Spectrum. *Economic & Political Weekly*, 57(30), 21–23.
<https://www.epw.in/journal/2022/30/commentary/fixing-appropriate-reserve-prices-5g-radio.html>

Abstract: This article analyses the spectrum-winning bid prices in simultaneous multiple round ascending auction held across the world for 700 MHz and indicates how it had an impact on the winning bid prices in other countries. It also analyses the spectrum prices of the mid-band (3.3–3.6 GHz) and the millimetre wave band (26 GHz) that are essential for the rollout of 5G services and makes a similar remark on reserve prices. Based on the analysis, it predicts the possible outcome in the forthcoming spectrum auction.

11. Ulahannan, S. K., Srinivas, P., Nuggehalli, Sreekumar, S., Jament, J., & Mohan, M. (2022, July 23). COVID-19 and Multiple Inequalities: The case of a Coastal Community in Kerala. *Economic & Political Weekly*, 57(30), 24–27.
<https://www.epw.in/journal/2022/30/commentary/covid-19-and-multiple-inequalities.html>

Abstract: Despite the overall achievements, Kerala's handling of its first case of community transmission in the coastal village of Poonthura came under severe criticism. In this article, the potential pathways to the resistance raised by the fisherfolk in Poonthura are explored, thereby placing their responses as historically and politically embedded ones.

12. Deepika, M. G., & Madhusoodhan, M. (2022, July 23). Labour Laws for Gig Workers in the Context of Labour Law Reforms. *Economic & Political Weekly*, 57(30), 38–44. <https://www.epw.in/journal/2022/30/perspectives/labour-laws-gig-workers-context-labour-law-reforms.html>

Abstract: In an attempt to incorporate the doctrine of universalisation of social security, the gig workers are brought into the ambit of the labour laws for the first time, with the provision of some welfare measures under the Code on Social Security, 2020. The three other codes are silent on the policies towards gig workers. While the codes are yet to be implemented, there are many questions pertaining to the clarity of the codes and how to implement them effectively to meet the intended objectives.

13. Dey, K., & Maitra, D. (2022, July 23). Electronic Agricultural Spot Markets: Status, Impact, and Architecture. *Economic & Political Weekly*, 57(30), 45–52. <https://www.epw.in/journal/2022/30/special-articles/electronic-agricultural-spot-markets.html>

Abstract: The electronic spot market has introduced technological innovations to agricultural commodity market trading through the electronic National Agriculture Market. To assess the role of the electronic spot market in price discovery, this paper explores the price efficiency test between select commodities' spot and futures markets. While we find that the spot plays an instrumental role in price formation and transmission in selected markets, eNAM is yet to augment price-setting for farmers. We propose improvisations in the spot market design that align institutional structures, governance mechanisms and incentives and strengthen spot market infrastructure to enhance farmer participation.

14. Mathew, M. V. (2022, July 23). Self-financialisation and the Qualitative Shifts in Engineering Education in Kerala: Exploring the political Economy of Its Quantitative Expansion. *Economic & Political Weekly*, 57(30), 53–59. <https://www.epw.in/journal/2022/30/special-articles/self-financialisation-and-qualitative-shifts.html>

Abstract: The self-financed quantitative expansion of engineering education in Kerala since the beginning of the 2000s should not be seen as a logical expansion consistent with demand and supply. Rather it should be primarily seen as qualitative, contributing to a change in the meaning of what engineering education is and has historically been. The qualitative aspect of this expansion is argued from the political economy of engineering education and is deriving from the displacement of functional role attributable to engineering education following the crisis of skills in the new accumulation regime and the new role that engineering education has been playing in the regimentation of the overall field of higher education.

15. Marchang, R. (2022, July 23). Social Networks, Job Search Flexibility, Employability, and Mobility of Migrant Workers. *Economic & Political Weekly*, 57(30), 60–67. <https://www.epw.in/journal/2022/30/special-articles/social-networks-job-search-flexibility.html>

Abstract: This paper examines the job-seeking behaviour, various traits of labour employability, and the nature of mobility to achieve employment aspirations of the North East migrant workers in Bengaluru. It shows that migrants extensively use social networks for finding employment. The use of social networks and flexibility in job search shortens the waiting period. Their skill levels and the major factors that influence their hiring are discussed in detail.

16. Muraleedharan, V. R., Vaidyanathan, G., Thiagarajan, S., Dash, U., Rajesh, M., & Ranjan, A. (2022, July 23). Better to Reflect Than Shoot the Messenger: Learnings from NSS, 2017-18. *Economic & Political Weekly*, 57(30), 68–71. <https://www.epw.in/journal/2022/30/discussion/better-reflect-shoot-messenger.html>

Abstract: There was a significant reduction in the overall estimated footfall for outpatient and inpatient care at the all-India level between 2014 and 2017–18. However, the reduction in estimated footfalls was significantly higher in private facilities as compared to public facilities. Also, states with better health infrastructure observed a relatively lesser reduction in the overall footfall under public facilities than states with weaker health infrastructure. Across all economic deciles, there was no significant fall in the proportion of patients utilising public healthcare facilities in 2017–18 compared to 2014.

17. Bhardwaj, A. (2022, July 30). Ukraine War and the Perils of Self-determination. *Economic & Political Weekly*, 57(31), 10–12. <https://www.epw.in/journal/2022/31/strategic-affairs/ukraine-war-and-perils-%E2%80%98self-determination%E2%80%99.html>

Abstract: The right of “self-determination of the people” is a double-edged sword. It has been used by postcolonial nations to reclaim their territories and economy. The idea has also been exploited by the powerful countries to divide the world on ethnic and religious lines to advance their hegemony through humanitarian interventions.

18. Kaistha, K. L. (2022, July 30). Addressing the Payments Problem of Electricity Distribution of Licenses. *Economic & Political Weekly*, 57(31), 13–18. <https://www.epw.in/journal/2022/31/commentary/addressing-payments-problem-electricity.html>

Abstract: The payment delays by the distribution licensees to power generators can be best addressed through smart prepaid meter installations, part of the recently announced Ministry of Power’s revamped distribution sector scheme, supplemented with the creation of extra currency by the central bank.

19. Adlakha, H. (2022, July 30). Xi Jinping Gifts Historical Nihilism to China on CPC Centenary. *Economic & Political Weekly*, 57(31), 19–22. <https://www.epw.in/journal/2022/31/commentary/xi-jinping-gifts-%E2%80%98historical-nihilism%E2%80%99-china-cpc.html>

Abstract: In his speech to mark the centenary of the founding of the Communist Party of China, Chinese President Xi Jinping repeated the term “national rejuvenation” twenty times. The speech reminded the party’s 95 million card-carrying members that “since the very day of its founding, the party has made seeking rejuvenation for the Chinese nation its aspiration and mission.” However, just as “national rejuvenation” betrays the revolutionary conceptions at the founding of the party, the whole official narrative during the nationwide celebration is premised more on hype than reality, raising questions about the party’s commitment to its founding principles.

20. Pandey, D. Prasad. (2022, July 30). An Empirical Study of the Socio-economic Status of Baiga Tribe of Central India. *Economic & Political Weekly*, 57(31), 23–28. <https://www.epw.in/journal/2022/31/commentary/empirical-study-socio-economic-status-baiga-tribe.html>

Abstract: The category of primitive tribal group was created to include those groups that were considered the poorest of the poor. The particularly vulnerable tribal groups, earlier known as PTGs, are characterised by forest-based livelihoods, pre-agriculture level of existence, stagnant or declining population, extremely low literacy, and a subsistence economy. This article investigates different aspects of the socio-economic life of the Baiga tribe, a PVTG of central India.

21. Krishna, K. L., Goldar, Erumban, A, Das, & Aggarwal. (2022, July 30). Sources of India’s Post-reform Economic Growth: An Analysis Based on India KLEMS Database. *Economic & Political Weekly*, 57(31), 36–43. <https://www.epw.in/journal/2022/31/special-articles/sources-indias-post-reform-economic-growth.html>

Abstract: This paper analyses the sources of India’s economic growth in terms of industry origins, inputs, and productivity during 1994–2018, comparing the pre- and post-global financial crisis periods. Manufacturing was one of the main contributing sectors to aggregate growth of the total factor productivity and gross value added in the post-GFC period. The results stress the need for proactive policies to support agriculture, manufacturing, and market services sectors.

22. Bhat, R., & Pate, R.. (2022, July 30). Trade Credit and Bank Credit: Impact of Macroeconomic Policy Interventions. *Economic & Political Weekly*, 57(31), 44–51. <https://www.epw.in/journal/2022/31/special-articles/trade-credit-and-bank-credit.html>

Abstract: The paper develops an empirical model to test the substitution of trade credit for bank credit using the annual financial data of 1,028 Indian manufacturing firms from

2011 to 2019. It further examines the impact of macroeconomic policy interventions on using these two financing sources.

23. Hussain, S. (2022, July 30). Performance of Women in Parliament: A Quantitative Study of the Questions Asked by Women Members in Lok Sabha (1999–2019). *Economic & Political Weekly*, 57(31), 52–59. <https://www.epw.in/journal/2022/31/special-articles/performance-women-parliament.html>

Abstract: The performance of women legislators is analysed by looking at the nature of questions posed by them over a span of 20 years (1999–2019) in the lower house of the Indian Parliament. The analysis, however, is a contestation of claims that suggest women act as silent members, and if at all they speak, they do on “softer issues” like women and child development, food processing, health, and sanitation, thus trying to escape the discussions on national security, finance, agriculture, railways, etc. These are otherwise considered as male bastions. This paper is a quantitative analysis of women’s political performance during the Question Hour session, which is considered as an important plenary space where legislators act on their own, free from the party regulation.

24. Agnihotri, R. Kant. (2022, August 6). Language as a Space for Scientific Enquiry. *Economic & Political Weekly*, 57(32), 10–14. <https://www.epw.in/journal/2022/32/strategic-affairs/language-space-scientific-enquiry.html>

Abstract: Languages that learners bring to school indicate their cognitive potential. Their languages can constitute a space for introducing them to the methods of scientific enquiry. Several other advantages accrue in the process.

25. Kaicker, N., Gupta, A., & Gaiha, R. (2022, August 6). Food Consumption Expenditures and the COVID-19 Pandemic in India. *Economic & Political Weekly*, 57(32), 16–21. <https://www.epw.in/journal/2022/32/commentary/food-consumption-expenditures-and-covid-19.html>

Abstract: The COVID-19 pandemic led to lockdowns and disruptions in food supply chains and emerged as both a demand- and a supply-side shock. Based on the Centre for Monitoring Indian Economy– Consumer Pyramids Household Survey monthly expenditure data for the period from January 2019 to August 2021, changes in food expenditure shares in India as a result of the pandemic across income and socio-economic and demographic groups are examined. The pandemic-induced lockdowns resulted in a sharp increase in the share of food in the total expenditure across rural and urban India for all income groups and castes and religions, but the intensity of shifts varied.

26. Gazta, P., & Jadhav, J. (2022, August 6). National Achievement Survey 2021: Implications for Education Policy in India. *Economic & Political Weekly*, 57(32), 22–24. <https://www.epw.in/journal/2022/32/commentary/national-achievement-survey-2021.html>

Abstract: The National Achievement Survey has unveiled the picture of the current school education system. The survey was conducted “to evaluate students’ progress and learning competencies as an indicator of the efficiency of the education system.” Held in over 720 districts of India, rural and urban, the survey findings are concerning as a constant decrease was found in the average performance of students in subjects under study. There is a need to review the pedagogical approach to rectify the situation. An inclusive approach and the participation of parents and community stakeholders can help create a conducive environment.

27. Abraham, B. Paul, & Ray, P. (2022, August 6). The Sri Lankan Crisis: An Outcome of Populist Macroeconomics and Family-run Polity. *Economic & Political Weekly*, 57(32), 25–28. <https://www.epw.in/journal/2022/32/commentary/sri-lankan-crisis.html>

Abstract: Many have argued that the current Sri Lankan crisis was caused by the economic impact of the COVID-19 pandemic and the Ukraine war, and the country’s overdependence on predatory Chinese lending. Sri Lanka’s problems are more deep-rooted and have their origins in economic policy that focused on providing fiscal sops and a family-run political establishment that enabled the government to ignore sound advice.

28. Natraj, V. K. (2022, August 6). W(h)ither Karnataka. *Economic & Political Weekly*, 57(32), 29–31. <https://www.epw.in/journal/2022/32/commentary/whither-karnataka.html>

Abstract: Of late Karnataka has been in the news for unhealthy reasons. Controversies relating to the wearing of hijab by students have left a scar on the social landscape. This was followed by protests against the revision of school textbooks. The government did not handle either with skill. The opposition (read the Congress) also has failed to present to the public a vision for the state’s development.

29. Ravindran, T. (2022, August 6). The Left Victory in Colombia: From Resistance to Power. *Economic & Political Weekly*, 57(32), 32–35.

Abstract: Against the backdrop of a long history of armed conflict between the left guerrillas on the one hand and the state and right-wing paramilitary forces on the other, the repressive machinery of the Colombian state, the oligarchy and the fact of Colombia being the staunchest ally of the United States in the region, the electoral victory of the left represents a great shift in the Colombian political landscape and the political common sense of the Colombian people.

30. Deshpande, A., & Ramachandran, R. (2022, August 6). Viewing Caste Inequality Upside Down: The Perversity of Special Schemes for Brahmins in South India. *Economic & Political Weekly*, 57(32), 43–49.

Abstract: The justification for a slew of preferential policies aimed at Brahmins in three southern states of India are empirically examined. The results reveal that Brahmins in these three states are at the top of various human capital measures, various standard of

living indicators, and have better political and social networks compared to all other social groups. Thus, these preferential policies retrench the existing caste inequalities instead of eliminating them.

31. Singh, S. Kant, & Gudakesh. (2022, August 6). Repositioning of the Family Planning Programme in India: Issues and Strategies Emerging from the NFHS-4 (2015–16). *Economic & Political Weekly*, 57(32), 50–56. <https://www.epw.in/journal/2022/32/special-articles/repositioning-family-planning-programme-india.html>

Abstract: Critical issues in the stagnation of the family planning programme in India are highlighted and the tangible barriers are identified to suggest few possible strategies to enhance its use and effectiveness in achieving the Sustainable Development Goals relating to sexual and reproductive health. Findings from the National Family Health Survey-4 (2015–16) indicate a strong need to reposition the FPP to meet the unmet need of contraceptives by improving the quality of care and promoting the spacing methods of contraception by minimising the 12-month contraceptive discontinuation rate in India.

32. Siddiqui, L. Ahemad, & Singh, A. (2022, August 6). Socio-economic Inequality in Longevity in India. *Economic & Political Weekly*, 57(32), 57–65. <https://www.epw.in/journal/2022/32/special-articles/socio-economic-inequality-longevity-india.html>

Abstract: Two new indices, the index of representation in longevity and the index of socio-economic inequality in longevity, are presented for examining socio-economic inequality in longevity in India. The India Human Development Survey data from the 2004–05 and 2011–12 rounds are used to investigate socio-economic inequality based on caste, occupation, economic classes, and geographic regions. The findings suggest that India suffers from substantial socio-economic inequality in longevity with the Scheduled Castes, Scheduled Tribes, and Muslims being worst off. Groups such as agricultural and non-agricultural labourers, petty traders, and lower economic classes were substantially under-represented in longevity. Regionally, the south and west have over-representation, whereas the central, east, and north-east have under-representation in longevity.

33. Chakravarty, I. (2022, August 6). The Earning Bhadramahila and the ‘Endangered Race’: Changing Discourse on Women’s Work in Bengal. *Economic & Political Weekly*, 57(32), 66–72. <https://www.epw.in/journal/2022/32/special-articles/earning-bhadramahila-and-%E2%80%98endangered-race%E2%80%99.html>

Abstract: This paper attempts to document the changing attitude of sections of bhadralok in colonial Bengal towards middle-class women’s paid work. From the 1920s onwards, a number of journal editors and contributors, overcoming their earlier inhibitions, began to propagate middle-class women’s/widows’ economic independence. However, the nature and limits of the proposed economic independence of the new icon, the earning bhadramahila, were clearly defined by the new discourse on women and

work. The same journals publicised a range of other issues including anxieties about the “declining number” as well as the “declining fortune” of Bengali Hindus.

34. Mohan, T. T. Ram. (2022, August 13). Bank Privatisation Is Not Easily Accomplished. *Economic & Political Weekly*, 57(33), 10–11. <https://www.epw.in/journal/2022/33/h-t-parekh-finance-column/bank-privatisation-not-easily-accomplished.html>

Abstract: Those who urge the wholesale privatisation of public sector banks do not seem to have given adequate thought to the mechanics of bank privatisation in India. Given the present regulatory regime for private bank ownership in India, there are formidable obstacles to privatising even what is regarded as an obvious candidate for privatisation the IDBI Bank. The challenges in privatising several PSBs must not be understated.

35. Sekhar, C. S. C. (2022, August 12). Farm Laws: The Way Ahead. *Economic & Political Weekly*, 57(33), 12–17. <https://www.epw.in/journal/2022/33/commentary/farm-laws.html>

Abstract: This article analyses the issue of extending minimum support price coverage to major food crops. Given the utility of public procurement and buffer stocks during the previous crises, MSP procurement may be continued for rice and wheat but a shift to direct payments is needed for non-staple crops.

36. Lobo, L. (2022, August 13). Managing Urban Floods: A Case Study of Vadodara. *Economic & Political Weekly*, 57(33), 17–21. <https://www.epw.in/journal/2022/33/commentary/managing-urban-floods.html>

Abstract: As cities and regions around the world are getting incorporated into the globalisation and urbanisation processes, they simultaneously exhibit characteristics that are more diverse and complex due to the relations of their local and regional bases. It holds for many Indian cities, which are restructuring themselves under the process of urbanisation, but with their unique regional–cultural aspects or dimensions.

37. De, P., & Rahman, N. (2022, August 13). Review of ASEAN-India FTA in Goods: Broad Contours and the Next Steps. *Economic & Political Weekly*, 57(33), 22–25. <https://www.epw.in/journal/2022/33/commentary/review-asean%E2%80%93india-fta-goods.html>

Abstract: The ASEAN–India Trade in Goods Agreement (also known as AITIGA), implemented in January 2010, is entering into its 11th year and the time is ripe to review and recast it in light of the new world order pulled open by the pandemic. This article provides the broad contours around which the review of ASEAN–India free trade agreement may focus.

38. Bhuyan, A. Jyoti, Borah, P. Pratim, & Gogoi, T. (2022, August 13). Understanding the Political Shift in Bodoland: Peace Accord, Fractured Identity, and the Rising Tide of Saffron. *Economic & Political Weekly*, 57(33), 26–29. <https://www.epw.in/journal/2022/33/commentary/understanding-political-shift-bodoland.html>

Abstract: The spontaneous joy and enthusiasm among the Bodo people, notwithstanding the recent Bodo Peace Accord signed on 27 January 2020, needs to be interrogated in the context of “fractured identity” of Bodos and a perennial trend of “demographic challenge” that the history of the area is embedded in. Moreover, the changing contours of electoral politics in the wake of the Bharatiya Janata Party’s rise in the north-east (referred here as the “rising tide of saffron”) need examination. It is pertinent to argue that the accord, under the pretext of fulfilling their demands, may herald an unprecedented shift in the electoral politics and identity assertions of the Bodos.

39. Basu, S. (2022, August 13). Epidemic and Infectious Disease Surveillance: Rise of the Security-Military Framework. *Economic & Political Weekly*, 57(33), 35–42. <https://www.epw.in/journal/2022/33/special-articles/epidemic-and-infectious-disease-surveillance.html>

Abstract: The COVID-19 pandemic has seen some Asian countries employ sophisticated mass-surveillance technologies—normally employed to gather intelligence for domestic security purposes—to contain the spread of infection in their populations. There has also been an intrusion of military and allied national security actors into the traditionally civilian domain of public health, in the form of disease surveillance. These emerging developments in the pandemic response provide a pretext for a limited historical review, beginning from World War II to the present, centred on the intersection between infectious disease surveillance and control, national security, and military in the Western world.

40. Kaur, S. (2022, August 13). An Evaluation of Factors Affecting the Usage of Financial Services in Punjab. *Economic & Political Weekly*, 57(33), 43–50. <https://www.epw.in/journal/2022/33/special-articles/evaluation-factors-affecting-usage-financial.html>

Abstract: This paper focuses on the usage of accounts to avail various financial services under the financial inclusion drive by the Government of India. It examines the factors affecting the use of financial services by 500 respondents from three districts of Punjab, namely Jalandhar, Gurdaspur, and Sangrur. It investigates financial services such as deposits, withdrawals, loans, remittances, and insurance. It applies logistic regression to understand the factors affecting the usage of these services. Education was the most significant of these factors, indicating the need for promoting financial literacy among the masses, especially those who are marginalised.

41. Parobo, P. D. (2022, August 13). Power and the Politics of a Hindu Upper Caste in Colonial Goa (1740–1961). *Economic & Political Weekly*, 57(33), 51–59. <https://www.epw.in/journal/2022/33/special-articles/power-and-politics-hindu-upper-caste-colonial-go.html>

Abstract: The relationship between the Gaud Saraswat Brahmins and the Portuguese state has not drawn much scholarly attention. This paper examines the transformation of the numerically marginal, yet most highly placed GSBs in the Portuguese Goa. It focuses on the amicable and conflictive strategies of the community with the Portuguese imperial agents, the colonisers of Portuguese origin and the Goan Catholics. It studies internal contradictions, the caste networks and institutions in the context of competitive conditions in the 19th century and the first decades of the 20th century. These processes, the paper suggests, are critical in understanding the cultural and political prospects of the scribal communities; they help trace a complex history of language practices, the kind of influence their position and skills enabled, and the formation of a Hindu polity.

