

EDUDOC SERVICE SERIES

EDUDOC SERVICES: CURRENT CONTENTS

Based on Journals subscribed by LDD, NCERT

July – August 2024

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

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Preface

The Library and Documentation Division (LDD) of the National Council of Educational Research and Training (NCERT), serves as a crucial hub for information, research, and academic resources, supporting the diverse needs of educators, researchers, and policy-makers in education. Established to foster an environment conducive to educational excellence and innovation, LDD plays a pivotal role in the dissemination of knowledge and the promotion of advanced learning in the field of academic research. LDD is recognized for its hybrid collection of old and new print collections of books, journals, reports, and other reference collections.

LDD subscribes to a variety of journals on the recommendation of concerned departments and esteemed faculty members of NCERT on related subjects of research like economics, education, education psychology, educational research, gender studies, geography, linguistics, mathematics education, physics, psychology, science, social science, teacher education, value education, etc.

With the mandate of Dr. Dinesh Prasad Saklani, the Hon'ble Director, NCERT, the Library and Documentation Division executes several specialized services for its patrons known as *edudoc services*. In this edition of "EDUDOC SERVICES: CURRENT CONTENT", the LDD has delved into and presented a compilation of content pages of the journals received in the library during July- August 2024. The service facilitates connecting academicians with published articles in journals. For the journals received in hybrid mode (Print+Online), a hyperlink has also been provided for ease of navigation to the digital contents of the journals. Library and Documentation Division (LDD) at NCERT cordially invites academicians to explore and utilize our extensive collection of print journals. Suggestions are solicited to spruce up the library services better in honor of effectively and efficiently serving the academic community.

(Dr. Akash)
Head, LDD
NCERT, New Delhi

S.NO.	NAME OF JOURNALS	VOLUME NO.	ISSUE	MONTH	YEAR	PAGE NO.	PRINT OR ONLINE
Economics							
1	Economic & Political Weekly	59	24	15-Jun	2024	1	Print only
	Economic & Political Weekly	59	25	22-Jun	2024	3	Print only
	Economic & Political Weekly	59	26	29-Jun	2024	5	Print only
	Economic & Political Weekly	59	27	06-Jul	2024	7	Print only
	Economic & Political Weekly	59	28	13-Jul	2024	9	Print only
	Economic & Political Weekly	59	30	27-Jul	2024	11	Print only
	Economic & Political Weekly	59	31	03-Aug	2024	13	Print only
	Economic & Political Weekly	59	32	10-Aug	2024	15	Print only
	2	The economist	451	9402	22-Jun	2024	17
The economist		452	9404	06-Jul	2024	20	Print only
The economist		452	9405	13-Jul	2024	23	Print only
The economist		452	9406	20-Jul	2024	26	Print only
The economist		452	9407	27-Jul	2024	29	Print only
The economist		452	9409	10-Aug	2024	32	Print only
The economist		452	9410	17-Aug	2024	35	Print only
The economist		452	9411	24-Aug	2024	38	Print only
3	Indian economic and social history review	61	2	June	2024	41	Print+Online
4	Journal of economic education	55	3	July	2024	43	Print+Online
5	The quarterly journals of economics	139	1	Feb	2024	45	Print only
	The quarterly journals of economics	139	2	May	2024	46	Print only
Education psychology							
6	Cognitive psychology	149		March	2024	47	Print only
	Cognitive psychology	150		May	2024	49	Print only
	Cognitive psychology	151		June	2024	51	Print only
7	Contemporary educational psychology	77		June	2024	53	Print only
8	Educational psychology in practice	40	2	June	2024	55	Print+Online

9	Indian journal of positive psychology	15	2	June	2024	57	Print only
10	Journal of applied developmental psychology	92		June	2024	59	Print only
11	Journal of counseling & development	102	3	July	2024	61	Print only
12	Journal of counseling psychology	71	3	April	2024	63	Print only
	Journal of counseling psychology	71	4	July	2024	66	Print only
13	Journal of cross-cultural psychology	55	4	June	2024	70	Print+Online
14	Journal of educational psychology	116	1	January	2024	72	Print only
	Journal of educational psychology	116	2	February	2024	75	Print only
	Journal of educational psychology	116	4	May	2024	78	Print only
15	Psychology in the schools	61	7	July	2024	81	Print only
Educational research							
16	Applied measurement in education	37	2	June	2024	85	Print+online
17	Assessment in education	31	1	February	2024	86	Print+online
18	Cambridge journal of education	54	3	June	2024	88	Print+online
19	Educational action research	32	3	July	2024	90	Print+online
20	Educational assessment evaluation and accountability	36	2	May	2024	92	Print+online
21	Educational research	66	2	June	2024	94	Print+Online
22	Globalisation, Societies and Education	22	3	June	2024	96	Print+Online
23	Scandinavian journal of educational research	68	5	August	2024	98	Print+Online
24	School effectiveness and school improvement	35	2	June	2024	100	Print+Online
25	Technology, pedagogy and education	33	3	June	2024	102	Print+Online
26	The journal of educational Research	117			2024	104	Print+Online

Gender Studies

27	Indian journal of gender studies	31	2	june	2024	106	Print+online
Geography							
28	Teaching Geography	49	2	Summer	2024	108	Print only
Linguistics							
29	Language learning	74	1	June	2024	110	Print+online
	Language learning	74	2	June	2024	113	
30	Linguistics and education	81		June	2024	115	Print only
	Linguistics and education	82		August	2024	117	Print only
Mathematics Education							
31	Mathematics Teaching		292	June	2024	119	Print only
Physics							
32	American Journal of Physics	92	5	May	2024	121	Print only
	American journal of physics	92	6	June	2024	124	Print only
	American journal of physics	92	7	July	2024	127	Print only
33	Physics today	77	6	June	2024	129	Print only
	Physics today	77	7	July	2024	132	Print only
34	Resonance	29	1	January	2024	135	Print only
	Resonance	29	2	february	2024	138	Print only
	Resonance	29	3	March	2024	140	Print only
	Resonance	29	6	June	2024	142	Print only
	Resonance	29	7	July	2024	144	Print only
Science							
35	Biochemistry and molecular biology education	52	2	April	2024	147	Print+Online
	Biochemistry and molecular biology education	52	3	June	2024	150	Print+Online
36	New scientist	262	3491	18-May	2024	153	Print only
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	New scientist	262	3497	29-Jun	2024	165	Print only
37	Science Education	108	4	July	2024	167	Print only
38	The journal of learning sciences	33	2	June	2024	169	Print+Online

Social Science

39	European journal of special needs education	39	4	August	2024	171	Print+online
40	Intellectual and developmental disabilities	62	3	June	2024	173	Print only
41	Journal of democracy	35	1	January	2024	175	Print only
42	Social Scientist	52	3-4	April	2024	178	Print only
43	The Social studies	115	1-3	June	2024	179	Print+Online

Teacher Education

44	Action in teacher education	46	3		2024	181	Print+online
45	European journal of Teacher education	47	2	April	2024	183	Print+online
	European journal of Teacher education	47	3	July	2024	185	Print+online

Value Education

46	Journal of human values	30	2	May	2024	187	Print+online
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** The titles, which are available to access online are hyperlinked and the digital access will be available for such journals within the IP Ranges of the council.*

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- Surging Global Public Debts

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- GDP Growth: The Tyranny of Numbers?

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- RBI Wants Financial Entities to Shape Up or Ship Out

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- Maratha Reservation: Growth, Inequality, and Unemployment

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- The Hunger Crisis: Measuring Hunger across Indian States
- Discouraged Borrowers: SMEs in Indian Manufacturing

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Roots of Maratha Agitation

The discrepancies observed in income distribution, amplified inequality, and elevated unemployment rates within the Maratha caste demand nuanced policy considerations and targeted interventions aimed at fostering equitable opportunities and economic empowerment. [page 18](#)

Decline in Savings

While it is not easy to establish a trend, the Indian economy cannot escape an emphasis on savings if it were to achieve high growth and a consequent large gross domestic product in the future. [page 14](#)

Pink Tide in Latin America

The limitations and possibilities of the resurgent pink tide phenomenon oscillate between systemic constraints and agential efforts to fulfil the goal of an egalitarian and just society. [page 28](#)

Hunger in Indian States

Out of the 36 states and union territories, 27 fall into the serious category and five in the alarming category in terms of the India state hunger index score. [page 112](#)

Manufacturing-led Growth

With the real (double-deflated) GVA of the manufacturing sector growing much faster than that of the market and non-market services, India's economic growth in the last two decades should be termed as manufacturing-led. [page 12](#)

India's Economic Growth Has Been Manufacturing-led, Not Services-led

12 Contrary to a widely held view that India's economic growth has been services-led, the article claims that in the last two decades, India has had manufacturing-led economic growth, not service-led.
— *Bishwanath Goldar*

Recent Decline in Indian Savings: Is It in Line with the Global Trend?