EUROPEAN JOURNAL OF TEACHER EDUCATION

1. Werler, T. C., & Tahirsylaj, A. (2020, September 27). Differences in teacher education programmes and their outcomes across *Didaktik* and curriculum traditions. *European Journal of Teacher Education*, 45(2), 154–172. <https://doi.org/10.1080/02619768.2020.1827388>

Abstract: Teacher education is of vital importance for what teachers are capable to do for their pupils, but little is known about student teachers' pedagogical knowledge. The *Didaktik* and the curriculum traditions are two main education approaches underpinning formal schooling and teacher education programmes (TEPs) in the Western world. The main difference between the two traditions lies in the content and objectives of teacher education, which are either theoretical or action-oriented. Two questions are addressed quantitatively: How do teacher education programmes and their outcomes vary across *Didaktik* and curriculum traditions? How do opportunities to learn and beliefs about teaching methods affect mathematical content knowledge (MCK) and mathematical pedagogical content knowledge (MPCK) scores? Empirical data from the Teacher Education and Development Study in Mathematics (TEDS-M) are used, with samples from Norway, Germany, Switzerland, and the US. The study offers alternative explanations for variations of TEPs' outcomes within the Western world.

Keywords: Teacher education programmer, *Didaktik*, Curriculum teacher education outcomes, TEDS-M

2. Carmi, T., & Tamir, E. (2020, August 10). Three professional ideals: where should teacher preparation go next? *European Journal of Teacher Education*, 45(2), 173–192. <https://doi.org/10.1080/02619768.2020.1805732>

Abstract: Developing effective models for teacher preparation is an ongoing challenge for teacher educators. Such models require meticulous attention to both content and pedagogy and to the way these components manifest a professional vision, with an understanding that a programme 's content and pedagogy not only shape an image of the ideal teacher but are also shaped by it. In this paper, we reflect on the current landscape of teacher preparation and introduce three professional ideal types – teachers as intellectuals, master craftspeople, and artists, and consider how a few exemplary programmes embody them in light of the sweeping move towards 'clinical' preparation. We emphasise particularly the peripheral status of one type, teacher as an artist, and argue that its position and scope should be further broadened. Finally, we lay out the possibility and consider the complexity of integrating these ideals in a preparation programme. We conclude by proposing avenues for future research.

Keywords: Teacher education, Teacher preparation programmes, Teaching profession, Professionalisation, Clinical experience

3. Ruohotie-Lyhty, M., & Pitkänen-Huhta, A. (2020, August 17). Status versus nature of work: pre-service language teachers envisioning their future profession. *European Journal of Teacher Education*, 45(2), 193–212. <https://doi.org/10.1080/02619768.2020.1788535>

Abstract: Considering the central role of identity in understanding teacher development, this paper addresses the ways in which pre-service language teachers envision their identities as future professionals. The paper is based on a qualitative study of 61 students' visualisations of their future work during their first semester in language teacher education. The visualisations and accompanying descriptive texts were analysed using the principles of qualitative content analysis. In the analysis, two different ways of perceiving future professions, and thereby identities as professionals, were identified. The first was a nature-oriented perspective that focused on desired characteristics of the profession, its activities, environment and social relationships, and the other a status-oriented perspective that focused on the societal status of the profession. The nature-oriented perspective was further divided into three subcategories that illustrated different career options. The implications of the different ideal professional selves for teacher education are also highlighted.

Keywords: Pre-service teacher, Language teacher education, Professional identity, Narrative identity development

4. Waber, J., Hagenauer, G., & de Zordo, L. (2020, August 11). Student teachers' perceptions of trust during the team practicum. *European Journal of Teacher Education*, 45(2), 213–229. <https://doi.org/10.1080/02619768.2020.1803269>

Abstract: Team teaching as a form of collaborative teaching practice is increasingly employed in teacher education. Positive and trusting relationships with the team partner and the mentor teacher are at the core of such internships and form the basis for optimal learning experiences and successful cooperation in the practicum. However, trust has been little explored in pre-service teacher education. The present study addressed students' perceptions of trust in their team partner and their mentor teacher. A total of 109 Swiss students studying pre-primary and primary teacher education filled in questionnaires (open-ended questions), and another 27 student teachers were interviewed. The results reveal that many different facets contributed to student teachers' perceptions of trust. These could be divided into the two main dimensions: interpersonal and professional trust. Open communication based on mutual appreciation and respect was the core element of a 'trusting' relationship from the students' perspective.

Keywords: Trust, Teacher education, Practicum, Relationship, Team internship

5. Theelen, H., van den Beemt, A., & Brok, P. D. (2020, September 27). Enhancing authentic learning experiences in teacher education through 360-degree videos and theoretical lectures: reducing preservice teachers' anxiety. *European Journal of Teacher Education*, 45(2), 230–249. <https://doi.org/10.1080/02619768.2020.1827392>

Abstract: Preservice teachers (PSTs) often experience professional anxiety when managing their classrooms. These feelings of anxiety can be reduced, and their feelings of self-efficacy increased by training PSTs' interpersonal competence. This study used authentic learning experiences combining theoretical lectures and 360-degree videos watched with virtual reality headsets, to train their interpersonal competence. Participants of this study were 141 first year PSTs of a teacher education institute in the Netherlands. Results showed that the video-lecture combination led to a reduced professional anxiety and increased self-efficacy. PSTs' self-perceptions of their own expected interpersonal behaviour indicated that PSTs thought they would be more in control in the actual classroom after the intervention. PSTs attributed these results to exemplary teacher behaviour shown in the 360-degree videos.

Keywords: Beginning teachers, Classroom Management, Interpersonal communication, Preservice teacher education, Theory practice relationship

6. Virkkula, E. (2020, August 11). Student teachers' views of competence goals in vocational teacher education. *European Journal of Teacher Education*, 45(2), 250–265. <https://doi.org/10.1080/02619768.2020.1806229>

Abstract: Competence-based education (CBE) is an international educational trend and a core issue in developing Finnish vocational upper secondary and higher education. The theory and practice of the competence-based approach should preferably be included in vocational teacher studies. Yet, there are still relatively few organisations implementing competence-based vocational teacher education in Finland. This article examines the realisation of competence-based vocational teacher education. The small-scale mixed-method case study explains the student teachers' conceptions of the competence goals in their studies. The competence goals describe the competencies to be achieved as a result of training. According to the research findings, competence goals clarify the student teachers' understanding of the demands of a teacher's work, facilitate students to reflect on their competences and help in preparing individual study plans and promoting their studies. However, the student teachers need university teachers' guidance to get their studies started and to promote the competences flexibly.

Keywords: Competence-based education, Learning objectives, Student teacher, Coaching student mentoring.

7. Steinberg, S., & Krumer-Nevo, M. (2020, September 27). Poverty-aware teacher education. *European Journal of Teacher Education*, 45(2), 266–281. <https://doi.org/10.1080/02619768.2020.1827390>

Abstract: Education is considered a path for escaping poverty. However, poverty and lack of success in school are closely linked. Understanding structural factors within society that cause poverty and their influence on learning and educational outcomes requires reshaping teacher education programmes. There is a need for programmes that adopt the social justice perspective and challenge prevalent deficit perceptions of people in poverty, through critical reflection. This article presents a qualitative study that analysed the responses of teachers in Israel who were exposed to life stories of people in poverty as a means of arousing poverty-awareness. Our experience shows that reflexive reading of life stories can challenge stereotypes, deepen teachers' understanding of socio-economic disadvantage, and help sensitise them to school pedagogies and practices that exacerbate inequality. This change of teachers' understandings and attitudes has the potential to develop a partnership-based relationship with families living in poverty and improve student's educational achievement.

Keywords: Reflective practice, Teacher attitudes, Poverty-awareness, Initial teacher education, In-Service teacher education.

8. White, E., Timmermans, M., & Dickerson, C. (2020, August 11). Learning from professional challenges identified by school and institute-based teacher educators within the context of school–university partnership. *European Journal of Teacher Education*, 45(2), 282–298. <https://doi.org/10.1080/02619768.2020.1803272>

Abstract: Over the last decade, in both the Netherlands and England, national policy-driven changes have increased schools' responsibility in initial teacher education. This research gathered teacher educators' stories of challenges experienced 'on the ground' in these school–university partnerships. The aim was to explore the reality of working within school-based teacher education partnerships rather than a comparative study between the two countries. Challenges were identified in guiding and assessing student-teachers; professionalism and well-being of student-teachers and teacher educators; collaborative working and quality assurance. The stories revealed complexities of working across institutional borders with multiple stakeholders. Many teacher educators sought their own solution rather than discussing the challenges with others in the partnership. Resolution was sometimes beyond their control and needed to be dealt with on a different partnership level. The stories provide authentic teacher educator voices for use as a professional learning tool in developing collaborative practices in initial teacher education partnerships.

Globalisation, Societies and Education

1. Marginson, S., & Yang, L. (2021, May 26). Individual and collective outcomes of higher education: a comparison of Anglo-American and Chinese approaches. *Globalisation, Societies and Education*, 20(1), 1–31. <https://doi.org/10.1080/14767724.2021.1932436>

Abstract: The paper compares Anglo-American and Chinese approaches to the outcomes of higher education, primarily but not solely collective outcomes, by examining the Western domain of ‘public good’ and ‘public goods’ and parallel or near parallel activities in China. It reviews scholarly discourses of society, state and higher education in the respective political cultures (‘traditions’), including individualism and collectivism, university autonomy, the critical function, higher education in civil society, and global *tianxia* and global common good. A key issue in symmetrical cross-cultural comparison is the position from which it is made; and as well as elucidating similarities and differences the paper develops what Sen calls a ‘trans-positional’ view based on integrating the two positional views. The two traditions are not closely aligned. However, aside for the Anglo-American public/private dualism in economics (which occludes collective outcomes), all ideas in both traditions can contribute to transpositional understanding of the individualised and collective outcomes of higher education.

Keywords: Higher Education; comparative education; public good(s); collective goods; individualism; China

2. Hayhoe, R. (2021, June 17). Potential benefits of reciprocity between Sinic and Anglo-American values in higher education. *Globalisation, Societies and Education*, 20(1), 32–35. <https://doi.org/10.1080/14767724.2021.1940878>

Abstract: This paper was invited as a commentary on the keynote paper for this special issue by Simon Marginson and Lili Yang. The paper begins by noting the importance of a fully balanced approach to comparison in higher education, that gives equal value and weight to Sinic and Anglo-American views by adopting a transpositional approach and also recognising the linguistic challenges involved. It then considers strengths of the Sinic approach and of the contrasting Anglo-American approach and their outcomes over history, using a frame drawn from recent work by Francis Fukuyama. Finally it turns to weaknesses on both sides, and ways in which learning from the other could make a difference.

Keywords: Dialectic without synthesis; higher education and the state; rule of law; governmental accountability; autonomy; self-mastery; intellectual freedom

3. Xu, X. (2021, May 31). Epistemic diversity and cross-cultural comparative research: ontology, challenges, and outcomes. *Globalisation, Societies and Education*, 20(1), 36–48. <https://doi.org/10.1080/14767724.2021.1932438>

Abstract: This paper reflects on the transpositional comparison in Marginson and Yang’s article in this special issue, with a focused discussion on epistemic diversity and cross-

cultural comparative research. It argues that in global research, epistemic diversity largely co-exists with epistemic inequity and injustice, despite long-standing normative appeals. Against this backdrop, cross-cultural comparative studies have significant value, albeit facing a range of challenges. There are five outcomes of cross-cultural encounters: *assimilation*, *immiscibility*, and *being different together* (including *unity in diversity*, *harmony with diversity*, and *together with diversity*). Although East–West encounters demonstrated all possible outcomes, *being different together* is both possible and valuable, not only for East–West encounters but also for cross-civilisational comparisons.

Keywords: Epistemic diversity; global research; cross-cultural comparison; Chinese tradition; Western tradition; Chinese higher education

4. Yang, R. (2021, June 2). Baby and bathwater or soup?: some epistemological considerations of how to observe China and Chinese education. *Globalisation, Societies and Education*, 20(1), 49–55. <https://doi.org/10.1080/14767724.2021.1937065>

Abstract: This article responds to the work by Marginson and Yang in this special issue from an epistemological lens. It focuses on how to observe China and Chinese education. After offering an overall review of contemporary social sciences, it then reminds us of the need for overcoming dichotomous mode of thinking in social research in the context of globalisation.

Keywords: China; Chinese education; globalization; binary thinking; epistemology

5. Cantwell, B. (2021, June 6). What university makes a public good? *Globalisation, Societies and Education*, 20(1), 56–63. <https://doi.org/10.1080/14767724.2021.1932437>

Abstract: Relations between China and the United States will invariably influence the future of the human and natural world. New theory [Marginson, Simon, and Lili Yang. 2021. “Individual and Collective Outcomes of Higher Education; A Comparison of Anglo-American and Chinese Approaches.” *Globalisation, Societies and Education*.] opened a space for more work on how higher education might support something like the second sort of future by generating collective or public goods. This response essay holds two assumptions: (1) Universities in both the Anglo-American and Sinic spheres are universities; (2) universities in the Anglo-American sphere are comparable to universities in the Sinic sphere, even when the point of comparison is to contrast. Empirical scholarship that investigates public good outcomes in different cultural and political formations will need some concept of the university to guide research. Operationalised concepts need to be manageable abstractions of real objects or processes. In this essay, I consider what each conception of the public good suggests about the usefulness of several of about the university. The university ideas considered here are the transactional university, the global research university, and the third university.

Keywords: Higher education; university concept; public good; United States and China; comparative education

6. Shen, W. (2021, May 30). Chinese University Builders on the relation of private goods, public goods and higher education: the case of Hu Shih. *Globalisation, Societies and Education*, 20(1), 64–71. <https://doi.org/10.1080/14767724.2021.1934656>

Abstract: This essay hopes to respond to Marginson and Yang's article through an examination of Hu Shih's relevant ideas with an objective to reveal China's unique understanding of universities, private goods and public goods during the Republic of China. Marginson and Yang argued that the discussion of 'public goods', 'private goods', and 'common goods' of higher education should not be separated from the political, social and cultural background in which higher education is embedded, and should be fully integrated with one society's definition of these terms. They pointed out that Chinese culture has its own unique understanding of the relation between individuals, universities, private goods and public goods. China has a long tradition of higher education, but 'modern' universities only appeared in China in late nineteenth century as a product of transplantation from the West. In the early days, there were rarely research activities at these universities. Chinese modern university that combined teaching and research took shape in the next 30 years since the Republic of China's founding in 1912. To unpack the Chinese understanding of universities, private goods and public goods, it is necessary to go back to this period (1912–1949) and analyse how the academic elite at that time understood these issues.

Keywords: Public goods; Hu Shih; Chinese universities; Republic of China; private goods

7. Shahjahan, R. A., & Bhangal, N. K. (2021, May 26). What is in the observer? From *thinking to being* 'public' 'outcomes' of higher education. *Globalisation, Societies and Education*, 20(1), 72–80. <https://doi.org/10.1080/14767724.2021.1932439>

Abstract: The paper engages in 'paradigmatic talk' about public outcomes of higher education (HE). We were drawn to this paradigmatic discussion because of its inherent 'cultural' dimensions and the opportunity for us to be self-reflexive about the ontological values underlying 'cultures' that shape the articulation, representation, and enactment of HE's public outcomes. While we agree with Marginson and Yang (forthcoming) that comparisons of public outcomes of HE across cultures are not neutral, we argue that such comparisons are rooted in and driven by ontological values and commitments. We offer an analysis of how our understandings of 'public' and 'outcomes' may shift when ontological commitments and values consider representations of culture, public, affect, and temporality.

Keywords: Ontology; representations; public culture; affect; temporality; higher education; outcomes

8. Hidalgo-Tenorio, E., & Benítez-Castro, M. N. (2021, January 3). Trump's populist discourse and affective politics, or on how to move 'the People' through emotion. *Globalisation, Societies and Education*, 20(2), 86–109. <https://doi.org/10.1080/14767724.2020.1861540>

Abstract: Recursively in history, emotions such as social anger, moral satiety, distrust of the elite and the Establishment, among others, have all contributed to politicians' encouragement and exploitation of a rather emotionally charged discourse (Block, E., and R. Negrine. 2017. "The Populist Communication Style: Toward a Critical Framework." *International Journal of Communication* 11: 178–197). In their self-imposed capacity as mouthpiece for 'the People', populist leaders have successfully given vent to the expression of some of these emotions. The fact that emotion permeates all levels of linguistic description (Alba-Juez, L., and G. Thompson. 2014. "The Many Faces and Phases of Evaluation." In *Evaluation in Context*, edited by L. Alba-Juez, and G. Thompson, 3–23. Amsterdam, PA: John Benjamins, 10–11) makes its examination a fascinating enterprise. In this paper, we discuss the role played by emotion in the production of populist discourse; to this end, we examine a very well-known example of populist rhetoric, i.e. Donald Trump, under the lens of Appraisal Theory (Martin, J. R., and P. R. R. White. 2005. *The Language of Evaluation: Appraisal in English*. Basingstoke: Palgrave Macmillan; Bednarek, M. 2008. *Emotion Talk Across Corpora*. Basingstoke: Palgrave Macmillan). In particular, we employ a refined model of the AFFECT subsystem (i.e. Benítez-Castro, M. Á., and E. Hidalgo-Tenorio. 2019. "Rethinking Martin and White's Affect Taxonomy: A Psychologically-Inspired Approach to the Linguistic Expression of Emotion." In *Emotion in Discourse*, edited by L. Mackenzie, and L. Alba-Juez, 301–332. Amsterdam: John Benjamins) to analyse seven speeches delivered by the US President in the last four years. Our study helps uncover a set of strategies and patterns showing how this unconventional politician's emotion-driven language manages to develop a more inclusive in-group identity uniting the members of an angry, scared, frustrated and unsure audience.

Keywords: populist discourse; discourse analysis; appraisal theory; emotion; Donald Trump

9. Robertson, S. L., & Nestore, M. (2021, July 19). Education cleavages, or market society and the rise of authoritarian populism? *Globalisation, Societies and Education*, 20(2), 110–123. <https://doi.org/10.1080/14767724.2021.1955662>

Abstract: This paper explores how, in what ways, and with what outcomes, deep structural transformations have reconstituted higher education in England, and are deeply implicated in the rise of authoritarian populism. We focus particularly on the ways in which our understandings and lived experiences of class, social mobility, meritocracy, social inequality, and social justice have been transformed. We explore three transformations in higher education that have created fertile conditions for the rise of authoritarian populism: (i) the individualizing of the self and neoliberal ethics; (ii) the erasure of collective class politics and the creation of a new class identity based on consumption; (iii) the creation of a neoliberal meritocratic social order. We argue that cleavage theory which links level of education to contemporary populism is too dichotomous (educated cosmopolitan versus low-education nationalist). Such accounts overlook the extent to which three decades of neoliberalism and the creation of a market society has produced new social inequalities that are paradoxically normalised whilst

fuelling a politics of resentment [Cohen, Jean L. 2019. “Populism and the Politics of Resentment.” *Jus Cogens* 1 (1): 5–39.].

Keywords: populism; higher education; meritocracy; social class; market society; neoliberalism

10. Pinson, H. (2021, January 17). Neo Zionist right-wing populist discourse and activism in the Israel education system. *Globalisation, Societies and Education*, 20(2), 124–137. <https://doi.org/10.1080/14767724.2021.1872372>

Abstract: Over the past decades, neo-Zionist discourse has gain prominence in Israel. This approach, which gives preference to the definition of Israel as a Jewish state over its definition as a democracy, is a specific version authoritarian populism. This paper explores how educational discourses, policies and curricular changes are being shaped by right-wing populist organization and politicians to strengthen New-Zionism, while delegitimising liberal-democratic values.

The paper draws on three examples. The first focuses on the campaign to ban the activist groups ‘Breaking the Silence’ – a group of army veteran who collect testimonies on Israel’s misconducts in the occupied territories – from entering schools. The second example is the case of ‘Im Tirtzu’, a right-wing organization, and their campaign against left-wing influences in the academy. A third example focuses on the changes to the compulsory civic curriculum – an example to the ways in which education is used to perpetuate a particular notion of Jewish nationalism.

These cases help reveal the reactions of academic institutions to such actions, and the partial acceptance they have gained in recent years. They also show how the boundaries of the political were redrawn and the role education policy and institutions play in delegitimizing left-wing critique.

Keywords: Populism; illiberal democracy; conservative social organizations; neo-nationalism; Israel

11. Rizvi, F. (2021, April 5). Populism, the state and education in Asia. *Globalisation, Societies and Education*, 20(2), 138–150. <https://doi.org/10.1080/14767724.2021.1910015>

Abstract: In recent years, many populist leaders and parties have succeeded in taking over the levers of state power, in spite of the fact that much of their political rhetoric in opposition expresses anti-state sentiments. This paper examines how populist leaders and parties in Asia have been able to use the institutions of the state, including education, to exercise and perpetuate their power. Focusing on the examples of India, the Philippines and Singapore, the paper shows how in each of these cases, populist politics consists in attempts to reconfigure the nature of the state and its relationship to civil society, often seeking to obliterate the distinction. A great deal of effort is put in to transform the institutions of the state, including education, making it possible for them to translate populist sentiments into governmental practice. This explains how, when in government, populists are often able to extend their appeal and influence.

Keywords: Populism; state; civil society; Asia; education

12. Azevedo, M. L. N. D., & Robertson, S. L. (2021, July 26). Authoritarian populism in Brazil: Bolsonaro's Caesarism, 'counter-trasformismo' and reactionary education politics. *Globalisation, Societies and Education*, 20(2), 151–162. <https://doi.org/10.1080/14767724.2021.1955663>

Abstract: In this paper, we examine the rise of authoritarian populism in Brazil following the election in 2018 of Jair Messias Bolsonaro to the Presidency and reflect on the consequences of his far-right-wing politics for education. Our focus is broadly on three historical blocs (with five different presidents of the Republic) which make up the policy trajectory of Brazil over the period 1995–2019. We explore the complex cultural political economy surrounding more than a decade of left-wing government by Lula da Silva (2003–2010) and Dilma Rousseff (2011–2016) of the Workers Party (PT). In what has been described as simultaneously a tragedy, a farce, and a soap opera, Bolsonaro's rise involves the impeachment of Dilma, accusations of corruption, the imprisonment of Lula and the resignation of multiple ministers of the government. The intersections of right-wing conservative discourse, evangelical proselytising and populist discourse in Brazil, coupled with resentment from those whose fortunes had been diminished because of declining economic competitiveness, contributed to the election of Bolsonaro in 2018. A final section focuses on the education policy in Brazil, the ways in which any progressive gains have been erased and what this means for Brazilians.

Keywords: Populism; Brazil; Bolsonaro; education policy; inequality

13. Doğan, S., & Selenica, E. (2021, March 14). Authoritarianism and academic freedom in neoliberal Turkey. *Globalisation, Societies and Education*, 20(2), 163–177. <https://doi.org/10.1080/14767724.2021.1899801>

Abstract: This article examines the relationship between academic freedom and authoritarianism in Turkey. While not a new problem in the Turkish context, academic freedom has come particularly under attack following the attempted military coup on 15 July 2016, as well as with the Turkish intervention in the Syrian conflict. This paper is focused on scholars and academics currently working in Turkish universities. The paper explores the following questions: (1) how do these scholars define academic freedom in Turkey; (2) what is the relationship between universities and the Turkish society; (3) what are the changes that higher education is facing following the 2016 coup d'état, in particular, in terms of pressures and barriers to academic production; (4) how do attacks affect scholars' possibilities to create, lecture, and resist government's policies? Drawing on Gramsci's theory of intellectuals and his notion of hegemony, as well as Foucault's theory of power and/as knowledge, we explore the relationship between authority and knowledge. We argue that the government's aggressive politics against Turkish scholars is a result of the failure to consolidate its power and hegemony through knowledge, and to establish an intellectual base in a *Gramscian* fashion.

Keywords: Academic freedom; authoritarianism; neoliberalism; Turkey; attacks; political violence; repression

14. Dillabough, J. A. (2021, August 12). Higher education, violent modernities and the ‘global present’: the paradox of politics and new populist imaginaries in HE. *Globalisation, Societies and Education*, 20(2), 178–192. <https://doi.org/10.1080/14767724.2021.1954497>

Abstract: Higher Education (HE) constitutes a space that calls urgently for new understandings in the contemporary political moment. One way of establishing such an understanding of HE is to consider more fully the work of political theorists in relation to questions of power in the modern nation-state, particularly as these impinge upon the key problem of the rise of populism in the twenty-first century. In this task, I argue that a productive conceptual approach is to be found in the recurring idea of political paradox in the political philosophy literature, an idea which I utilize to explore the role of conflicted national politics, moralising state practices, and scientific rationalities in reconfiguring the governing rationales of HE. While most definitions of populism are remarkably consistent, the underlying reasons, processes and contextual particularities amongst institutions and groups are contested. Importantly, this definition cannot therefore suffice on its own in comprehending the place of populism in HE. Rather we need to conceptualise HE as an experimental ‘problem space’ (Scott 1997, 2004). Fundamental to this problem space are the political paradoxes that inhere within the aspirations of liberal democracy globally, within nation states, and within liberal institutions such as the university. In this paper, I engage the work of political thinkers who have sought to understand the role of modern nation building, the changing features of modern power and authority, and the rise of bureaucracy and technocratic rationalities as they impact upon political institutions – in this case, how they impact particularly upon HE. I draw chiefly from Hannah Arendt, Bonnie Honig, Chantelle Mouffe, Etienne Balibar, Frederiche Nietzsche, Michel Foucault and Achilles Mbembe, amongst others, to articulate the paradox that concerns us – to consider how and why populist strains of national and transnational governance may find a home in HE as a consequence of unresolved and contradictory political dilemmas and conflicts. Importantly, in this context, the paradox of politics in HE is not necessarily the naming of a discrete conflict between two political logics or the process of a mass movement seeking to overtake HE in the name of a popular constituency. Rather, it involves a highly complex set of forces – emerging out of the bureaucratic machinery of modernity and the fundamental paradox of liberalism itself - that positions the university as a testing ground for the tasks of politics and governance, particularly in relation to state crises, crises in knowledge making and in critique and geo-political conflicts.

Keywords: Populism; Higher Education; state experiments; crises; paradox; politics

15. Carrigan, M. (2021, May 6). Public scholarship in the platform university: social media and the challenge of populism. *Globalisation, Societies and Education*, 20(2), 193–207. <https://doi.org/10.1080/14767724.2021.1918068>

Abstract: social media has figured prominently in two literatures in recent years: the rise of authoritarian populism and the desirability of publicly engaged scholarship. This paper connects these two usually isolated areas of study through comparison of the role social media plays in each, identifying a tendency to avoid the complexity of this influence by failing to treat these services as platform infrastructures. It argues for a framework of platform literacy to support public scholarship through digital platforms in the face of the populist challenge which can now be found across the most prominent social media platforms.

Keywords: Publics; engagement; platforms; populism; scholarship

16. Watson, S., & Barnes, N. (2021, February 3). Online educational populism and New Right 2.0 in Australia and England. *Globalisation, Societies and Education*, 20(2), 208–220. <https://doi.org/10.1080/14767724.2021.1882292>

Abstract: In this paper, we consider educational populism on social media in England and Australia. In both contexts, academics are positioned as a key constituent of an unjust elite with previously voiceless teachers (UK) and students (Australia) framed as the ‘just people’. While populism often speaks to nations and nationalism, as ‘the people’ against an ‘unjust elite’ or ‘other’, micropopulism concerns a particular community against an elite. Although educational micropopulism has been catalysed by social media, there is an underlying political project growing from the New Right coalition of economic liberals and social conservatives. New Right 2.0, a contemporary reformulation of New Right, has an agenda that goes beyond promoting free-market hegemony to promoting civic capitalism and exploits a hybridised media environment to set a policy agenda through provoking polarisation. While there are similarities in New Right 2.0 strategies in England and Australia, the key difference is the way in which micropopulism has emerged and how it plays a role in the hybridised media ecology. We develop a theoretical account of the phenomena of educational micropopulism and offer an understanding of contemporary forms of populism that reflect the sub-national as well as international dimensions of micropopulist.

17. Marom, L. (2021, February 4). Outsiders-insiders-in between: Punjabi international students in Canada navigating identity amid intraethnic tensions. *Globalisation, Societies and Education*, 20(2), 221–235. <https://doi.org/10.1080/14767724.2021.1882291>

Abstract: This study explores the experiences of Punjabi international undergraduate students (PIS) at a Canadian university (KPU). Many PIS choose to study at KPU because of its proximity to one of the largest Punjabi communities in the Indian diaspora. By drawing on the concept of ‘interethnic othering’, the article demonstrates that while the proximity of an ethnic community of the same origin was an important source of support, the large influx of PIS created new tensions with the older, more established community. It highlights the need for universities to move beyond business models when recruiting international students in order to consider the ways in which international students’ interethnic relations might impact their academic trajectory and adjustment to the host country.

Keywords: Punjabi international students, international higher education; interethnic othering; microaggressions

18. Wright, E., Ma, Y., & Auld, E. (2021, February 2). Experiments in being global: the cosmopolitan nationalism of international schooling in China. *Globalisation, Societies and Education*, 20(2), 236–249. <https://doi.org/10.1080/14767724.2021.1882293>

Abstract: This research applies the analytical lens of ‘cosmopolitan nationalism’ to examine how ‘non-traditional’ international high schools interweave cosmopolitan and nationalistic tendencies in Shenzhen, China. In-depth interviews with parents ($n = 16$) and students ($n = 60$) explored the motivations for choosing international schooling, experiences of international schooling, whether cosmopolitan identities are emerging amongst students and, if so, with what characteristics. The findings demonstrate the utility of ‘cosmopolitan nationalism’ in illuminating the nature of international schooling in China and extends it by applying it to denote the identities expressed by students, who confidently project the national into the global with their expectations for the future.

Keywords: International schooling; cosmopolitanism; nationalism; identity; China

HARVARD EDUCATIONAL REVIEW

1. CHANG, E. (2022, June 1). Curricular Countermovements: How White Parents Mounted a Popular Challenge to Ethnic Studies. *Harvard Educational Review*, 92(2), 157–181. <https://doi.org/10.17763/1943-5045-92.2.157>

Abstract: In this critical ethnography, Ethan Chang investigates how white parent-activists organized an oppositional movement to ethnic studies. Drawing on critical whiteness studies, cultural studies, and studies of countermovements, he argues that these parents crafted an oppositional narrative that positioned white, Christian, American boys as victims of ethnic studies curricula. Chang then traces how the parents leveraged this narrative to forge a coalition with disability advocates and to “digitally suture,” or bind, their local ethnic studies countermovement to broader right-wing populist activism. Data includes eleven months of participant observation, 146 public school board testimonies, and twenty ethnographic interviews. The article concludes with a discussion of how studies of curricular countermovements might inform scholarly and activist attempts to divest from whiteness and make ethnic studies available to all students.

Keywords: white, ethnic, countermovement, culture, disability, parent activism

2. MUSEUS, S. D. (2022, June 1). Relative Racialization and Asian American College Student Activism. *Harvard Educational Review*, 92(2), 182–205. <https://doi.org/10.17763/1943-5045-92.2.182>

Abstract: In this qualitative study, Samuel D. Museus analyzes how relative racialization processes and their dynamics shape Asian American college students’ racial justice activism. The findings from his qualitative interviews with activist Asian American undergraduates reveal how these students perceived relative racialization processes as raising barriers to their racial justice efforts. Specifically, they saw these forms of racialization as promoting racialized comparisons and competition among communities of color involved in racial justice activism and as leading to the marginalization of Asian Americans in racial justice agendas—which reinforced internalized racism that inhibited racial justice work within this population.

Keywords: Asian Americans, college students, higher education, race, racial factors, activism

3. NICHOLS, T. P., & GARCIA, A. (2022, June 1). Platform Studies in Education. *Harvard Educational Review*, 92(2), 209–230. <https://doi.org/10.17763/1943-5045-92.2.209>

Abstract: In this introductory essay in the “Platform Studies in Education” symposium, T. Philip Nichols and Antero Garcia consider the expanding role of platform technologies in teaching, learning, and administration and the contributions of education research to the emerging multidisciplinary literature of platform studies. Their essay outlines theoretical lineages that identify platforms not as standalone tools but as multisided markets linking their users to competing social, technical, and political-economic

imperatives. It also highlights connections to related education research that demonstrates the impact of these conflicting imperatives for equitable student learning, teacher education, and policy making. The authors conclude by reflecting on the critical interventions that greater attention to platform relations in education might offer and the forms of coalitional work, across disciplinary and geographic borders, needed to realize these potentials.

Keywords: educational technology, technology uses in education, educational media, platform technologies, platform studies

4. WILLIAMSON, B., GULSON, K. N., PERROTTA, C., & WITZENBERGER, K. (2022, June 1). Amazon and the New Global Connective Architectures of Education Governance. *Harvard Educational Review*, 92(2), 231–256. <https://doi.org/10.17763/1943-5045-92.2.231>

Abstract: In this analytical essay, part of Harvard Educational Review’s symposium on Platform Studies in Education, Ben Williamson, Kalervo N. Gulson, Carlo Perrotta, and Kevin Witzemberger argue that global technology companies have begun acting as governance organizations in education. Their analysis focuses on the global technology company Amazon, which has begun penetrating education through a connective architecture of digital infrastructure and platform services. Looking at Amazon technical documentation and publicly available materials, the authors identify and examine five interlocking governance operations and their effects: inscribing commercial business models on the education sector, habituating educational users to Amazon technologies, creating new interfaces with educational institutions, platforming third-party education providers on the cloud, and seeking market dominance over provision and control of key information infrastructures of education. In showing how Amazon is potentially developing infrastructural dominance in the education sector as part of its transformation into a statelike corporation with significant social, technical, economic, and political power to govern and control state and public services, this article highlights the broader implications of increasing technological governance in education.

Keywords: artificial intelligence, data, governance, infrastructure, platforms

5. PANGRAZIO, L., STORNAIUOLO, A., NICHOLS, T. P., GARCIA, A., & PHILIP, T. M. (2022, June 1). Datafication Meets Platformization: Materializing Data Processes in Teaching and Learning. *Harvard Educational Review*, 92(2), 257–283. <https://doi.org/10.17763/1943-5045-92.2.257>

Abstract: In this contribution to the Platform Studies in Education symposium, Luci Pangrazio, Amy Stornaiuolo, T. Philip Nichols, Antero Garcia, and Thomas M. Philip explore how digital platforms can be used to build knowledge and understanding of datafication processes among teachers and students. The essay responds to the turn toward data-driven teaching and learning in education and argues that digital data is not only generated through national, state, and classroom-level assessments but also produced through the platform technologies that increasingly support all kinds of school

operations. While much has been written about the promise of such technologies for schools, less is known about the role digital platforms play in constituting this data and how the platforms can be critically engaged to build knowledge and understanding of datafication processes in classrooms. This article explores these dynamics through three vignettes that investigate platforms as an interface for teaching and learning about data. In doing so, the essay speaks back to three interrelated properties of datafication—reduction, abstraction, and individualization—in ways that can be made visible for analysis, critique, and resistance in schools.

Keywords: educational technology, technology uses in education, data, data use, platform technologies, datafication

6. KERSSSENS, N., & van DIJCK, J. (2022, June 1). Governed by Edtech? Valuing Pedagogical Autonomy in a Platform Society. *Harvard Educational Review*, 92(2), 284–303. <https://doi.org/10.17763/1943-5045-92.2.284>

Abstract: In this essay, Niels Kerssens and José van Dijck discuss the implications of platformization on the key public value of pedagogical autonomy in K–12 education. They focus on two interconnected concerns: how the integration of education into a global digital infrastructure contests the institutional pedagogical autonomy of schools and how the integration of digital platforms with educational practices in classrooms challenges the professional pedagogical autonomy of teachers. The authors engage with the symposium contributions by Williamson, Gulson, Perrotta & Witzemberger on the Amazon infrastructure and by Pangrazio, Stornaiuolo, Nichols, Garcia & Philip on platform practices at the classroom level. With this dual focus, Kerssens and van Dijck explore how critical research in the emerging field of platform studies in education pertains to both the political-economic level of building educational platform infrastructures and the social-technical level of how teaching and learning are (re)shaped by digital platforms. The essay concludes with a brief discussion of recommendations for the future governance of edtech to serve the pedagogical interest of schools and teachers.

Keywords: Institutional autonomy, professional autonomy, educational technology, influence of technology, platformization

INTELLECTUAL AND DEVELOPMENTAL DISABILITIES

1. Luckasson, R., Tassé, M. J., & Schalock, R. L. (2022, May 31). Professional Responsibility in the Field of Intellectual and Developmental Disabilities: Its Definition, Application, and Impacts. *Intellectual and Developmental Disabilities*, 60(3), 183–198. <https://doi.org/10.1352/1934-9556-60.3.183>

Abstract: This article addresses the need to clearly understand professional responsibility and the critical role it plays in the lives of individuals with intellectual and developmental disabilities (IDD), in shaping professions for the better, and in enhancing the functioning of society for the benefit of all. Understanding professional responsibility is especially timely during the current transformation that is occurring in the field of IDD. To that end, the article discusses what is a profession, who is a professional, and what is professional responsibility. Using a logic model framework, the article describes the components of professional responsibility that include its building blocks such as respect for the person, professional ethics and standards, critical thinking skills, and clinical judgment; its use of nine professional practices including empowerment, evidence-based practices, individualized supports, and person-centered outcome evaluation; its outcomes in terms of mutual trust, the improved effectiveness of clinical functions, and professional accountability; and its impacts regarding individual benefit, professional integrity, and societal enhancement.

Keywords: intellectual and developmental disabilities, Professional responsibility, Ethics, Code of conduct, Profession

2. Johnson, K. E., Bailey, C. E., Weiss, N. R., & Eidelman, S. M. (2022, May 31). Comparing Perspectives Between Different Agency Structures and Support Models. *Intellectual and Developmental Disabilities*, 60(3), 199–211. <https://doi.org/10.1352/1934-9556-60.3.199>

Abstract: The roles and responsibilities of direct support professionals (DSPs) are evolving. This qualitative study explores how DSPs perceive their role and explores those perceptions across DSPs working in traditional, intermediate, and innovative agencies, as defined for the study. Examining 440 DSP survey responses and interviews with 24 DSPs, we found that DSPs working in more individualized settings tended to have expanded role functions (focused on promoting self-determination and community engagement). DSPs working in more traditional settings tended to have more care-focused role functions (concentrated on activities of daily living, medication administration, and health and safety). The role perception of DSPs at intermediate agencies and role conflict due to competing responsibilities demonstrate a need to systemically transform future service delivery.

Keywords: direct support professionals, individualized supports, service provision, role conflict

3. Morantz, A., & Ross, L. (2022, May 31). Intermediate Care Facilities for Individuals With Intellectual Disabilities: Does Ownership Type Affect Quality of Care? *Intellectual and Developmental Disabilities*, 60(3), 212–225. <https://doi.org/10.1352/1934-9556-60.3.212>

Abstract: Because many large, state-owned Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICF/IIDs) have closed or downsized, their average size has fallen markedly, as has the number that are publicly owned. We probe the relationship between ownership type and four measures of care quality in ICF/IIDs. Data on deficiency citations suggest that for-profits underperform other ownership types, although data on complaints show no clear pattern. Meanwhile, data on staffing ratios and restrictive behavior management practices, based mostly on facility self-reports, generally tell the opposite story. Our results lend some credence to concerns regarding inadequate care in for-profit ICF/IIDs, while underscoring the importance of requiring ICF/IID operators to report more comprehensive, longitudinal data that are less prone to error and reporting bias.

Keywords: intellectual disability, quality of care, intermediate care facilities, ownership

4. Keller, A., & Weintraub, N. (2022, May 31). Leisure Participation Opportunities for Adults With Intellectual Disability With Moderate Levels of Impairment Residing in Community Apartments. *Intellectual and Developmental Disabilities*, 60(3), 226–233. <https://doi.org/10.1352/1934-9556-60.3.226>

Abstract: The purpose of this study was to examine the leisure and recreation opportunities available in community apartments for adults with intellectual disability (ID), and their association with leisure participation. The study included 38 adults with ID with moderate levels of impairment residing in 19 apartments. Apartment coordinators reported on apartment characteristics, as well as leisure and recreation schedule and opportunities. Findings revealed diverse leisure and recreation activities. We found correlation between the number of activities ($r_s = .392$, $p = .015$; $r_s = .433$, $p = .007$, respectively) as well as a visible daily schedule ($Z = 2.143$, $p = .035$) and leisure participation. Findings suggest that diverse leisure activities and a visible schedule may be associated with improved leisure participation.

Keywords: leisure, recreation, intellectual disability, community living

5. Lyons, O., Timmons, J., Hall, A., Enein-Donovan, L., & Kamau, E. (2022, May 31). The Benefits of Active, Person-Centered Job Placement: Results From Service Providers Undergoing Organizational Transformation Away From Sheltered Employment. *Intellectual and Developmental Disabilities*, 60(3), 234–245. <https://doi.org/10.1352/1934-9556-60.3.234>

Abstract: Recent national and state-level policy changes have created an imperative for service providers to transform from sheltered work to competitive integrated employment. The current study sought to understand the impact of participation in a 1-

year, comprehensive technical assistance pilot designed to support service providers to transform away from sheltered workshops towards encouraging competitive integrated employment and delivering job development supports. Findings showed competitive integrated employment is attainable if given the appropriate organizational emphasis and when effective job development practices are implemented to a strategically identified group. Implications highlight the values of slowly preparing individuals for competitive integrated employment; facilitating an active, person-centered job placement process; engaging key stakeholders in job development; and focusing on individual job placement in the context of organizational transformation.

Keywords: provider transformation, integrated employment, intellectual and developmental disabilities.

6. Sheppard-Jones, K., Kleinert, H., Butler, L., Li, J., Moseley, E., & Adams, C. (2022, May 31). Direct Support Professionals: Stress and Resiliency Amidst the COVID-19 Pandemic. *Intellectual and Developmental Disabilities, 60*(3), 246–255. <https://doi.org/10.1352/1934-9556-60.3.246>

Abstract: This study reports on the results of an online survey of direct support professionals (DSPs) during the COVID-19 pandemic in June 2020 to measure their perceived quality of life, stressors, coping/resilience skills, and knowledge of health care rights directly related to the pandemic for the persons that they support. Specifically, we examined direct support workers' perceptions of their quality of life, levels of stress, and their self-reported resilience skills. We found that perceived stress was strongly correlated with both self-reported quality of life and resilience, but not with years of DSP experience. Moreover, while DSPs overwhelmingly knew and affirmed health care rights for people with disabilities, they were less knowledgeable about their legal rights during hospital stays.

Keywords: COVID-19, direct support professionals, quality of life, stress, resilience, people with disabilities

INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH

1. Seifert, S., & Paleczek, L. (2022). Comparing tablet and print mode of a German reading comprehension test in grade 3: Influence of test order, gender and language. *International Journal of Educational Research*, 113, 101948. <https://doi.org/10.1016/j.ijer.2022.101948>

Abstract: The study focuses on the comparability of the digital and print test modes of a German reading comprehension test. 249 third graders (50.5% girls, 20.2% L2 learners) worked with both test modes (two weeks between the measurement periods). Test mode order was controlled. The data was analyzed in terms of (a) test score comparability, (b) validity, and (c) the impact of test order, gender and language on test mode effects. The results revealed that the two test modes were not equivalent. Differences in mean scores were particularly large for those subtests whose task format differed significantly in the two modes. While gender and language had no influence on the test mode effect, test mode order did play an important role.

Keywords: Reading comprehension, Test mode effects, Primary school, Gender, L2 learners, Test order

2. Shin, D. D., Lee, M., & Bong, M. (2022). Science utility value intervention for elementary school students: A six-month follow-up study. *International Journal of Educational Research*, 113, 101954. <https://doi.org/10.1016/j.ijer.2022.101954>

Abstract: Classroom utility value (UV) interventions have attracted growing attention for their power to increase students' STEM motivation. However, their delayed effects and the mechanisms through which they bolster students' STEM motivation have not been investigated thoroughly. We followed 416 Korean 5th and 6th graders who participated in a science UV intervention program in the previous academic semester. The immediate motivational benefit of the intervention for these young learners in the form of increases in mean scores largely dissipated six months after the intervention. Nonetheless, enhanced recognition of science UV for personal and communal goals predicted students' participation/career intentions and behaviors assessed six months later both directly and indirectly via science interest and appreciation.

Keywords: Motivation, Science, Classroom intervention, Delayed effect, Elementary school

3. Chang, C. F., Hall, N. C., Lee, S. Y., & Wang, H. (2022). Teachers' social goals and classroom engagement: The mediating role of teachers' self-efficacy. *International Journal of Educational Research*, 113, 101952. <https://doi.org/10.1016/j.ijer.2022.101952>

Abstract: In response to limited research exploring teachers' motivational orientations underlying their efforts to develop meaningful relationships with students, the present longitudinal study with Canadian practicing teachers ($N = 497$) investigated the effects of

teachers' social goals on perceived classroom engagement as mediated by their self-efficacy beliefs across six months. Cross-lagged analyses showed teachers' social goals at Time 1 to predict their self-efficacy (for student engagement) and their students' classroom engagement (emotional) at Time 2. The longitudinal structural equation model showed teachers' self-efficacy for engaging students to most strongly mediate the effects of their social goals on students' classroom engagement. Implications for teacher training and professional development are discussed.

Keywords: Achievement goals, Social/relational goals, Teacher self-efficacy, Student engagement, Teacher motivation

4. Ilshkina, D. I., de Bruin, A., Podolskiy, A. I., Volk, M. I., & van Merriënboer, J. J. (2022). Understanding self-regulated learning through the lens of motivation: Motivational regulation strategies vary with students' motives. *International Journal of Educational Research*, 113, 101956. <https://doi.org/10.1016/j.ijer.2022.101956>

Abstract: Successful learners should self-regulate their motivation to learn. Although 8 motivational regulation strategies (MRSs) have been described, their relations with student motivation remain underexplored. To analyze this relationship, we conducted a correlational study grounded in Wolters' theory of MRSs and Ivannikov's adaptation of Leont'ev's activity theory. We considered four different motivational elements: motives-to-learn, mood, perceptions-of-instrumentality, and general self-efficacy. We found that two groups of MRSs could be distinguished by their relation to extrinsic and intrinsic motives. Three intrinsic-MRSs target interest, personal significance, and mastery orientation; four extrinsic-MRSs target performance-approach/performance-avoidance orientation, goal-setting, self-consequating, and environmental control. By making students aware of their own motives to learn (intrinsic vs extrinsic), we might help them choose more appropriate MRSs.

Keywords: Motivational regulation strategies, Intrinsic motives, Extrinsic motives, Instrumentality, Self-efficacy

5. Morin, A. H. (2022). Promoting positive social classroom environments to enhance students' mental health? Effectiveness of a school-based programme in Norway. *International Journal of Educational Research*, 113, 101966. <https://doi.org/10.1016/j.ijer.2022.101966>

Abstract: VIP partnership is a universal school-programme designed to strengthen the social classroom climate. This quasi-experimental study examined whether the effectiveness of VIP partnership on students' happiness, joint depression/anxiety symptoms, and loneliness was moderated by baseline level of social anxiety (no, low, and high). Participants were upper secondary students from 10 test schools ($n = 1101$) and seven control schools ($n = 734$) in Norway. Data were collected at baseline, post-test (10 weeks) and six-month follow-up. Result at post-test indicated a significant main effect of participation in VIP partnership on happiness ($d = .12$), and simple effects on joint depression/anxiety symptoms among students with no ($d = -.30$) or low ($d = -.14$) social anxiety at baseline. No significant effects were found for post-test loneliness or either

outcome measures at six-month follow-up. A universal programme targeting social participation may not be sufficiently intensive to generate substantial and lasting improvements in adolescent mental health and loneliness.

Keywords: School-based mental health, Intervention Happiness, Depression/Anxiety, Loneliness, Social anxiety

6. Belando-Montoro, M. R., Naranjo-Crespo, M., & Carrasco-Temiño, M. A. (2022). Barriers and facilitators to the retention and participation of socially, economically, and culturally disadvantaged university students. An international systematic review. *International Journal of Educational Research*, *113*, 101968. <https://doi.org/10.1016/j.ijer.2022.101968>

Abstract: One of the major challenges still facing universities is the achievement of inclusion in all its areas since the main progress made so far has been in terms of access. The aim of this systematic review is to detect the barriers and facilitators for the retention and participation of university students with social, economic, and/or cultural disadvantages. The search conducted of the Scopus and Web of Science databases yielded 31 articles (between 2015 and 2020) that met the inclusion criteria. Findings indicate a notable coincidence between the barriers and facilitators: economic, cultural, linguistic, family and motivation. These data will help universities design actions that make it easier for all students to attend and participate fully in university life under conditions of equality.

Keywords: Participation, Retention, University, Systematic review

7. Yu, P., & Hsieh, T. L. (2022). Social stratification in higher education investment: An analysis of students' choices of college majors and pathways to future labor-market outcomes in Taiwan. *International Journal of Educational Research*, *113*, 101953. <https://doi.org/10.1016/j.ijer.2022.101953>

Abstract: Higher education in Taiwan has expanded, and it has seen a corollary increase in stratification. Extending Tinto's institutional departure model, this study tests both the outcome of students' academic integration and the influence that campus social systems have on them with regard to shaping their choice of major and subsequent persistence in or departure from the academic department of choice. This study further tests the relationship of students' choice patterns of majors and pathways to future labor-market outcomes. By analyzing longitudinal survey data in Taiwan, which tracked the 1984-1985 born cohort from 2001-2015, this study finds that social class plays an important role in stratifying students' choices of majors and pathways, which in turn are important in shaping labor-market outcomes.

Keywords: Social stratification, Choice of major, Departmental persistence, Labor-market outcomes

8. Yang, W., Fan, G., & Chen, W. (2022). Socioeconomic status, cultural capital, educational attainment and inequality: An analysis based on PISA2018 Results of China, Finland, South Korea and Singapore. *International Journal of Educational Research*, 113, 101955. <https://doi.org/10.1016/j.ijer.2022.101955>

Abstract: Based on the academic research results related to the relationship between socioeconomic status, cultural capital and educational inequality, this study uses the relevant data from PISA2018 and employs research methods such as Multilevel Linear Model and regression analysis, taking four countries with better PISA scores in previous years, namely China, Finland, Singapore and South Korea as examples to investigate the effects of socioeconomic status and cultural capital on student performance in these countries respectively. It was found that in Finland and Singapore, where the economies are more developed, the effects of cultural capital and socioeconomic status on PISA scores are limited, which may be related to the importance of culture and arts in their school education systems, and must compensate for the inequalities brought about by family background; while in Korea and China, the effects of socioeconomic status-related factors on students' PISA scores are limited, and culture-related factors gradually occupy the main position of influencing students' scores, reflecting the poor emphasis on culture-related factors in the education systems and family education of these countries.

Keywords: PISA socioeconomic status, cultural capital, educational inequality

9. Kowalski, M. J., Elliot, A. J., Guzman, J. C., & Schuenke-Lucien, K. (2022). Early literacy skill development and motivation in the low-income context of Haiti. *International Journal of Educational Research*, 113, 101972. <https://doi.org/10.1016/j.ijer.2022.101972>

Abstract: Research on literacy interventions occasionally focuses on motivation, but such research in low- and mid-income countries is all but nonexistent. Recently, Guzmán, Schuenke-Lucien, D'Agostino, Berends, & Elliot (2021) demonstrated that an intervention, *Read to Learn*, had a positive influence on literacy skills of first and second grade Haitian students; motivation was assessed, but not examined, in that study. We used the Guzmán, Schuenke-Lucien, D'Agostino, Berends, & Elliot (2021) data set and an integrative conceptual approach to test relations between the intervention, seven theoretically-grounded achievement motivation variables, and two “gold standard” outcomes – reading achievement and intrinsic interest in reading. Results showed that the intervention had a positive influence on mastery-approach goals and importance, and that these variables predicted several indicators of achievement and intrinsic interest; indirect effects of these motivational processes were documented for one indicator of achievement and for intrinsic interest. Findings are discussed with regard to the need for more research on reading motivation in low-income contexts.

Keywords: Intervention, Literacy, Reading, Achievement motivation, Haiti

10. Çebi, A., Bahçekapılı Özdemir, T., Reisoğlu, L., & Çolak, C. (2022). From digital competences to technology integration: Re-formation of pre-service teachers' knowledge and understanding. *International Journal of Educational Research*, 113, 101965. <https://doi.org/10.1016/j.ijer.2022.101965>

Abstract: In this study, a training was carried out in order to improve pre-service teachers' digital competences with regards to technology integration based on the Dig Comp framework. In this regard, participants' progress in digital competence and technological pedagogical content knowledge (TPACK) were analysed. In addition, what kind of digital knowledge and skills they utilize in the technology integration process were investigated. As a result, it was found that while pre-service teachers showed progress in the sub-dimensions of TPACK-deep, they made use of their skills in information and data literacy, communication and collaboration, content creation, safety, and problem-solving. In addition, positive correlations were found between digital competences and TPACK competences. Consequently, the roles of digital competences should be considered for successful technology integration.

Keywords: digital competences, technology integration, pre-service teaching training

11. Draijer, J., Bronkhorst, L., & Akkerman, S. (2022). Manifestations of non-interest: Exploring the situated nature of students' interest. *International Journal of Educational Research*, 113, 101971. <https://doi.org/10.1016/j.ijer.2022.101971>

Abstract: Widespread initiatives to promote learning in school by connecting to students' long-standing interests are challenged by increasing recognition that actual experiences of interest are always situated. This study examines moments of *non-interest*: moments where students engage with a sustained object of interest, yet no actual experience of interest occurs. Sixty students aged 14–26 years repeatedly used a smartphone application to report on their interest. Within the 747 events that reflected non-interest, five manifestations were identified: resignation before engaging, detachment, disappointment and frustration during engagement, and subsequent regret. Together these manifestations emphasize the dynamic and experiential nature of long-standing interest, and demonstrate how a student's purpose with an object is key in the manifestation of (non-)interest, both in- and outside school.

Keywords: Interest, Non-interest, Interest development, Experience sampling method

12. Kutnick, P., Gartland, C., & Good, D. (2022). Evaluating a programme for the continuing professional development of STEM teachers working within inclusive secondary schools in the UK. *International Journal of Educational Research*, 113, 101974. <https://doi.org/10.1016/j.ijer.2022.101974>

Abstract: Preparing teachers to enhance students' STEM education usually takes place via continuing professional (CPD) programmes. Many STEM-CPD programmes are criticised for short-term, information-dominated, and non-interdisciplinary approaches that lack critical consideration of learning communities, teaching contexts or STEM

teaching is likely to take place in inclusive secondary schools/classrooms. We evaluate a UK-based, national, eight-year+ STEM-CPD programme targeting inclusive secondary schools, using a bootstrapped approach combining qualitative insights and quantitative comparisons. We found high levels of teachers' STEM competence, desire for student inclusion and perceptions of student impact. Yet, shortcomings in the operations of teacher networks, lack of pedagogic/social pedagogic support and school-based disciplinary boundaries inhibited effects of the programme. Theoretical considerations were built into methods development and evaluation outcomes.

Keywords: STEM education, Continuing Professional Development Inclusive secondary schools, Networks Cascade model

13. English, N., Robertson, P., Gillis, S., & Graham, L. (2022). Rubrics and formative assessment in K-12 education: A scoping review of literature. *International Journal of Educational Research*, 113, 101964. <https://doi.org/10.1016/j.ijer.2022.101964>

Abstract: Rubrics have the potential to add value to the formative assessment process, but reviews in this area seldom separate formative and summative uses of rubrics and conflate findings from higher education and K-12 classrooms. If and how rubrics support formative assessment of students in K-12 classrooms is currently inconclusive. This scoping review explores the literature on the use of rubrics to support formative assessment of students in K-12 classrooms. There were 36 articles identified which fit the inclusion criteria. Results showed that when teachers use rubrics to support formative assessment of students, teacher practice and student outcomes of achievement, engagement in learning and lifelong learning skills are enhanced.

Keywords: Rubrics Formative Assessment K-12 Education Scoping Review Design

14. Lenkeit, J., Hartmann, A., Ehlert, A., Knigge, M., & Spörer, N. (2022). Effects of special educational needs and socioeconomic status on academic achievement. Separate or confounded? *International Journal of Educational Research*, 113, 101957. <https://doi.org/10.1016/j.ijer.2022.101957>

Abstract: Germany is continuously expanding its inclusive education system. Research provides evidence that students with special educational needs (SEN) in inclusive school settings show lower academic achievement and come from lower socioeconomic backgrounds than their peers without SEN. Identifying to what extent the disadvantages originating from both characteristics are confounded in predicting academic achievement, has been neglected in the German educational context. Using data of 1711 primary and secondary school students from a longitudinal study in the state of Brandenburg, this study evaluates to what degree SEN (in the areas of learning and emotional-social difficulties) and socioeconomic background (SES) are confounded in predicting academic initial achievement in reading and mathematics as well as their development over time. Using multilevel modelling techniques that nest three measurement points into students and students into classes, results identify SES and SEN as relevant predictors of achievement status and growth in both subjects. Only few and small mediation effects of

SES were found, indicating that both SES and SEN remain independent risk factors for achievement. Understanding the origins of student disadvantage can help teachers to make better informed choices for designing support measures and aid policymakers' reasoning for resource allocations.

Keywords: Special educational needs, Socioeconomic background, Multiple disparities, Longitudinal, Hierarchical linear modelling

15. Wang, W., Urakawa, K., & Anegawa, K. (2022). Effects of university graduation on multidimensional poverty risks in Japan. *International Journal of Educational Research*, 113, 101973. <https://doi.org/10.1016/j.ijer.2022.101973>

Abstract: This study examined data obtained from a nationwide internet survey of Japan, which asked approximately 8,000 randomly selected respondents engaged as NTT Com Research Monitors (about 2.1 million in all). The study applied propensity score matching to estimate college graduation effects on poverty risk in Japan. Using a compensation approach, the study specifically examined poverty of two kinds: income poverty and interdependent multidimensional poverty (IMD poverty).

Estimation results suggest that, after controlling for early childhood cultural capital variables from the home environment, men show adequate college degree effects on earnings and reduction of poverty risk. For women, decreased poverty risk was found for college graduates in terms of income poverty (household level), but no significant effect was found for either income poverty (individual level) or IMD poverty. Specialized knowledge acquired by women during college education might not be applied adequately in the Japanese labor market.

16. Shimbo, A., & Tendo, M. (2022). Creating cultural resources and reading: A case study of a public library and invisible parental pedagogy in Tokyo. *International Journal of Educational Research*, 113, 101970. <https://doi.org/10.1016/j.ijer.2022.101970>

Abstract: Cultural resources are key themes when considering educational inequalities and disparities in the social structure. Inspired by Bernstein's invisible pedagogy, this study proposes a model of family transition and knowledge accessibility in child-rearing in Japan. We focus on the reading activities in a community library, conduct a case study of parental consciousness in family education in Tokyo, and examine the possibility of creating cultural resources by improving the reading environment at the local level.

Keywords: Cultural resources, Family education, Reading, Public library, Invisible pedagogy

17. Day, N., Kervin, L., Paas, F., Bokosmaty, S., & Howard, S. (2022). Enriching parent-child play through supported play groups to foster children's self-regulation: Protocol for a randomised control trial. *International Journal of Educational Research*, 113, 101969. <https://doi.org/10.1016/j.ijer.2022.101969>

Abstract: Self-regulation is an important target in early childhood given robust evidence of broad associations with immediate and later-life outcomes, and is thus considered a foundational ability. While research demonstrates the impact the home learning environment has on children's development, there is little guidance for parents to engage in behaviours that promote children's self-regulation development. This protocol presents an intervention program sought to address this gap, enriching parent-child play through supported play groups to foster early self-regulation abilities. The intervention presented here offers a means to effectively, yet efficiently, intervene in non-formal learning contexts.

Keywords: Self-regulation, Parents, Intervention, Play, Child development

INTERNATIONAL RESEARCH IN GEOGRAPHICAL AND ENVIRONMENTAL EDUCATION

1. García Vinuesa, A., Rui Mucova, S. A., Azeiteiro, U. M., Meira Cartea, P. N., & Pereira, M. (2020, December 29). Mozambican students' knowledge and perceptions about climate change: an exploratory study in Pemba City. *International Research in Geographical and Environmental Education*, 31(1), 5–21. <https://doi.org/10.1080/10382046.2020.1863671>

Abstract: Climate change is the most serious environmental, social, and economic problem humanity is currently facing. Education is a fundamental pillar for societies in their efforts to address climate change, as stated in Article 12 of the Paris Agreement. In view of this imperative, the need to develop a Climate Change Education (CCE) plan that would be up to the challenge arose in the field of educational research. The guidelines for such a task are based on the study of four educational factors: the students, the teachers, the teaching and learning strategies and methods, and the goals of education. Research on these factors is abundant; nevertheless, there is a lack of these studies concerning Africa. Here, we present an exploratory study which focuses on students in Pemba (Mozambique) and aims to be the first step in the exploration and development of a basis for CCE in this country. We employed a questionnaire consisting of 38 closed-end items which was administered to 256 Mozambican students (aged 16–18). Findings suggest that students declared a limited knowledge about climate change, erroneous beliefs about the anthropogenic causes of climate change, and low levels of responsibility and risk perception. Further progress in the development of CCE in Mozambique would require future research to explore other educational factors with the aim of building a more accurate image of the educational reality of climate change in this country.

Keywords: Climate change education; Mozambique; students; beliefs; knowledge; environmental education

2. Al-Maamari, S. N. (2020, December 30). Developing global citizenship through geography education in Oman: exploring the perceptions of in-service teachers. *International Research in Geographical and Environmental Education*, 31(1), 22–37. <https://doi.org/10.1080/10382046.2020.1863664>

Abstract: Based on international trends, Omani education policy increasingly charges schools with fostering active citizens who have good attributes to achieve a good future. In this article, I considered the relationship between global citizenship and geography education in Oman. In particular, the study focused on how those teachers perceive global citizenship and how it is included in Omani geography textbooks. The study employed a qualitative methodology and data obtained by conducting semi-structured interviews with eight participants. The outcomes of the study showed that geography teachers defined global citizenship as a cosmopolitan perspective that focuses on common humanity. The participants believed that educating to develop global citizens is a necessary task for the Omani geography curriculum. Yet, this curriculum is currently focusing on the cognitive dimension rather than on the behavioural dimension of global citizenship.

Keywords: Global citizenship; geography education; curriculum; teachers' perceptions;
Oman

3. Scoarize, M. M. R., Contieri, B. B., Delanira-Santos, D., Zanco, B. F., & Benedito, E. (2021, June 30). An interdisciplinary approach to address aquatic environmental issues with young students from Brazil. *International Research in Geographical and Environmental Education*, 31(1), 38–52. <https://doi.org/10.1080/10382046.2021.1943220>

Abstract: Environmental education aims to change the perception of people about the environment. Primary education (four to eleven years old) is a fundamental stage in the development of children's conduct, so enhancing learning of the environment in which they live is essential for them to start recognizing nature as part of their life. We tested students' perception before (pre-test) and after (post-test) a specific environmental education activity elaborated in a ludic and interdisciplinary way (psychological, biological, performing arts and educational perspectives), with more moments of practice than only theoretical or rhetorical. Our study showed that schools located in cities with low Municipal Human Development Index (MHDI) can present satisfactory results in relation to students' environmental perception (hypothesis 1), that this perception does not differ according to nationwide educational indexes such as the Brazilian Basic Education Development Index (IDEB) (2), and that regardless of MHDI, there is an increase in this perception after environmental education activities, even a single activity (3). The developed methodology was effective in changing students' environmental perception, and can be used in an interdisciplinary way, even when resources are scarce.

Keywords: education for sustainable development (ESD); active learning; urban ecology; behavioural psychology; aquatic ecosystem; learning through play

4. Cho, C. K., Kim, B. Y., & Stoltman, J. P. (2020, December 10). Animal identity and space as represented in South Korean geography textbooks. *International Research in Geographical and Environmental Education*, 31(1), 53–68. <https://doi.org/10.1080/10382046.2020.1852787>

Abstract: This paper used content analysis to examine the way that animal identity and space were represented in South Korean world geography textbooks, from which it was found that animals were represented as being a passive result of the natural environment, objects worth preserving, and as a living bio-capital. It was concluded that these perspectives limited the opportunities for students to develop a critical eye when viewing animals. Future animal geography education should allow students to view animals as political and ethical subjects that have their own lives and needs and are even possibly self-aware. Therefore, this study proposes that a more-than-human geography education could provide students with alternative perspectives on animal identity and space.

Keywords: Animal; content analysis; geography textbooks; identity and space of animals; more-than-human geography education.

5. Krause, U., Béneker, T., & van Tartwijk, J. (2021, March 10). Geography textbook tasks fostering thinking skills for the acquisition of powerful knowledge. *International Research in Geographical and Environmental Education*, 31(1), 69–83. <https://doi.org/10.1080/10382046.2021.1885248>

Abstract: Tasks are essential in fostering students' learning processes, and thinking skills are considered to be of central importance to learning. In order to analyse how tasks promote the development of thinking skills in school geography, we need an instrument that looks beyond a simple distinction between lower and higher order thinking. It should be able to identify types of tasks based on distinctive elements on the way to acquiring powerful knowledge or knowledge of high epistemic quality. In this paper, we describe the development of an instrument based on the adaptation of existing categorisations and the use of Bernstein's recognition and realisation rules. The instrument distinguishes five levels of thinking: lower order thinking, use of thinking strategies, parts of higher order thinking, higher order thinking, and reflection. The instrument was employed to analyse tasks in geography textbooks used in the Netherlands and the German State North Rhine-Westphalia, with researchers and teacher educators in both states considering its efficacy both plausible and practicable. The results show that the instrument is sufficiently sensitive to identify differences in types of tasks and the extent to which access to powerful knowledge is fostered.

JOURNAL OF APPLIED DEVELOPMENTAL PSYCHOLOGY

1. Chen, J., Jiang, H., Justice, L. M., Lin, T. J., & Purtell, K. M. (2022, May). One size doesn't fit all: Profiles of isolated children in early childhood. *Journal of Applied Developmental Psychology*, 80, 101397. <https://doi.org/10.1016/j.appdev.2022.101397>

Abstract: Peer isolation poses risks to children's social-emotional and academic development, contributing to internalizing and externalizing problems and school adjustment difficulties. To deepen scholarly understandings of peer isolation in early classroom settings, the current study examined the co-occurrence of child characteristics associated with isolation, including children's language ability, executive function, social skills, aggression, and peer victimization. The sample included 1275 children in 94 classrooms from preschool to grade three. Using a peer-nomination task, 254 children were identified as isolates who were at the bottom quartile on the "play most" peer nominations. Among the isolates, a multilevel latent profile analysis identified four heterogeneous profiles: *low executive function, victimized and low social skills, aggressive and victimized*, and *average*. These profiles were compared regarding children's language and social skills from the fall to the spring of the academic year. The findings caution against using a one-size-fits-all strategy to support the development of isolated children.

Keywords: Peer isolation; Language ability; Executive function; Social skills; Aggression and victimization; Multilevel latent profile analysis

2. Tetzner, J., Bondü, R., & Krahé, B. (2022, May). Family risk factors and buffering factors for child internalizing and externalizing problems. *Journal of Applied Developmental Psychology*, 80, 101395. <https://doi.org/10.1016/j.appdev.2022.101395>

Abstract: Detrimental effects of adverse family conditions for children's wellbeing are well-documented, but little is known about the impact of specific risk factors, or about potential protective factors that buffer the effects of family risk factors on negative development. We investigated the impact of five important family risk factors (e.g., parental conflict) on internalizing and externalizing problems and the potential buffering effects of peer acceptance and academic skills at two measurement points two years apart in 1195 7- to 10-year-olds (T1: $M_{Age} = 8.54$). Latent-change models showed that increases in risk factors over the two years predicted increasing internalizing and externalizing problems. Parental conflict was the most impactful risk factor, although peer acceptance and academic skills showed some buffering effects. The results highlight the necessity of investigating cumulative and single risk factors, specifically interparental conflict, and emphasize the need to strengthen children's internal and social resources to buffer the effects of adverse family conditions.

Keywords: Psychological problems; Family risk factors; Protective factors; Parental conflict; Academic skills; Peer acceptance

3. Weber, A. M., & Leuchter, M. (2022, May). Fostering children's block building self-concepts and stability knowledge through construction play. *Journal of Applied Developmental Psychology*, 80, 101400. <https://doi.org/10.1016/j.appdev.2022.101400>

Abstract: The study investigated preschool children's block building self-concepts in relation to their stability knowledge acquisition as implied by the reciprocal effects model and possible effects of different forms of play. We investigated three types of construction play: (a) guided play with verbal and material scaffolds, (b) guided play with material scaffolds, and (c) free play. We examined the effects of the different play forms on block building self-concept and stability knowledge acquisition as well as the reciprocal effects model's fit to preschool children. We implemented a pre-post-follow-up design, $N = 183$ German 5- to 6-year-olds (88 female). Block building self-concept declined in the free play group, but not in the guided play groups. Both guided play groups outperformed the free play group in stability knowledge acquisition. The reciprocal effects model was not supported. Guided play may be effective in fostering children's block building self-concepts and stability knowledge.

Keywords: Academic self-concept; Guided play; Science learning; Free play; Scaffolding

4. Scharpf, F., Mueller, S. C., & Hecker, T. (2022, May). The executive functioning of Burundian refugee youth: Associations with individual, family and community factors. *Journal of Applied Developmental Psychology*, 80, 101399. <https://doi.org/10.1016/j.appdev.2022.101399>

Abstract: Executive functioning (EF) may be important for refugee youth's long-term adjustment. The current study examined associations between factors on different ecological levels (individual, family, community) and inhibitory control (IC), working memory (WM), cognitive flexibility (CF), and selective attention (SA) among 226 Burundian youth aged between 7 and 15 in three refugee camps. Multiple regression models revealed positive associations between trauma exposure and CF and between posttraumatic stress symptoms and SA and WM. Having more siblings, fathers' socioeconomic status and a better father-child relationship were related to better EF including higher SA and WM. Higher levels of maltreatment by mothers were related to lower IC. Higher peer support was related to higher WM. Being orphaned, children's emotional and behavioral problems, mothers' education, community violence and the type of camp (established vs. new) were not significantly related to children's EF. The findings underscore the importance of proximal social factors for children's EF.

Keywords: Refugee youth; Executive functioning; Memory; Social; Fathers; Violence; Trauma

5. Andeweg, S. M., Bodrij, F. F., Prevoo, M. J., Rippe, R. C., & Alink, L. R. (2022, May). Reducing household chaos to improve parenting quality? An RCT. *Journal of Applied Developmental Psychology, 80*, 101398. <https://doi.org/10.1016/j.appdev.2022.101398>

Abstract: Household chaos (high noise levels, clutter, and lack of family routines) has been related to more harsh and less sensitive parenting. The current study employed an RCT design aiming to decrease household chaos and thereby improve parenting quality. In total, 125 primary caregivers of children around age 1.5 years with relatively high levels of household chaos participated. Questionnaires, video-observations, a diary app, and a decibel meter assessing noise were used to measure household chaos and parenting. Findings showed reduced harsh discipline in the intervention group but no effect on sensitivity. However, our results could not confirm a reduction in household chaos as a result of the intervention. As we controlled for generic intervention elements (perceived effectiveness and therapeutic alliance), the effect on harsh discipline may be due to an unmeasured effect on household chaos. Our results tentatively indicate that household chaos may be a salient factor in demanding parenting situations.

Keywords: Household chaos; Harsh discipline; Sensitive parenting; RCT; Intervention

6. Vitiello, V. E., Nguyen, T., Ruzek, E., Pianta, R. C., & Whittaker, J. V. (2022, May). Differences between pre-k and kindergarten contexts and achievement across the kindergarten transition. *Journal of Applied Developmental Psychology, 80*, 101396. <https://doi.org/10.1016/j.appdev.2022.101396>

Abstract: Experiencing large differences between pre-k and kindergarten classroom contexts may affect children's academic development as they start school. This study examined differences between classroom contexts in pre-k and kindergarten (teacher-child interactions, time on academic content, and academic rigor) and associations with literacy, language, and math achievement in kindergarten fall and spring. 1498 children were followed from public pre-k through kindergarten (mean age = 52.8 months old at the start of pre-k, $SD = 3.5$). Children were ethnically and linguistically diverse (White = 7%, Black = 20%, Hispanic = 61%, Other = 12%; English at home = 21%, Spanish at home = 55%; other language at home = 24%). Piecewise growth modelling showed that experiencing a decrease in the quality of interactions or an increase in time on content or academic rigor was associated with lower-than-expected achievement in the fall of kindergarten but greater gains across the kindergarten year.

7. Huang, Y., Bullock, A., Liu, J., Wang, Z., Xu, G., & Sang, B. (2022, May). Co-rumination with friends exacerbates association between peer victimization and adjustment in adolescence. *Journal of Applied Developmental Psychology, 80*, 101410. <https://doi.org/10.1016/j.appdev.2022.101410>

Abstract: This study examined the moderating role of co-rumination with friends on the relations between peer victimization and psychological maladjustment (depressive symptoms, anxiety) in Chinese adolescents. Participants included 282 adolescents (118 boys, $Mage = 12.90$ years, $SD = 0.71$) who had same-gender reciprocated best friends in

rural China. Data on peer victimization, co-rumination with friends, depressive symptoms, and anxiety were collected from peer nomination and self-reports. The findings revealed that the associations between peer victimization and psychological maladjustment were stronger among adolescents who had a higher level of co-rumination with friends. This result suggests that co-rumination with friends may worsen the psychological problems that victimized adolescents face. The results can inform prevention and intervention efforts to improve victimized adolescents' psychological problems by considering the role of victims' high-level of co-rumination with friends.

Keywords: Peer victimization; Co-rumination; Depressive symptoms; Anxiety; Early adolescence

8. Waasdorp, T. E., Fu, R., Clary, L. K., & Bradshaw, C. P. (2022, May). School climate and bullying bystander responses in middle and high school. *Journal of Applied Developmental Psychology, 80*, 101412. <https://doi.org/10.1016/j.appdev.2022.101412>

Abstract: Bullying bystanders' reactions are important for either stopping or perpetuating bullying behaviors. Given school-based bullying programs' focus on bystanders, understanding the associations between school-level factors and individual bystander responses can improve intervention efficacy. Data from 64,670 adolescents were used to examine bullying bystander responses as a function of 13 school-climate dimensions within 3 main factors (Engagement, Environment, Safety) and individual-level factors (e.g., race/ethnicity, perceptions of student-teacher connectedness). Multi-level models showed schools with better Engagement and Safety had higher odds of defender behaviors, a better Environment was associated with lower odds of passive and assisting behaviors. Differences also varied by individual-level factors. For example, an aggressive climate was associated with passive behaviors more strongly in boys and high schoolers. Further, higher perceived parent-teacher and student-teacher connectedness were associated with positive bystander behaviors, and this was stronger for Black and Latinx youth, highlighting the importance of improving relationships as a crucial starting point.

Keywords: Bullying; Bystanders; School Climate; Middle School; High School

9. Carl, T., & Bussey, K. (2022, May). Cross-sectional and longitudinal relationships between children's moral standards and their antisocial lie telling. *Journal of Applied Developmental Psychology, 80*, 101411. <https://doi.org/10.1016/j.appdev.2022.101411>

Abstract: Although researchers posit that lying is integral to morality, findings have been mixed. The goal of this study was to examine the link between children's lie-telling moral standards and their actual antisocial lie telling, across a broad age range (4–15 years) to determine whether it is more evident as children aged, as well as with both cross-sectional and longitudinal data. Results revealed that with increasing age, children rated others' antisocial lie telling more negatively, and were less inclined to tell an antisocial lie. Most importantly, children's moral standards for lying guided actual antisocial lie telling concurrently and over time (i.e., a year later), irrespective of age. These findings suggest that, across a broad age range, evaluating lying less negatively was

associated with more actual antisocial lying. Finally, these findings also showed that moral standards are related to lie telling in one TRP context, but not the other. Implications are discussed.

Keywords: Lie telling; Antisocial lying; Children; Moral development; Moral standards; Longitudinal

10. Kwon, K., López-Pérez, B., Shim, S. S., & Hammad, I. (2022, May). Mediating effects of peer experiences between children's emotionality and academic functioning. *Journal of Applied Developmental Psychology*, 80, 101415. <https://doi.org/10.1016/j.appdev.2022.101415>

Abstract: We examined how children's peer experiences mediated the association between dispositional emotionality and academic functioning. One hundred and ninety-nine children (104 girls, *Age* = 10 years) participated in a two-year study. The predictors (self-reported emotional experience, peer-nominations of emotional expressivity) and the mediators (self-reported positive and negative peer experiences) were assessed at Time 1; outcome variables (academic achievement and teacher-rated engagement) were assessed at Time 2. The effect of emotional expressivity (happiness, anger) on academic functioning was direct. The effect of emotional experience (sadness, anger) on academic functioning was indirect via negative peer experiences. The specific dimensions of emotionality (experience, expressivity) warrant consideration in the assessment of children's emotionality because they appear to have unique interpersonal mechanisms that lead to academic functioning. Beyond overt emotional expressivity, educators and caregivers should carefully attend to children's covert emotional experience in efforts to promote adaptive peer relationships and academic outcomes for children.

Keywords: Emotionality; Emotional experience; Emotional expressivity; Academic achievement; Academic engagement; Peer experiences

11. Fütterer, J. N., Bulotsky-Shearer, R. J., & Gruen, R. L. (2022, May). Emotional support moderates associations between preschool approaches to learning and academic skills. *Journal of Applied Developmental Psychology*, 80, 101413. <https://doi.org/10.1016/j.appdev.2022.101413>

Abstract: The present study examined the extent to which the association between teacher reports of preschool children's approaches to learning—the ways in which children engage in learning activities—and children's academic skills was dependent upon teacher emotional support. Multilevel models were estimated using data from a sample of diverse urban Head Start children ($N = 301$ children across 53 classrooms). Findings showed direct associations between attention persistence and children's literacy and mathematics skills, as well as an association between attitude toward learning and literacy skills. Cross-level interactions indicated that higher emotional support strengthened the relationship between attitude toward learning and children's literacy skills. Our findings suggest when children are enrolled in classrooms characterized by respectful, warm, and supportive teacher-child interactions, there are benefits for children's approaches to

learning and academic skills. Implications for future research, policy, and practice are discussed.

Keywords: Approaches to learning; Teacher-child interaction quality; Head start children

12. Van Loon, M. H., Bayard, N. S., Steiner, M., & Roebbers, C. M. (2022, May). The accuracy and annual rank-order stability of elementary school children's self-monitoring judgments. *Journal of Applied Developmental Psychology*, 80, 101419. <https://doi.org/10.1016/j.appdev.2022.101419>

Abstract: The present study investigated age-related development in children's metacognitive self-monitoring skills; eight-year-olds ($N = 140$) and ten-year-olds ($N = 164$) were compared. Children learned paired associates and completed a recognition test. Two types of monitoring judgments were compared: predictions and postdictions of performance. To investigate the rank-order stability of monitoring judgments, the task was repeated one year later. Prediction accuracy was low for both age groups and did not improve over time. Postdictions were more accurate than predictions; this indicates that self-test experiences support children to take actual performance into account when monitoring learning. For the second graders, postdiction accuracy improved over one year. Annual rank-order stability was found for predictions and postdictions, suggesting that habitual judgment tendencies affect children's monitoring judgments and judgment accuracy.

Keywords: Self-monitoring; Global judgments; Development; Age differences; Rank-order stability

13. Stockdale, L., Holmgren, H. G., Porter, C. L., Clifford, B. N., & Coyne, S. M. (2022, May). Varying trajectories of infant television viewing over the first four years of life: Relations to language development and executive functions. *Journal of Applied Developmental Psychology*, 80, 101418. <https://doi.org/10.1016/j.appdev.2022.101418>

Abstract: Infant television exposure has been related to poorer language development and poorer executive functions in preschool and early childhood. Wide variability exists in the amount of television infants are exposed to in the first few years of life. The current study examined 256 primary caregiver-infant dyads over the first four years of life. Primary caregivers reported on their infant's television viewing each year as well as their language development and executive functions (year 4 only). Children also completed direct assessments of language development (year 4) and executive functions (including effortful control measures year 4). Growth mixture models showed three distinct trajectories of infant television exposure across the four years. Infants who started high and remained high in terms of their television viewing at the end of four years performed the most poorly on all assessments of language development and emerging executive functions. Infants with low television exposure in the first year of life who remained low in television exposure across the four years performed the best on measures of language development and executive functions. Trajectories associated with early and persistent television exposure in the first few years of life were particularly problematic to

preschooler's cognitive development. The current study supports AAP recommendations for limited screen-based media in the first few years of life.

Keywords: Infancy; Television; Executive functions; Effortful control; Language; Growth mixture models

14. Punamäki, R. L., Tammilehto, J., Flykt, M., Vänskä, M., Tiitinen, A., Poikkeus, P., & Lindblom, J. (2022, May). Determinants of adolescent sleep: Early family environment, obstetric factors, and emotion regulation. *Journal of Applied Developmental Psychology, 80*, 101420. <https://doi.org/10.1016/j.appdev.2022.101420>

Abstract: Optimal sleep quality fosters adolescents' wellbeing and, therefore, learning about its developmental determinants is essential. We examined how early family environment (i.e., parent-reported parenting, marital relationship quality, and mothers' mental health), obstetric factors (i.e., infertility history and assisted reproductive treatments, and pre- and perinatal complications and health risks), and children's emotion regulation in middle childhood predicted adolescents' sleep quality. We also tested the mediating role of emotion regulation in linking early determinants to adolescent sleep. Finnish families ($N = 984$) participated during pregnancy, infancy, middle childhood, and late adolescence. Results showed that only early maternal mental health problems predicted poor adolescent sleep quality. Contrary to hypotheses, emotion regulation did not mediate the effects of early family environment and obstetric factors on later sleep quality. Supporting the early family environment through improving maternal mental health can have long-term positive developmental impacts, including sleep.

Keywords: Adolescent sleep quality; Marital relationship; Parenting; Maternal mental health; Obstetric factors; Emotion regulation; Infancy; Adolescence

15. Denault, A. S., Litalien, D., Plamondon, A., Dupéré, V., Archambault, I., & Guay, F. (2022, May). Profiles of motivation for participating in extracurricular activities among students at disadvantaged high schools. *Journal of Applied Developmental Psychology, 80*, 101421. <https://doi.org/10.1016/j.appdev.2022.101421>

Abstract: This study aimed to identify high school student profiles of motivation for participating in extracurricular activities, predict profile membership using indicators of need satisfaction and gender, and verify whether the profiles predicted continued participation the following year. The sample included 263 Canadian students in disadvantaged high schools (54% girls, $Mage = 14.54$). Results revealed four profiles based on three types of motivation (intrinsic, identified, and introjected): *Poorly motivated* (low scores on all types), *Moderately motivated* (average scores on all types), *Highly motivated* (high scores on all types), and *Autonomously motivated* (high scores on intrinsic and identified, and low scores on introjected motivation). Autonomy support from the activity leader and competence predicted profile membership. The *Autonomously motivated* profile also predicted continued participation relative to the *Poorly motivated* profile. Results provide useful information for school

staff about how to foster more autonomous forms of motivation for participating in extracurricular activities.

Keywords: Extracurricular activities; Intrinsic motivation; Latent profile analysis; High school students

16. Melzi, G., Mesalles, V., Caspe, M., & Prishker, N. (2022, May). Spatial language during a household task with bilingual Latine families. *Journal of Applied Developmental Psychology, 80*, 101409. <https://doi.org/10.1016/j.appdev.2022.101409>

Abstract: Children's exposure to everyday math talk contributes positively to their early math development, yet little is known about family everyday math in culturally and linguistically diverse communities. The present study described the spatial language used by 75 low-income, bilingual, Latine caregivers as they taught their preschoolers to set a table for a birthday party. Forty percent of caregivers' content-rich utterances contained math references, half of which were spatial terms. "Where" spatial references were the most frequent and used to provide instructions. Analyses comparing Spanish and English interactions showed variations in spatial language types and manners of use, as well as in the relation between adult and child math talk. Results underscore the need to build foundational knowledge in early math with culturally and linguistically diverse families, and to encompass a wide range of everyday adult-child interactions, in an effort to forge equitable STEM initiatives and practices.

Keywords: Latine families; Parent-child conversations; Early math interactions; Spatial talk; Language differences; Latino/Hispanic

17. Acosta, D. I., & Haden, C. A. (2022, May). Museum-based tinkering and engineering learning opportunities among Latine families with young children. *Journal of Applied Developmental Psychology, 80*, 101416. <https://doi.org/10.1016/j.appdev.2022.101416>

Abstract: This study addressed whether and how tinkering experiences in a children's museum can provide informal engineering learning opportunities for Latine families. Forty-two Latine parents and their children (20 girls, 22 boys; $M_{age} = 8.00$, $SD = 1.59$) were observed tinkering to make something that rolls. Immediately after tinkering, researchers elicited the children's reflections on their learning. Parents' formal schooling was positively associated with parents' engineering conversations during tinkering. In the children's post-tinkering reflections, older children, and children of parents with higher schooling, included more engineering talk in their reports. Finally, parents and children who during tinkering referenced the engineering information reviewed during a pre-tinkering orientation talked the most about engineering during and after tinkering. These results suggest ways that Latine families engage in tinkering to advance children's learning about engineering, and how museum practices can support early engineering learning in informal educational settings.

Keywords: Latine families; Parent-child conversations; Early engineering learning; Tinkering; Reflection; Museums

18. Leyva, D., Yeomans-Maldonado, G., Weiland, C., & Shapiro, A. (2022, May). Latino kindergarteners' math growth, approaches to learning, and home numeracy practices. *Journal of Applied Developmental Psychology*, 80, 101417. <https://doi.org/10.1016/j.appdev.2022.101417>

Abstract: There is limited research on the relation between approaches to learning (ATL) and Latino kindergarteners' math development, and mixed results regarding the role of Latino home numeracy practices. This study examined the associations among Latino kindergarteners' ATL, home numeracy practices, and growth in math skills. Participants were 151 low-income Latino parents and their children (*M* age = 67 months; 52% female). In early fall (beginning of kindergarten), parents completed a home numeracy survey and children's ATL were assessed. At three time points during the kindergarten year (early and late fall, and spring), children's math skills were assessed. Positive linear growth in Latino kindergarteners' math skills was observed. Latino kindergarteners' ATL positively related to variation in math skills, but not growth. Home numeracy practices did not relate to math skills. Findings highlight the unique role that ATL might play as an ecocultural asset that supports Latino kindergarteners' math development.

Keywords: Latino; Kindergarten; Math; Home; Socioemotional

19. Kornienko, O., Rambaran, J. A., & Rivas-Drake, D. (2022, May). Interpersonal racism and peer relationships: An integrative framework and directions for research. *Journal of Applied Developmental Psychology*, 80, 101414. <https://doi.org/10.1016/j.appdev.2022.101414>

Abstract: This paper presents a call for research to examine how interpersonal racism shapes and is shaped by peer relationships in adolescence. Prior research has primarily focused on individual experiences of interpersonal racism and their effects on individual adjustment. Moreover, this work has mostly relied on static indices of the peer context, which has hampered our ability to understand interpersonal mechanisms of racism in a larger peer system. We propose a conceptual framework that examines how interpersonal racism occurs in peer relationships by identifying (1) the multiple types of interpersonal racism perpetrated in peer relationships, (2) the peer consequences of interpersonal racism, and (3) the multiple roles that peers may play in interpersonal racism. This framework integrates culturally- and intergroup contact-informed models with peer relationship models to chart a comprehensive account of the antecedents and mechanisms through which interpersonal racism is embedded and unfolds in peer relationships. Carefully understanding these complex issues is necessary to advance developmental theory and research on challenges and opportunities of intergroup peer relationships and to design more effective interventions to help reduce interpersonal racism and enhance positive intergroup peer relationships in adolescence.

Keywords: Interpersonal racism; Ethnic-racial discrimination; Intergroup friendships; Peer relationships; Adolescence

JOURNAL OF COUNSELING PSYCHOLOGY

1. Bailey, T. K. M., Yeh, C. J., & Madu, K. (2022, July). Exploring Black adolescent males' experiences with racism and internalized racial oppression. *Journal of Counseling Psychology, 69*(4), 375–388. <https://doi.org/10.1037/cou0000591>

Abstract: We explore Black male high school students' perceptions of racial oppression, their internalization of racial oppression, and the impact of these experiences on their academic lives. Using constructivist grounded theory, 10 semi-structured interviews were conducted with Black adolescent boys. Results identified five core categories: (a) racial socialization, (b) understandings of and experiences with racism, (c) emotional and behavioral responses to racism, (d) internalization of racial oppression, and (e) school resistance and support needed. Based on these categories, we developed an ecological model of Black male students' experiences with racism and internalized racial oppression to elucidate existing interactional dynamics within students' ecological contexts. We discuss how schools and counselors can better support Black adolescent boys' positive development and ability to cope with racism and internalized racial oppression.

Keywords: racial oppression, internalized racial oppression, Black adolescent males

2. Liguori, J. B., & Spanierman, L. B. (2022, July). Walking out on hate: A qualitative investigation of how and why White supremacists quit hate groups. *Journal of Counseling Psychology, 69*(4), 389–402. <https://doi.org/10.1037/cou0000598>

Abstract: Through in-depth, semistructured interviews with former White supremacists (N = 9), the authors explored how and why former White supremacists left their hate groups, and why some chose to then speak out against their former racist ideologies. Using interpretative phenomenological analysis (IPA; Smith et al., 2009), the authors identified nine themes related to the process of leaving one's hate group and becoming an antihate activist. Participants initially left their hate groups because of both painful and encouraging interactions with members of marginalized communities, which led to the disintegration of their White supremacist ideological convictions. Upon exiting, participants navigated threats to their safety, experienced shifts in their social networks, encountered new emotional states, and healed through introspection and connection with others. Finally, participants connected with former White supremacists who had become antihate activists, spoke out publicly against hate, and developed antihate activist identities. The authors offer directions for future research, as well as provide implications for clinical interventions supporting hate group members through their exit processes.

Keywords: White supremacy, racism, antiracism, deradicalization, social justice

3. Silva, K., Nauman, C. M., Tebbe, E. A., & Parent, M. C. (2022, July). Policy attitudes toward adolescents transitioning gender. *Journal of Counseling Psychology*, 69(4), 403–415. <https://doi.org/10.1037/cou0000601>

Abstract: Anti-transgender policies and state legislative initiatives that focus on school bathroom use and hormone use have emerged in recent years. These policies are generally written by and voted on by cisgender people, and as such, it is crucial to understand influences on nonaffirming attitudes toward policies that can impact trans youth. The present study aimed to extend research on transphobic attitudes in general to attitudes toward policies that impact youth undergoing transition. Latent variable covariances and structural equation modeling were used to test the relations between transphobia, genderism, homophobia, need for closure, sexual orientation, social dominance orientation, attitudes toward sexual minorities, beliefs about gender roles, aggression, religious fundamentalism, and contact with sexual and gender minority individuals, as they are related to attitudes toward hormone use and bathroom use for trans youth. Analyses of data from a sample of 248 cisgender adults indicated that genderism and transphobia was associated with attitudes toward gender-affirming hormone use and bathroom use for trans youth; need for closure was associated with gender-affirming attitudes toward bathroom use, but was not associated with hormone use. Sexual orientation was linked to attitudes toward gender-affirming policies, such that nonheterosexual participants had more affirming attitudes toward trans youths' bathroom use, but not hormone use. Implications for future research, advocacy efforts to promote rights for trans youth, and clinical work with trans youth and/or parents/guardians of trans youth are discussed.

Keywords: transgender, transphobia, gender affirming care, gender affirming policy

4. Schwartz, S. J., Waterman, A. S., Cobb, C. L., Cano, M. N., Scaramutti, C., Meca, A., Ozer, S., Ward, C., Puente-Durán, S., Lorenzo-Blanco, E. I., Unger, J. B., Duque, M. C., Vos, S. R., Zeledon, I., Garcia, M. F., & Martinez, C. R. (2022, July). Cultural stress, daily well-being, and internalizing and externalizing symptoms among Hispanic college students. *Journal of Counseling Psychology*, 69(4), 416–429. <https://doi.org/10.1037/cou0000604>

Abstract: The present study was designed to examine the extent to which, in a sample of 873 Hispanic college students, daily levels of, and variability in, well-being would mediate the predictive effects of culturally related stressors (discrimination, negative context of reception, and bicultural stress) on internalizing and externalizing symptoms 11 days later. A 12-day daily diary design was utilized, where reports of cultural stressors were gathered on Day 1, daily well-being reports were gathered on Days 2–11, and outcomes were measured on Day 12 (with controls for Day 1 levels of these same outcomes). Structural equation modeling results indicated that daily means of, and variability in, well-being significantly mediated the predictive effect of Day 1 ethnic/racial discrimination, negative context of reception, and bicultural stress on Day 12 symptoms of anxiety and depression. No effects emerged for externalizing symptoms. When we decomposed the latent well-being variability construct into its component

indicators (self-esteem, life satisfaction, psychological well-being/self-acceptance, and eudaimonic well-being), daily variability in life satisfaction and self-acceptance appeared to be primarily responsible for the mediated predictive effects we observed. These results are discussed in terms of implications for further research, for counseling practice, and for the development of more inclusive university practices and policies.

Keywords: cultural stressors, well-being variability, Hispanic, college students, daily diary

5. Ouch, S., & Moradi, B. (2022, July). Asian American people's intragroup and intergroup collective action: Identifying key correlates. *Journal of Counseling Psychology, 69*(4), 430–442. <https://doi.org/10.1037/cou0000606>

Abstract: The present study advanced prior research by examining key correlates of Asian American people's intragroup and intergroup collective action. Building on prior research, this study tested a model of the unique relations of experiences of discrimination, model minority beliefs, intragroup solidarity, and intergroup solidarity with other people of color as correlates of Asian American people's intragroup and intergroup collective action. Single-indicator latent variable path analysis explained 59% and 44% of the variance in intergroup collective action and intragroup collective action, respectively. Experiences of discrimination had a significant unique positive link with both intragroup collective action and intergroup collective action. Model minority achievement orientation beliefs had a significant unique negative link with both intragroup collective action and intergroup collective action. Model minority unrestricted mobility beliefs did not have a significant unique link with either intragroup collective action or intergroup collective action. Intragroup solidarity had a significant unique positive direct link with intragroup collective action, but no unique significant link with intergroup collective action. Intergroup solidarity had a significant unique positive direct link with both intergroup collective action and intragroup collective action. These findings reveal potential points of intervention to foster Asian American people's engagement in intergroup and intragroup collective action.

Keywords: collective action, racism, solidarity, social justice, Asian American people

6. Cantarero, K., van Tilburg, W. A. P., & Smoktunowicz, E. (2022, July). Other- (vs. self-) oriented meaning interventions enhance momentary work engagement through changes in work meaningfulness. *Journal of Counseling Psychology, 69*(4), 443–451. <https://doi.org/10.1037/cou0000594>

Abstract: We tested whether a short, online meaning intervention boosts momentary work engagement (MWE) through an increase in perceived work meaningfulness. In Study 1 ($N = 227$), employees who were asked to write why their work was meaningful subsequently experienced higher work meaningfulness and higher MWE compared to a control group. Work meaningfulness mediated the relationship between the intervention and MWE. Study 2, conducted among employees ($N = 254$), found that writing about how one's work serves a greater good (vs. how it advances personal career, vs. control)

led to an increase in work meaningfulness, which consequently predicted MWE. The research examines a new tool to enhance work meaningfulness that can be easily and widely applied and that provides insight into how sources of meaningful work are related to work meaningfulness and to important occupational outcomes.

Keywords: meaning interventions, work meaningfulness, work engagement, self vs. others

7. Levin, N., Lipshits-Braziler, Y., & Gati, I. (2022, July). The Identification and Validation of Five Types of Career Indecision: A Latent Profile Analysis of Career Decision-Making Difficulties. *Journal of Counseling Psychology*, 69(4), 452–462. <https://doi.org/10.1037/cou0000603>

Abstract: Diagnosing the causes of clients' career indecision is among the first steps in career counseling. The present study applied latent profile analysis to identify career indecision types using the 10 difficulty scale scores of the Career Decision-Making Difficulties Questionnaire (Gati et al., 1996). In two random U.S. samples ($N_{\text{total}} = 8,918$; age range = 14–50), five profiles of career indecision were identified and replicated: (1) *unmotivated* (6%), (2) generally *indecisive* (31%), (3) *unrealistic* (12%), (4) *uninformed* (39%), and (5) *conflicted* (12%). Age and gender negligibly predicted career indecision type, thereby supporting the stability of the five-profile typology. Nonetheless, the female gender was associated with a greater likelihood of being classified as *indecisive* as opposed to *unmotivated* (OR = 2.13). Furthermore, the five types differed in career decision status ($\eta^2 = .28$) and perceived career decisional distress ($\eta^2 = .29$). *Uninformed* and *conflicted* individuals reported multiple career decision-making difficulties and were still considering many career alternatives, whereas the three remaining types had one salient difficulty and had already identified a few (or even one) preferred alternative(s). Typological classification of individuals based on their salient causes of career indecision facilitates intervention planning as well as prescreening clients for individual counseling or group interventions.

Keywords: career indecision, career decision-making difficulties, career decision status, person-centered research, latent profile analysis

8. Wang, R. J., & Lent, R. W. (2022, July). Applying social cognitive career theory to the study abroad choice process. *Journal of Counseling Psychology*, 69(4), 463–473. <https://doi.org/10.1037/cou0000597>

Abstract: Studying abroad during college is an educational choice that has significant implications for students' career, academic, and personal development. This study adapted the social cognitive models of career choice (Lent et al., 1994) and self-management (Lent & Brown, 2013) to examine predictors of study abroad interest and choice intentions. The psychometric properties of new and revised domain-specific measures of self-efficacy, outcome expectations, supports, and barriers were first assessed with an initial sample of 325 college students. The measures yielded an 8-factor structure and adequate reliability and validity estimates. The factor structure was cross-

validated in an independent sample of students ($N = 277$). Support was also found for a higher order model of study abroad self-efficacy, with a single second order factor and three first order factors corresponding to cultural adjustment, decision-making, and administrative task self-efficacy. A structural path model offered good fit to the data and support for most of the paths predicting study abroad interests and intentions. We discuss directions for future research extending social cognitive career models to engagement in the study abroad experience and related academic/career behaviors.

Keywords: study abroad, social cognitive career theory, interests, intentions

9. Li, X. (2022, July). The “dyadic dance”: Exploring therapist–client dynamics and client symptom change using actor–partner interdependence modeling and multilevel mixture modeling. *Journal of Counseling Psychology*, 69(4), 474–489. <https://doi.org/10.1037/cou0000599>

Abstract: Using longitudinal actor–partner interdependence modeling and multilevel mixture modeling, the aims of this study were to investigate the therapist–client dyadic dynamic patterns (i.e., therapist and client consistency and their mutual influences in perceptions of working alliance) and how these dynamic patterns related to client symptom change with varied treatment lengths. Data set included 1,520 sessions conducted by 85 master’s level therapist trainees with their 283 clients in China. Before every session, clients reported their symptom; after every session, both therapists and clients rated their working alliance. (a) Therapist consistency was positively associated with greater client symptom improvement, especially in relatively longer therapy course. (b) Client consistency and therapist–client mutual influence dynamics did not individually relate to client symptom improvement. (c) Two subgroups of therapist–client dyads with distinct dyadic dynamic patterns were identified: one subgroup (*Dyadic Independence*) showing significant self-consistency and nonsignificant mutual influence and the other subgroup (*Mutual Influence*) showing significant self-consistency as well as *mutual influence*. (d) The mutual influence subgroup was associated with greater client improvement than the *dyadic independence* subgroup, especially in shorter therapy. A dyadic dynamic pattern characterized by the presence of therapist and client self-consistency as well as mutual influence may be conducive to positive therapeutic outcome in terms of client symptom improvement.

Keywords: therapist-client mutual influence, dyadic dynamic pattern, client symptom change, longitudinal actor-partner interdependence modeling, multilevel mixture modeling

10. Li, X., Li, F., Lin, C., Chen, S., & Han, Y. (2022, July). The “roller coaster ride”: A longitudinal investigation of the dynamic relationship between Chinese counseling trainees’ self-efficacy and their clients’ outcome and the mediating effects of working alliance and session evaluation. *Journal of Counseling Psychology*, 69(4), 490–505. <https://doi.org/10.1037/cou0000595>

Abstract: Based on the social-cognitive theory, this study investigated the dynamic association between counseling trainees' self-efficacy and their clients' outcome (i.e., symptom distress), and the mediating effects of therapist- and client-rated working alliance and session quality. Data set included 1,352 sessions conducted by 87 master's level therapist trainees with their 317 clients in China. Before every session, therapists completed a measure of self-efficacy and clients reported their symptom distress; and after every session, both therapists and clients rated their working alliance and session quality. Results showed that, (a) over the course of therapy, the initial level of therapist self-efficacy did not predict how quickly client symptom declined; (b) the initial level of client distress did not predict how quickly therapist self-efficacy increased; and (c) client distress decline was not related to therapist self-efficacy increase over the course of therapy. However, at the session-to-session level, higher therapist self-efficacy before one session significantly predicted lower client distress before the next session, and higher client distress before one session significantly predicted lower therapist self-efficacy before the subsequent session. Therapist and client perceptions of working alliance were both significant mediators, while their session quality ratings were not. Findings supported the dynamic and reciprocal relationship between therapist self-efficacy and client distress at the immediate session-to-session level rather than the overall trajectory level, and revealed its specific mediating mechanism through the relationship building between therapist and client.

Keywords: counseling self-efficacy, client distress, working alliance, session evaluation, longitudinal model

11. Jennissen, S., Huber, J., Nikendei, C., Schauenburg, H., & Dinger, U. (2022, July). The interplay between agency and therapeutic bond in predicting symptom severity in long-term psychotherapy. *Journal of Counseling Psychology*, 69(4), 506–517. <https://doi.org/10.1037/cou0000602>

Abstract: This study investigated the interplay between agency and therapeutic bond in predicting patient symptoms in outpatient psychotherapy. A total of $N = 731$ patients provided measurements of agency (Therapeutic Agency Inventory; TAI), therapeutic bond (bond subscale of Working Alliance Inventory-Short Form Revised [WAI-SR]), and symptoms (Symptom Checklist Short Form [SCL-K11]) every fifth session of long-term treatment for up to 60 sessions. When investigated in separate models, both more agency and a stronger therapeutic bond predicted symptom improvement. However, within-person changes and between-person differences in agency predicted symptom improvement over and above the effects of therapeutic bond. Multilevel response surface analysis was used to further investigate the interplay between agency and therapeutic bond. When both agency and therapeutic bond levels were high, symptoms improved the most. When agency and therapeutic bond ratings differed, symptom ratings were significantly lower when agency exceeded therapeutic bond levels than when therapeutic bond ratings exceeded agency. Findings suggest that both agency and therapeutic bond are important treatment factors, but outcome could be improved when a strong therapeutic bond is combined with an equally strong sense of agency that empowers

patients to pursue changes in their lives. When a strong therapeutic bond is present, but the patient feels less agentic, therapists may want to foster agency to improve outcomes.

Keywords: agency, therapeutic bond, psychotherapy process, outcome, long-term psychotherapy

12. Boschann, A., Krähnke, U., Wiegand-Grefe, S., & Kessler, E. M. (2022, July). How young psychotherapists experience working with older patients. *Journal of Counseling Psychology*, 69(4), 518–530. <https://doi.org/10.1037/cou0000596>

Abstract: Preliminary findings from experimental and survey research suggests that psychotherapy with older adults is an area of practice in which psychotherapists do not feel positive and confident. This qualitative study is the first to explore how young psychotherapists experience and perceive their therapeutic work with older patients. To do so, we provide an in-depth perspective of how young (aged 27–35) psychotherapists experience providing psychotherapeutic treatment for older patients (aged over 65). Semistructured interviews were conducted with 20 psychotherapists in training (14 women, six men). They were recruited via psychotherapeutic training institutions and geropsychiatry clinics in Germany. The grounded theory approach was used to analyze the data. We found that the participants had various attitudes toward older adults (respectful/admiring, caring/supportive, doubtful, and open) that were related to individual social and biographic experiences with older adults. The participants' attitudes and personal experiences were also found again in their reported therapeutic behavior toward older patients. The finding further showed that the treatment setting (inpatient vs. outpatient) had an additional impact on the participants' perception of and therapeutic behavior toward older patients. Our findings demonstrated that the participants experienced various challenges and particularities when working with older patients. Young psychotherapists who work with older patients should be supported by psychotherapeutic training institutions through supervision and guidance on how to deal with clinical challenges. Furthermore, it can be valuable for young psychotherapists to critically reflect their attitudes toward older adults and personal motives for their therapeutic behavior toward older patients.

Keywords: psychotherapy, age stereotypes, intergenerational relations, qualitative research

12. Erekson, D. M., Bailey, R. J., Cattani, K., Klundt, J. S., Lynn, A. M., Jensen, D., Merrill, B. M., Schmuck, D., & Worthen, V. (2022, July). Psychotherapy session frequency: A naturalistic examination in a university counseling center. *Journal of Counseling Psychology*, 69(4), 531–540. <https://doi.org/10.1037/cou0000593>

Abstract: With increasing demand for psychotherapy services, clinicians are carrying increasingly large caseloads (Bailey et al., 2020). As the number of new intakes exceeds the number of clinical hours available each week in some settings, psychotherapy is delivered on an attenuated schedule for returning clients (rather than the traditional weekly frequency); there is, however, little support for the efficacy of this practice. The present study explored the effect of session frequency on psychotherapy outcomes using

a quasi-randomized controlled design. In a working university counseling center, we assigned therapists to either a treatment-as-usual (TAU) group (attenuated session frequency) or an experimental group (weekly session frequency). Clients were randomly assigned to a therapist in either condition. Using hierarchical linear modeling and survival analyses, we examined psychotherapy outcomes (measured by session-by-session Outcome Questionnaire 45 scores) for 1,322 clients (3,919 individual sessions). We found no differences between groups when examining the full sample, but also found limited fidelity in the experimental group. When identifying individuals who were seen weekly in at least the first three sessions after intake (sensitivity analysis), we found the following: (a) weekly therapy resulted in faster trajectories of change over time, (b) weekly therapy resulted in a greater likelihood of achieving recovery, and (c) weekly therapy resulted in a greater likelihood of achieving recovery *sooner*. We discuss the importance of including session frequency when considering the *dose* of therapy, as well as the implication that prioritizing weekly therapy may increase therapy efficacy and efficiency in routine practice.

Keywords: session frequency, practice-based evidence, psychotherapy outcome, dose-response

13. Riemer, A. R., Sáez, G., Brock, R. L., & Gervais, S. J. (2022, July). The development and psychometric evaluation of the Objectification Perpetration Scale. *Journal of Counseling Psychology, 69*(4), 541–553. <https://doi.org/10.1037/cou0000607>

Abstract: While the literature has shown that sexually objectifying women leads to negative outcomes for the target and perceiver, measures of objectification perpetration are often adaptations of measures designed to assess targets' self-objectification or reported experiences of objectifying behaviors. In the present article, we introduce the Objectification Perpetration Scale (OPS) that assesses not only men's perpetration of objectifying behaviors directed toward women but also their objectifying cognitions and beliefs. Data from 855 men were collected across two studies. Exploratory factor analysis (EFA) in the first sample revealed two distinct factors and confirmatory factor analysis (CFA) in the second, independent sample, supported the factor structure of the newly developed 16-item OPS, including: sex-based (10 items) and appearance-based (6 items) objectification perpetration. Supporting its construct validity, scores on the OPS and the subscales were positively associated with scores on other measures of objectification perpetration, measures of sexual violence perpetration, and sexual exchange and misogynistic ideologies. The OPS contributes to a more comprehensive understanding of the objectification perpetration phenomenon, including objectification that reduces women to either their sexual appeal or appearance.

Keywords: objectification, sexualization, social perception, social cognition

14. Merwin, K. E., Mackinnon, S. P., O'Connor, R. M., & Flett, G. L. (2022, July). Socially prescribed perfectionism predicts next-day binge eating behaviors over 20-days. *Journal of Counseling Psychology*, 69(4), 554–564. <https://doi.org/10.1037/cou0000600>

Abstract: Existing research on perfectionism and binge eating suggests that socially prescribed, self-oriented, and other-oriented perfectionism (Socially Prescribed Perfectionism, SPP; Self-Oriented Perfectionism, SOP; and Other-Oriented Perfectionism, OOP) are differentially related to binge eating. However, previous studies have largely utilized cross-sectional methodology. The present study used a 20-day daily diary methodology to examine associations between daily levels of perfectionistic dimensions and next-day binge eating behaviors with a nonclinical sample of emerging adults ($N = 263$). Zero-inflated negative binomial regression models indicated that daily SPP (but not SOP or OOP) predicted a greater intensity of next-day binge eating behaviors in the count portion of the model; however, daily levels of perfectionistic dimensions did not predict the presence/absence of next-day binge eating behaviors in the zero-inflated portion of the model. Additionally, analyses examining the reverse causal direction (i.e., binge eating behaviors predicting higher next-day perfectionism) failed to provide evidence that the occurrence or intensity of binge eating behaviors predicts next-day levels of SPP, SOP, or OOP. Overall, at a daily level, SPP appears to be a vulnerability factor for binge eating behaviors. It may be helpful for clinicians to target state-levels of SPP to reduce harmful binge eating behaviors.

Keywords: binge eating, perfectionism, socially prescribed perfectionism

JOURNAL OF SCHOOL PSYCHOLOGY

1. Chan, J. Y. H. (2021, August 10). The Evolution of Assessment in English Pronunciation: The Case of Hong Kong (1978-2018). *Language Assessment Quarterly*, 19(1), 1–26. <https://doi.org/10.1080/15434303.2021.1935960>

Abstract: This study tracked the development of Hong Kong’s assessment practices for English pronunciation over the past four decades, with reference to the nativeness and intelligibility principles in L2 pronunciation research and pedagogy. Specifically, it evaluated changes in assessors’ comments on candidates’ English pronunciation performance in school-exit public examinations between 1978 and 2018. Qualitative and quantitative content analyses were conducted on the examination report for each year to identify themes related to candidates’ pronunciation ‘problems’, including ‘word-based’ features (word pronunciation, word stress, segmentals), ‘discourse-based’ features (suprasegmentals) and ‘delivery’ (clarity, fluency, loudness, naturalness, pacing). In the examination reports, candidates’ problems with word-based features (particularly word pronunciation) received the most attention across the decades. Most of the comments in later reports were aligned with the intelligibility principle, particularly at the segmental level (e.g., missing consonants, simplification of consonant clusters, word pronunciation). These assessment practices were potentially influenced by the teaching methods recommended in the different ELT curricula over time (i.e., from an oral-structural to a communicative/task-based language teaching approach), and also by the assessors’ judgements. The paper concludes by proposing a research agenda for the promotion of an evidence-based approach that can inform future assessment practices.

2. Li, H., Hunter, C. V., & Bialo, J. A. (2021, September 30). A Revisit of Zumbo’s Third Generation DIF: How Are We Doing in Language Testing? *Language Assessment Quarterly*, 19(1), 27–53. <https://doi.org/10.1080/15434303.2021.1963253>

Abstract: The purpose of this study is to review the status of differential item functioning (DIF) research in language testing, particularly as it relates to the investigation of sources (or causes) of DIF, which is a defining characteristic of the third generation DIF. This review included 110 DIF studies of language tests dated from 1985 to 2019. We found that DIF researchers did not address sources of DIF more frequently in recent years than in earlier years. Nevertheless, DIF research in language testing has expanded with new DIF analysis procedures, more grouping variables, and more diversified methods for investigating sources of DIF. In addition, in the early years of DIF research, methods to identify sources of DIF relied heavily on content analysis. This review showed that while more sophisticated statistical procedures have been adopted in recent years to address sources of DIF, understanding sources of DIF still remains a challenging task. We also discuss the pros and cons of existing methods to detect sources of DIF and implications for future investigations.

3. MacGregor, D., Yen, S. J., & Yu, X. (2021, October 28). Using Multistage Testing to Enhance Measurement of an English Language Proficiency Test. *Language Assessment Quarterly*, 19(1), 54–75. <https://doi.org/10.1080/15434303.2021.1988953>

Abstract: How can one construct a test that provides accurate measurements across the range of performance levels while providing adequate coverage of all of the critical areas of the domain, yet that is not unmanageably long? This paper discusses the approach taken in a linear test of academic English language, and how the transition to a computer-based test allowed for a design that better fit the demands of the test. It also describes the multi-stage adaptive approach that was devised. This approach allows for a test that covers a broad range of performance levels while including items that assess the language of the content areas as described in the English language development standards underpinning the test. The design also allows for a test that is closely tailored to the ability level of the English learner taking the test, and that therefore produces a more precise measure. The efficacy of the design in enhancing measurement of two versions of a high-stakes English language assessments is explored, and the implications of the results are discussed.

4. Stewart, J., Vitta, J. P., Nicklin, C., McLean, S., Pinchbeck, G. G., & Kramer, B. (2021, October 21). The Relationship between Word Difficulty and Frequency: A Response to Hashimoto (2021). *Language Assessment Quarterly*, 19(1), 90–101. <https://doi.org/10.1080/15434303.2021.1992629>

Abstract: Hashimoto (2021) reported a correlation of $-.50$ ($r^2 = .25$) between word frequency rank and difficulty, concluding the construct of modern vocabulary size tests is questionable. In this response we show that the relationship between frequency and difficulty is clear albeit non-linear and demonstrate that if a wider range of frequencies is tested and log transformations are applied, the correlation can approach $.80$. Finally, while we acknowledge the great promise of knowledge-based word lists, we note that a strong correlation between difficulty and frequency is not, in fact, the primary reason size tests are organized by frequency.

JOURNAL OF THE LEARNING SCIENCES

1. Sinha, T. (2021, August 31). Enriching problem-solving followed by instruction with explanatory accounts of emotions. *Journal of the Learning Sciences*, 31(2), 151–198. <https://doi.org/10.1080/10508406.2021.1964506>

Abstract: Background: Problem-solving followed by instruction (PS-I) is a powerful design shown to transform students' conceptual understanding and transfer. Within PS-I, no research has examined how moment-by-moment determinants of affective states impact the problem-solving phase and posttest performance. Methods: I develop a multimodal learning analytics pipeline to (a) infer affective states in PS-I via observable facial movements, (b) understand how the incidence and temporal dynamics of these states vary based on manipulating the problem-solving context with scaffolding strategies (failure-driven, success-driven, none) in an experimental study ($N = 132$), and (c) assess the extent to which affective states might explain learning. Findings: Students exposed to failure-driven scaffolding show exclusive dynamics comprising shame, a self-conscious emotion associated with metacognitive and cognitive benefits. Failure-driven scaffolding also creates opportunities for relatively greater emotional displays of knowledge emotions (e.g., surprise, interest). Hostile emotions differentially impact learning in PS-I, with the incidence of anger and disgust showing positive associations and the incidence of contempt showing a negative association. Finally, pleasurable emotions (e.g., happiness) positively associate with isomorphic posttest performance but negatively associate with non-isomorphic and transfer posttests. Contribution: Overt changes in facial movements reflective of students experiencing negative emotional states act as catalysts for learning.

2. Rahm, J., Gonsalves, A. J., & Lachaine, A. (2021, September 29). Young women of color figuring science and identity within and beyond an afterschool science program. *Journal of the Learning Sciences*, 31(2), 199–236. <https://doi.org/10.1080/10508406.2021.1977646>

Abstract: Background: To attend to the social production of girls of color in science through the lens of history in person and local contentious practice, we propose a relational and nonrepresentational reading of STEM pathways. We invoke the conceptual lenses of wayfaring, knots, and meshwork to highlight the infinite ways of figuring science and becoming a science person in movement. We understand this as a life-long embodied process, entangled and marked by intersectionality and emotions.

Methods: Drawing on video recordings, fieldnotes, artifacts, interviews, and focus groups, collected from young women of color participating in an after-school program and over time (2009–2016), we examine moments of figuring science and identity in science. Findings: Our analysis depicts identity work as a meshwork of trails emerging in the flow of the program activities and from deep relations of dignity among the young women of color extending beyond the afterschool program and through time. Contributions: This paper offers a critique of the linear, unidirectional, and representational pipeline model of STEM education through a focus on wayfaring. In

doing so, we call for a reframing of informal science learning experiences as contributing in important ways to a meshwork of lives and learning in science.

3. Omarchevska, Y., Lachner, A., Richter, J., & Scheiter, K. (2021, September 2). It takes two to tango: How scientific reasoning and self-regulation processes impact argumentation quality. *Journal of the Learning Sciences*, 31(2), 237–277. <https://doi.org/10.1080/10508406.2021.1966633>

Abstract: Background: Improving scientific reasoning and argumentation are central aims of science education. Because of their complex nature, self-regulation is important for successful scientific reasoning. This study provides a first attempt to investigate how scientific reasoning and self-regulation processes conjointly impact argumentation quality. Methods: In a study with university students ($N = 30$), we used fine-grained process data of scientific reasoning and self-regulation during inquiry learning to investigate how the co-occurrences between scientific reasoning and self-regulation processes are associated with argumentation quality. Findings: When modeling the co-occurrence of scientific reasoning and self-regulation processes using epistemic network analysis, differences between students showing either high or low argumentation quality become apparent. Students who showed high argumentation quality engaged in different scientific reasoning processes together more often than students with low argumentation quality, and they made more connections between self-regulation and scientific reasoning processes. Contribution: These findings offer educational implications for teaching scientific reasoning. Integrating self-regulation and scientific reasoning during instruction could be beneficial for improving scientific reasoning and argumentation.

4. Furberg, A., & Silseth, K. (2021, September 20). Invoking student resources in whole-class conversations in science education: A sociocultural perspective. *Journal of the Learning Sciences*, 31(2), 278–316. <https://doi.org/10.1080/10508406.2021.1954521>

Abstract: Background: While much literature has argued for the value of carefully designed instructional units building on student resources, less work details how students' own invocation of experiences and ideas from their everyday lives plays out in naturalistic classroom dialogues. Employing a sociocultural and interactional approach, this article illuminates how student resources become mediational means in ways that support learning. Methods: The empirical basis constitutes whole-class conversations involving lower secondary school students and their teacher during a science project about genetics. The applied analytical procedure involves microanalyses of sequences of student–teacher interaction in settings where students invoke resources from their everyday lives. Findings: The findings demonstrate that student resources became mediational means that (a) enabled students to express and test out their conceptual understanding and scientific reasoning, (b) promoted student participation and curiosity, and (c) positioned students as authoritative and accountable participants in whole-class conversations. Furthermore, how student resources became mediational means was also dependent on the distribution of authoritative roles between students and the teacher.

Contributions: This article provides evidence for the value of invoking student resources in educational dialogues and displays both how they can support learning and the challenges teachers may face in doing so.

5. Stroupe, D. (2021, September 14). Naming and disrupting epistemic injustice across curated sites of learning. *Journal of the Learning Sciences*, 31(2), 317–334. <https://doi.org/10.1080/10508406.2021.1977647>

Abstract: Curated sites of learning—places that are created by people to promote formal and informal knowledge and knowledge production practices (such as schools and museums)—are deemed foundational by many societies in assisting children to become knowers. However, curated sites of learning can also uphold ways of knowing that can cause harm to people marginalized from knowledge production, which philosophers describe as epistemic injustice. By looking across fields of research (education and philosophy), I describe how epistemic injustice can be utilized in education research to provide a shared analytical lens for examining curated sites of learning. I name four levels of interaction in which epistemic injustice can occur given their purposeful design by people with power: moment-to-moment interactions, micro (within a site), meso (between local sites) and macro (between sites and national/international policies and rhetoric). I describe how educators and researchers might disrupt epistemic injustice through the examination of curated learning sites and their personal ideas about knowledge. I also highlight tensions and dilemmas that might arise for educators and researchers when engaged in such work.

PSYCHOLOGY IN THE SCHOOLS

1. Lei, W., Wang, X., Dai, D. Y., Guo, X., Xiang, S., & Hu, W. (2022, January 22). Academic self-efficacy and academic performance among high school students: A moderated mediation model of academic buoyancy and social support. *Psychology in the Schools*, 59(5), 885–899. <https://doi.org/10.1002/pits.22653>

Abstract: Previous studies have illustrated a robust relationship between academic self-efficacy and academic performance. However, the underlying psychological mechanism of this relationship is still unclear. This study employed a moderated mediation model to examine whether academic buoyancy (ability to deal with academic challenges and setbacks in school daily life) mediated the relationship between academic self-efficacy and academic performance and whether social support moderated the mediation process. A total of 860 ($M = 16.39$, $SD = 0.73$) high school students in China completed questionnaires on academic self-efficacy, academic buoyancy, and social support. Academic performance was measured by standardized tests. The results indicated that academic buoyancy partially mediated the association between academic self-efficacy and academic performance. Social support moderated the first half of the path of the mediation model. The findings of the present study provide educational guidelines and suggestions for improving academic performance among high school students.

Keywords: Academic buoyancy, Academic performance, Academic self-efficacy, High school Students, Social support

2. Yang, J., Xu, J., & Zhang, H. (2022, January 27). Resiliency and academic engagement: A moderated mediation model. *Psychology in the Schools*, 59(5), 900–914. <https://doi.org/10.1002/pits.22654>

Abstract: The present study examined whether general self-efficacy (GSE) mediated the association between resiliency and academic engagement, and whether social support moderated the mediating process. Participants included 1549 Chinese adolescents ($M_{age} = 16.71$ years old, 629 boys). Using self-reported questionnaires, our study found that, after controlling for youth age, sex, and family socioeconomic status, GSE partially mediated the positive relation between resiliency and academic engagement. Further, social support moderated the association between resiliency and GSE, as well as the association between resiliency and academic engagement. Findings underline the significance of identifying the mediating and moderating factors linking resiliency and academic engagement. Implications and future research directions were discussed.

Keywords: Academic engagement, General self-efficacy, Resiliency, Social Support

- CitakTunc, G., &Yavas, H. (2022, January 24). The impact of using creative drama in the delivery of Body Safety Training Programs for preschool children on preventing sexual abuse in Turkey. *Psychology in the Schools*, 59(5), 915–931. <https://doi.org/10.1002/pits.22656>

Abstract: The study focuses on the impact of the creative drama method on child sexual abuse (CSA) prevention program in Turkey. A pretest–posttest experimental design with a control group was used in the study. The research was carried out with a total of 72 preschool children aged 3–6 years. Data were collected by What If Situations Test (WIST). A creative drama activity was conducted for the experimental group before training. Body Safety Training (BST) was used in both groups. The average WIST post-test scores were statistically significantly higher compared to pre-test scores for the children in both groups ($p < .05$). A comparison of pre-test and post-test assessment found that there was no statistically significant difference ($p > .05$) between the two groups in regard to the WIST assessment averages. BST Program has a positive impact on increasing personal safety skills when implemented together with creative drama activities.

Keywords: Body safety training, Child sexual abuse, Creative drama, Prevention program

- Deaton, J. D., Ohrt, J. H., Linich, K., Wymer, B., Toomey, M., Lewis, O., Guest, J. D., & Newton, T. (2022, February 2). Teachers’ experiences with K-12 students’ mental health. *Psychology in the Schools*, 59(5), 932–949. <https://doi.org/10.1002/pits.22658>

Abstract: The purpose of this study was to explore teachers’ experiences of student mental health concerns (SMHC) in the classroom. In this consensual qualitative research (CQR) study, we explored 12 teachers’ experiences related to their SMHCs in the classroom. Five domains emerged from this CQR study: (1) Teachers' Responses to Student Mental Health Concerns, (2) Teachers’ Perceptions of Preparedness in Addressing Student Mental Health, (3) Teacher Identified Preparation Needs to Addressing Student Mental Health, (4) Divergent Experiences of Support for Student Mental Health, and (5) Student Mental Health Influences. Overall, teachers lack the training and support to address SMHC in the classroom, resulting in numerous attempts of trial and error. These participants emphasize the need for training in SMHCs commonly found in children and adolescents coupled with classroom strategies to support these students' needs.

Keywords: Consensual qualitative research, Student mental health concerns, teacher training

- Hu, X., Wilczynski, S. M., Ma, Y., & Jin, N. (2021, October 16). International use of N=1 research design with secondary students with disabilities. *Psychology in the Schools*, 59(5), 954–979. <https://doi.org/10.1002/pits.22601>

Abstract: Schools must accurately implement effective interventions targeting deficits and/or learning challenges for secondary school-aged students with disabilities to fulfill their responsibility of preparing students for life after high school. School psychologists supporting this mission may be frustrated by the limited research conducted with secondary students. This study is designed to describe the evidence base for interventions used with secondary school students by relying on N = 1 research design studies. N = 1 research design can establish a functional relationship between the independent and dependent variable(s) and allows for the complexity of real world intervention implementation as experienced by practicing school psychologists, making N = 1 an ideal research base on which to make practical decisions in secondary schools. Although interventions increased secondary school-aged students' performance across studies, not enough well-designed studies were conducted across research groups for any specific intervention (i.e., meeting the minimum criteria established by What Works Clearinghouse) at the secondary school level. As a result, school psychologists will need to rely heavily on their professional judgment when combining the best available evidence with client and contextual variables to make individualized decisions for secondary school students. An application of this evidence-based practice decision-making model for a secondary student is provided.

Keywords: Disabilities, evidence-based practice, N=1 Research Design, School psychologists, Single case research design

6. Zeng, S., Zhao, H., Hu, X., Pereira, B. A., Pan, Q., Meng, C., Reyes, A., & Stone-MacDonald, A. (2021, October 13). Systematic review of single case design meta-analyses for school-age students with autism spectrum disorders: Current trend and future direction. *Psychology in the Schools*, 59(5), 980–1000. <https://doi.org/10.1002/pits.22599>

Abstract: Although numerous meta-analyses of single-case design (SCD) research have been published, no systematic review has been conducted to holistically reveal the trends in content focus, and the state-of-the-art practices in conducting SCD meta-analyses for school-aged students with autism spectrum disorder (ASD). This study synthesized the intervention/practices and participant characteristics, and identified the trends and limitations in previous SCD meta-analyses. Systematic review of meta-analyses can contribute to the summary of current evidence and further identify ways to improve SCD meta-analyses. We conducted a systematic literature search and identified 30 articles that met the inclusion criteria. Findings suggest that multiple interventions may be employed to improve various outcomes for school-aged students with ASD. Researchers may use our findings to map out the intervention and targeted outcomes and identify under researched areas. Meanwhile, findings suggest several measures to improve the quality of future SCD meta-analysis practices and publication, such as documenting racial/ethnicity information, using a set of potential moderators to conduct heterogenetic analysis, and effects in reducing publication bias. Future research directions are also provided.

Keywords: ASD, Meta-analysis, School-aged students, Single-case design

7. Dueker, S. A., & Day, J. M. (2020, December 26). Using standardized assessment to identify and teach prerequisite numeracy skills to learners with disabilities using video modeling. *Psychology in the Schools*, 59(5), 1001–1014. <https://doi.org/10.1002/pits.22473>

Abstract: Learners with disabilities enter school without the prerequisite numeracy and mathematics skills to perform at or near the level of their typically developing peers. Even simple addition problems require prerequisite skills that are often not taught directly in schools. Identifying and teaching those missing skills would reduce the learning gap and increase the lifelong independence of those learners. This study used a nonconcurrent single-subject multiple baseline design across five learners with a pretest/posttest analysis to examine the use of a norm-referenced, standardized assessment to identify gaps in student learning, create teaching protocols using video modeling, and assess overall growth after intervention. Individualized interventions were delivered using video models on iPads. Results indicated all learners were able to use the video models to acquire the missing skills and improve overall mathematics understanding, as measured by scores on a posttest. This has classroom implications due to the relative ease of administration of the assessment and teaching protocol as well as the potential for improved outcomes for the learners.

Keywords: Assessment, Mathematics, Numeracy, Video modelling

8. Groves, E. A., May, R. J., Rees, R. E., & Austin, J. L. (2021, February 11). Adapting the good behavior game for special education classrooms. *Psychology in the Schools*, 59(5), 1015–1031. <https://doi.org/10.1002/pits.22496>

Abstract: The good behavior game (GBG) is a classroom management intervention that employs a group contingency to support appropriate behavior and reduce classroom disruptions. To date, the majority of GBG research has included participants of typical development in mainstream education classrooms or alternative schools. The current study evaluated the GBG across two classrooms in a special education school in Wales. Children included those with both intellectual and physical disabilities. Although some adaptations were made to accommodate individual student needs, those adjustments were minimal and required little additional effort from teachers. Results were evaluated using a single-case withdrawal design and indicated that the GBG was effective at reducing disruptive and off-task behavior in both classrooms.

Keywords: Class management, Good behavior game, Learning disabilities, Special education needs

9. Lill, J. D., Bassingthwaite, B. J., & Cox, J. L. (2021, January 28). Applying behavioral analytic consultation to schools to assess and treat a student's elopement. *Psychology in the Schools*, 59(5), 1032–1045. <https://doi.org/10.1002/pits.22489>

Abstract: A team of behavioral consultants applied the Behavioral Analytic Consultation to Schools model while working with educators in a public school setting to evaluate and treat elopement behavior of an 11-year-old student with autism spectrum disorder.

Assessment conducted by the consultants included interviews, descriptive analysis, preference assessment, trial-based functional analysis of elopement, and a reinforcer analysis conducted using an alternating treatment design. An acceptable behavior intervention was developed in consultation with educational staff and family. Consultants trained educational staff on procedures to implement the intervention and data collection. When intervention components were implemented as designed, the student's elopement in the classroom and out of the school building decreased. This study is an example of a successful application of the Behavioral Analytic Consultation to Schools model where consultants take primary responsibility for the evaluation, and collaborate with educational team members and family members to apply what was learned from the assessment to a successful intervention. The results of this application of the model provide continued support for evaluating the use of the model to improve outcomes for students engaging in severe behavior in public school settings.

Keywords: Consultation, Elopement, Functional Analysis

TEACHING AND TEACHER EDUCATION

1. Lammert, C., Suh, J. K., Hand, B., & Fulmer, G. (2022, August). Is epistemic orientation the chicken or the egg in professional development for knowledge generation approaches? *Teaching and Teacher Education*, 116, 103747. <https://doi.org/10.1016/j.tate.2022.103747>

Abstract: Professional development has been marginally successful at encouraging the knowledge generation approaches promoted in international education policy. To explore whether increased attention to teachers' epistemic orientations might suggest necessary innovations to existing professional development routines, an explanatory sequential mixed-methods analysis was conducted inside a three-year professional development program for in-service elementary science teachers in two U.S. states. Findings suggest that teachers' epistemic orientations influenced their willingness to engage with knowledge generation approaches, challenge teacher educators' claims, and implement knowledge generation approaches in their classrooms, indicating an interrelated relationship between these factors. Implications for professional development design and recruitment are discussed.

Keywords: Epistemic orientation, Professional development, Generative learning, Science education

2. Koberstein-Schwarz, M., & Meisert, A. (2022, August). Pedagogical content knowledge in material-based lesson planning of preservice biology teachers. *Teaching and Teacher Education*, 116, 103745. <https://doi.org/10.1016/j.tate.2022.103745>

Abstract: Given the great relevance of lesson planning in teacher education, this study examined the potential of material-based planning by qualitatively analyzing 19 think-aloud protocols for planning processes regarding the use of pedagogical content knowledge. Material-based planning considers important aspects that are not covered by other approaches, such as analysis of material potential. We found that knowledge resources associated with student thinking occur frequently in lesson planning, which contrasts with previous findings. In addition, knowledge about students' understanding is highly integrated with student activities. These findings demonstrate the multifaceted potential of materials-based planning in teacher education.

Keywords: Enacted pedagogical content knowledge (ePCK), Material-based planning, Lesson planning, Teacher education, Think-aloud protocol

3. Beserra, V., Nussbaum, M., Navarrete, M., & Garrido, N. (2022, August). Online physically active academic lessons in COVID-19 times: A pilot study. *Teaching and Teacher Education*, 116, 103750. <https://doi.org/10.1016/j.tate.2022.103750>

Abstract: Schools play an important role in promoting physical activity among students. This paper studies the perception of educators, students, and parents about the use of

online physically active academic lessons during COVID-19 in the north of Chile. Starting the first week of November 2020, and for a period of five weeks, 323 students, alongside 11 educators, practiced a geometry-based dance routine online. The qualitative analysis results reveal a positive perception of the experience and an increase in physical activity without reducing the amount of time spent on academic activities. There were also improvements in learning, social relationships, and enjoyment.

Keywords: Physical health, Distance education, educational experience, Movement education, Physical activities, Mathematics education

4. Collie, R. J., & Mansfield, C. F. (2022, August). Teacher and school stress profiles: A multilevel examination and associations with work-related outcomes. *Teaching and Teacher Education*, 116, 103759. <https://doi.org/10.1016/j.tate.2022.103759>

Abstract: We examined three common sources of teacher stress (workload, student behavior, expectation stress) to identify teacher and school profiles. Data from the Teaching and Learning International Survey (TALIS) 2018 were used ($n = 3117$ teachers from 255 Australian schools). Latent profile analysis (LPA) revealed five teacher profiles: Low-Burden (17%), Mixed-Burden-Workload (15%), Mixed-Burden-Behavior (19%), Average-Burden (41%), and High-Burden (18%). Multilevel LPA identified three school profiles: Lower Pressure Climate (Workload) (17%), Lower Pressure Climate (Behavior) (23%), and Higher-Pressure Climate (59%). The profiles were associated differently with background characteristics and work-related outcomes (strain, occupational commitment). Findings provide directions for efforts to support teachers.

Keywords: teacher Stress, Occupational commitment, Latent profile analysis, Multilevel, TALIS

5. Mompoin-Gaillard, P., Ragnarsdóttir, G., & Jónasson, J. T. (2022, August). The key role of moderators in online communities of teachers: How presences support co-construction of knowledge in asynchronous discussions. *Teaching and Teacher Education*, 116, 103751. <https://doi.org/10.1016/j.tate.2022.103751>

Abstract: This article examines a professional online learning community developed within the Council of Europe's Pestalozzi Programme, gathering educators from 50 European countries, engaged in the practice of education for democracy. It argues that conversational approaches sustain peer learning with unique practices in the field of continued professional development. The data consists of transcripts of asynchronous discussions analysed by quantitative measures and thematic analysis. Results identified patterns of interaction, and factors that support – or impede – co-construction of knowledge. They suggest that regulation of controversy and emotional engagement is key because of its effect on pace, cohesion, and strong ties between participants.

Keywords: Professional development, In-service teacher education, Networked learning, Online community, e-learning

6. Hardy, I. (2022, August). Affective learning for effective learning? Data, numbers and teachers' learning. *Teaching and Teacher Education*, 116, 103754. <https://doi.org/10.1016/j.tate.2022.103754>

Abstract: This article investigated the affective qualities of the datafication of education on teachers' work and learning. Empirically, the research utilises interview data with experienced teachers from Queensland, Australia, to elaborate the affective qualities of increased policy attention to different forms of numeric targets, and associated data. The research reveals the increased datafication of education has led to significant pressure upon teachers to ensure enhanced results, even as there is also some evidence of more positive and productive engagement with data. The research cautions against the erosive emotive effects of the push for enhanced data as a proxy for learning.

Keywords: Affect, Data, Datafication, Enumeration of education, Teacher learning

7. Seban, D. (2022, August). Critical discourse analysis of preservice elementary teachers' literacy pasts. *Teaching and Teacher Education*, 116, 103743. <https://doi.org/10.1016/j.tate.2022.103743>

Abstract: This study explores the preservice elementary teachers' literacy pasts based on their narratives using Gee's (2011) and Fairclough's (2001) analytic categories. The results indicated that family, school, and social environment were all contributing factors in becoming literate beings, however, the lack of supporting resources for the development of language and literacy identity became evident. Most of the narratives comprised personal experience-oriented discourses that were more descriptive and less interpretive and explanatory. The cultural and political dimensions of society and their influential role were less apparent. The need for supportive experiences based on critical pedagogy is evident.

Keywords: Critical discourse analysis, Teacher education, Literacy

8. Brant, C. A., & Willox, L. (2022, August). Are we all doing it? Addressing LGBTQIA+ topics in teacher education. *Teaching and Teacher Education*, 116, 103746. <https://doi.org/10.1016/j.tate.2022.103746>

Abstract: This study investigated the self-efficacy of content area, methods instructors (n = 395) in working with lesbian, gay, bisexual, transgender, queer, intersex, asexual+ (LGBTQIA+) pre-service students, teaching LGBTQIA+ content in their methods courses and helping pre-service teachers reduce their bias and prejudice against LGBTQIA+ individuals. The study revealed that literacy and social studies methods instructors had a higher sense of self-efficacy than their mathematics and science counterparts. Participants had a higher sense of self-efficacy in working with LGBTQIA+ students than teaching LGBTQIA+ content. Participants employ a variety of pedagogical strategies to implement LGBTQIA+ content in methods courses.

Keywords: Teacher education, LGBTQ+, Self-efficacy

9. Kiramba, L. K., Deng, Q., & Viesca, K. (2022, August). Novice general education teachers' perceptions of preparedness in U.S. public schools: The impact of learning about and working with multilingual students. *Teaching and Teacher Education, 116*, 103757. <https://doi.org/10.1016/j.tate.2022.103757>

Abstract: This study examined perceptions of preparedness among novice general education teachers using 2015/16 National Teacher and Principal Survey data. Results show that teachers with training in teaching multilingual learners reported higher perceived preparedness than those without across all five general aspects of teaching (i.e., instructional methods, teaching subject matters, assessing students, differentiating instruction, and using assessment data to inform instruction). Further, teacher preparedness in differentiating instruction was positively associated with the percentage of multilingual learners in a teacher's classroom. Findings suggest that learning to teach multilingual learners supports novice general content teachers to feel more prepared as teachers overall.

Keywords: Multilingual learners, Perceptions of preparedness, Teacher preparation, culturally sustaining teaching, Novice teachers

10. Lu, C. Y., Parkhouse, H., & Thomas, K. (2022, August). Measuring the multidimensionality of educators' approaches to diversity: Development of the in-service teacher multicultural education model. *Teaching and Teacher Education, 116*, 103752. <https://doi.org/10.1016/j.tate.2022.103752>

Abstract: The purpose of this study was to examine the latent construct of multicultural education (ME) among 1887 in-service teachers. Using existing ME scales and Banks' five-pillar framework to capture relevant classroom, school, and community-level contexts, we generated and tested 48 survey items. This study revealed a six-factor model solution representing teachers' ME. The model not only captured three factors that measure teachers' multicultural capacities (*multicultural efficacy, multicultural teaching practice, and multicultural beliefs*), but it also identified three additional factors (*school support, family and community interactions, and challenges and pushback*) that may either enable or hinder the enactment of those capacities.

Keywords: Multicultural education, In-service teachers, Self-efficacy, Scale development, Multicultural competence

11. Manderstedt, L., Anderström, H., Sädbom, R. F., & Bäcklund, J. (2022, August). Consensus and discrepancies on quality: Mentor and student teacher statements on work placement mentoring. *Teaching and Teacher Education, 116*, 103762. <https://doi.org/10.1016/j.tate.2022.103762>

Abstract: Although work placement mentoring has been examined extensively in research, there are no studies drawing on critical discourse analysis combined with discourse theory, aiming to examine the discursive construction of quality aspects. Seven

mentor pairs in Swedish teacher training schools were interviewed individually during student work placement. Focus group interviews were conducted with eleven student teachers. The results reveal a consensus on a general level. The significant discrepancies are intertwined to different subject positions among student teachers and mentors, thus linked to different role expectations. A likely explanation can be found in the differences between professional and academic knowledge traditions.

Keywords: Mentoring, Preservice teacher education, Work placement, Interpersonal relationships, Role expectations, Discourse analysis

12. Huang, X., Sun, M., & Wang, D. (2022, August). Work harder and smarter: The critical role of teachers' job crafting in promoting teaching for creativity. *Teaching and Teacher Education*, 116, 103758. <https://doi.org/10.1016/j.tate.2022.103758>

Abstract: This study investigated the mediating role of teachers' job crafting in the relationship between the satisfaction of their basic psychological needs and self-reported performance in teaching for creativity (TfC). The participants were 1886 teachers from China. The structural equation modelling and bootstrapping results revealed that the association between teachers' basic need satisfaction with self-reported TfC were mediated by teachers' behaviour in increasing structural job resources, optimising demands, and decreasing demands. Teachers' behaviour in increasing challenging job demands was related only to product-oriented TfC, and behaviour that increased social job resources was not linked to either product- or process-oriented TfC.

Keywords: Basic psychological need, Job crafting, Teaching for creativity, China

13. Patfield, S., Gore, J., & Harris, J. (2022, August). Scaling up effective professional development: Toward successful adaptation through attention to underlying mechanisms. *Teaching and Teacher Education*, 116, 103756. <https://doi.org/10.1016/j.tate.2022.103756>

Abstract: Delivering effective professional development (PD) at scale necessitates a careful balance between program integrity and local adaptation. Drawing on qualitative case study data, this paper explores tensions in the implementation of a successful PD program, Quality Teaching Rounds, within two contrasting school communities in New South Wales, Australia. Using the theoretical distinction between ostensive and performative aspects of implementation, we demonstrate how even slight surface-level adaptations to the program can have profound consequences for teacher learning. We argue that scaling efforts must attend to the underlying mechanisms of effective PD, not just its design, if benefits are to be realised.

Keywords: Effective professional development, Quality Teaching Rounds, Scaling, Implementation, Adaptation, Program integrity, Teacher change

14. Schmidt, S. K., Bratland-Sanda, S., & Bongaardt, R. (2022, August). Secondary school teachers' experiences with classroom-based physically active learning: "I'm excited, but it's really hard." *Teaching and Teacher Education*, *116*, 103753. <https://doi.org/10.1016/j.tate.2022.103753>

Abstract: Classroom-based physical activity represents a paradigm shift in education and has been understudied in secondary school. The purpose of this study was to explore secondary school teachers' experiences of classroom-based physical activity with an emphasis on physically active learning. Six 9th grade teachers were interviewed. Giorgi's descriptive phenomenological method was used to analyze the interviews and structure the findings. The findings show a general meaning structure and three interrelated themes: Motivated by relevance, A more complex reality than expected and Resigning to simpler solutions. These insights will impact the development of current and future school-based physical activity programs.

Keywords: Physically active learning, School-based physical activity, Health promotion, Classroom-based physical activity, Secondary school, Teacher experiences

15. Rechsteiner, B., Compagnoni, M., Wullschleger, A., Schäfer, L. M., Rickenbacher, A., & Maag Merki, K. (2022, August). Teachers involved in school improvement: Analyzing mediating mechanisms of teachers' boundary-crossing activities between leadership perception and teacher involvement. *Teaching and Teacher Education*, *116*, 103774. <https://doi.org/10.1016/j.tate.2022.103774>

Abstract: Teachers are drivers for change in school improvement. However, not all teachers participate in further developing schools' educational practice. This study aimed to understand conditional factors in teachers' involvement. To this end, we analyzed teachers' leadership perception and boundary-crossing activities aimed at increasing professional capital. Structural equation modeling analyses based on a sample of $N = 1232$ teachers at $N = 59$ schools indicated partial mediations of cognitive and social boundary-crossing activities on the relationship between leadership perception and involvement. This study contributes to the literature by illuminating the potential of teachers' activities to enhance professional capital for school improvement.

Keywords: Teacher involvement, Professional development, School improvement, Teacher participation, Leadership role, Boundary crossing

16. Moreno-Casado, H., Leo, F. M., López-Gajardo, M., García-Calvo, T., Cuevas, R., & Pulido, J. J. (2022, August). Teacher leadership and students' psychological needs: A multilevel approach. *Teaching and Teacher Education*, *116*, 103763. <https://doi.org/10.1016/j.tate.2022.103763>

Abstract: This study aimed to determine the association between students' perception of teacher leadership (i.e., transformational, transactional, and passive) and students' psychological needs (i.e., need satisfaction and need frustration) in Mathematics, English as a foreign language, Spanish Language and Literature, and Physical Education. Participants were 858 students (346 boys and 512 girls), who completed questionnaire

measures at three temporal points over an academic course. They were aged between 13 and 17 years ($M = 14.83$, $SD = 0.74$) from 118 different classes and 32 secondary schools of southwestern Spain. We conducted multilevel modeling analysis (MLM), using the linear mixed modeling procedure for each dependent variable (i.e., need satisfaction and need frustration), including the different subjects, the three measurements over the academic course (i.e., Time 1, Time 2, and Time 3), and the leadership styles (i.e., transformational, transactional, and passive leadership) as independent variables. The results showed that transformational leadership was positively related to students' need satisfaction and negatively to their need frustration. Transactional leadership was positively associated with students' need frustration, and passive leadership negatively predicted students' need satisfaction and positively predicted need frustration. Differences were found as a function of the time and the subject in the associations between variables. These findings suggest that teachers should adopt transformational behaviors to satisfy the students' psychological needs.

Keywords: Multilevel analysis, Psychological needs, Transformational leadership, Teaching behaviors, Youth development

17. Vanner, C., Holloway, A., & Almansori, S. (2022, August). Teaching and learning with power and privilege: Student and teacher identity in education about gender-based violence. *Teaching and Teacher Education*, *116*, 103755. <https://doi.org/10.1016/j.tate.2022.103755>

Abstract: Gender-based violence (GBV) is a global concern that disproportionately impacts girls and marginalized communities; there is a need to better understand public education's role in enhancing understanding of GBV. This study uses qualitative participatory methods to study the experiences of 14 Canadian teachers who teach about GBV. Participants struggled to balance teaching their most privileged students about GBV while protecting students more likely to have experienced it directly. Feminist pedagogy of GBV should utilize strategies and curriculum that are action oriented and rooted in both the systemic contexts of GBV and the intersectional lived experiences of students and teachers.

Keywords: Canada, Feminist pedagogy, Gender-based violence, Participatory research, Teacher narratives, Intersectionality

18. Coppe, T., Sarazin, M., März, V., Dupriez, V., & Raemdonck, I. (2022, August). (Second career) teachers' work socialization as a networked process: New empirical and methodological insights. *Teaching and Teacher Education*, *116*, 103766. <https://doi.org/10.1016/j.tate.2022.103766>

Abstract: This paper uses a quantitative social network perspective to provide insights on the importance of professional interactions for (second career) teachers' work socialization. Given the lack of statistical models addressing the relation between network data and individual variables, we drew on a multiple-membership social network model (MMCSNA) to address our research questions. Our results show the importance of social capital in the process of teachers' work socialization, even more so in the case

of second career teachers. Moreover, as shown through a comparison between estimates in our MMMCSNA model and in a single-level regression model, the proposed model performed better.

Keywords: Social capital, Teachers' professional development, social network
Multiple membership multiple classification social network model

19. Fancourt, N., Foreman-Peck, L., & Oancea, A. (2022, August). Addressing ethical quandaries in practitioner research: A philosophical and exploratory study of responsible improvisation through hermeneutical conversation. *Teaching and Teacher Education, 116*, 103760. <https://doi.org/10.1016/j.tate.2022.103760>

Abstract: In education and elsewhere, practitioner researchers sometimes experience ethical bewilderment when established university-based codes prove inadequate. We delineate this philosophically as a quandary, rather than a dilemma, necessitating responsible improvisation, which may be supported through hermeneutical conversation. We describe an exploratory study with eight participants. Analysis of pictorial designs, texts and interviews showed how they experienced quandaries (competing goods at stake, imagined negative consequences, an ongoing ethical impasse) and how they addressed them through hermeneutical conversation (the moral salience of the particular, the art of ethical improvisation). The implications for research in teacher education and research ethics guidance are considered.

Keywords: Research ethics, Dilemmas, Quandaries, Practitioner research, Hermeneutics, Improvisation

20. Schmidt, S. K., Bratland-Sanda, S., & Bongaardt, R. (2022b, August). Young adolescents' lived experience with teacher-led classroom-based physical activity: A phenomenological study. *Teaching and Teacher Education, 116*, 103777. <https://doi.org/10.1016/j.tate.2022.103777>

Abstract: This study aims to identify and describe the general meaning structure of secondary school students' experience of classroom-based physical activity. The nine students interviewed in this study experienced classroom physical activity as (1) engaging with the school environment in a different way, (2) a changed experience of togetherness and classroom dynamics, and (3) an increased awareness of preferences regarding the learning setting. Students found physically active learning and physical activity breaks to be a valued and meaningful movement setting that improved their psychosocial health and well-being, made them more aware of their own preferences and strengthened their internal voice.

Keywords: Adolescents, School-based physical activity, physically active learning, Classroom physical activity breaks, Psychosocial well-being, Qualitative method

21. Harvey-Torres, R., Palmer, D., Degollado, E. D., & Estrada, K. (2022, August). Three worlds pitfall? A transfronteriza Latina bilingual teacher leveraging literacy to navigate, home, school, and university divides. *Teaching and Teacher Education*, 116, 103767. <https://doi.org/10.1016/j.tate.2022.103767>

Abstract: Given the high attrition rate of teachers of color in the United States, this study employs testimonio to explore one Latinx bilingual teacher's literacy and literacy teaching experiences. We wanted to know what motivated her at the start of her career, what led to burnout, and what kept her going. We interrogate the “two-worlds pitfall,” arguing that a third “world” – of the home language and culture – is meaningful and supportive for Latinx bilingual teachers. Based on this, we advocate for teacher preparation programs that bridge gaps between pre-service university experiences, classroom teaching, and cultural/linguistic wealth in the home and community.

Keywords: Bilingual teacher preparation, Testimonio, Multiliteracies, Teacher education, Teacher attrition, Latinx teachers, Literacy, Biliteracy

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