14 The latest National Accounts Statistics data show a declining savings rate in a period of high growth and high interest rates. — *Parthapratim Pal, Partha Ray*

Maratha Reservation: Growth, Inequality, and Unemployment

18 Aiming to explain the causes of appeals for reservations by using the growth incident curve and inequality indices, including the Gini coefficient and Theil indices, this article argues that income inequality exists within the Maratha caste. — *Vivek Jadhav*

Resurgence of the Pink Tide in Latin America

28 There is a resurgence of the pink tide, a progressive and inclusive political phenomenon, in different Latin American nations. The continued election of pro-people leaders and governments in these nations has challenged the prevailing right-wing political belief. — *Vijay Kumar*

Is GST Regressive in India? Distribution of Tax Burden across Consumer Groups

103 The distributional impact of goods and services tax across different consumer groups in India is estimated for 2021–22 for various tax rates. Multiple rate structures and fixation of GST rates based on product specification make it difficult to assign a specific rate or estimate the effective rate across items. The Centre for Monitoring Indian Economy's Consumer Pyramids Household Survey for 2021–22 is used. — *Sacchidananda Mukherjee*

The Hunger Crisis: Measuring Hunger across Indian States

112 India faces significant challenges in addressing hunger, particularly when measured against the global hunger index. The India state hunger index for 2017 is presented to evaluate hunger across states, filling the void post-2008. Most states and union territories fall in the serious category with only a few in the moderate, none in the low, and some in the alarming categories.
— *Amrita Pal, Atanu Ghosh, Shoummo Sen Gupta & Samiran Bisai*

Discouraged Borrowers: SMEs in Indian Manufacturing

117 Discouragement, or the phenomenon where firms do not apply for credit despite being potentially eligible for loans, is widely regarded as a significant problem for growth and development. Using data from the World Bank Enterprise Survey 2014, we examine the role of several firm characteristics as predictors of discouragement. — *Ketan Reddy, Sunil Mitra Kumar*

Postscript

127 *Libina K Sebastian* and *Asha S K* on how *Aattam* unmasks gender inequality in reel and real worlds; *Krishna Moorthy* on how *12th Fail* reduces individual success to individual merit; *Prabhakar Singh's* poem "Spring Blossoms;" and Last Lines by *Ponnappa*.

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The Great Indian (Sarkari) Aspirations
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- Massive Mismanagement of NEET and NET

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- State Debt and the Constitution

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- Should India Commercialise Genetically Modified Mustard Crop?
- Rhetoric of Collective Action in North East India: Lessons from GIN-FED, Karbi Anglong, Assam

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Student Protests in the US

While Columbia students have garnered significant media attention for their protests, they urge us not to lose sight of the broader context—the devastating destruction of all 12 universities in Gaza and the continued Israeli aggression. [page 13](#)

Cooperatives in North East India

GIN-FED entails only the rhetoric of collective action as its top-down approach followed the same modus operandi that characterises earlier neo-liberal interventions in the region. [page 57](#)

Separate Administration Demand

Addressing the long-standing tribal grievances in Manipur requires acknowledging and accommodating their political demand within the framework of constitutional provisions that safeguard tribal rights and cultures. [page 26](#)

Article 293 and Fiscal Federalism

The legal dispute between the Kerala government and the union over finances is an indication of an impending constitutional crisis over the union's control of subnational debt. [page 10](#)

Import Surge in Manufacturing

There is a need to identify and support industries that have not only lost out on competitiveness but also suffered loss of livelihoods and industrial closures due to the trade liberalisation process. [page 35](#)

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—Rajib Sutradhar 57

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State Debt and the Constitution

10 The recent legal dispute between the Kerala government and the union over finances indicates a looming constitutional crisis concerning the union's control of subnational debt. — *Alok Prasanna Kumar*

From Theory to Praxis

13 During Israel's continued and disproportionate military actions in Gaza following the 7 October attack by Hamas, Columbia University's campus became a focal point for dissent and solidarity. — *Stuti Shah*

Challenges of International Trade

17 Developing countries face dual challenges when participating in the international market. — *Krishan Sharma, Nida Rahman*

Eliminating Leakages from UP's Public Distribution System

22 Launching a high-frequency citizen feedback system can expedite and enhance transparency while ensuring that field officials are adequately empowered and trained to effectively implement the various provisions of the law. — *Sarthak Agarwal*

The Separate Administration Demand in Manipur

26 The cycle of violence in Manipur that erupted on 3 May 2023 remains unabated. Despite the massive deployment of central security forces, the arming of civilians impedes the attainment of peace. — *P Kham Sian Muan Zou*

Import Surge in the Indian Manufacturing Sector

35 The emphasis on *atmanirbharta* (self-reliance) has changed the perspective to target our trade as well as industrial policy to come out of the excessive reliance on imports and build up a domestic manufacturing base. — *Ramaa Arun Kumar*

The Patidar Agitation for Reservations in Gujarat

42 The dominant-caste Patidars, once opponents of reservations, launched an agitation in 2015–16 demanding reservation in educational institutions and government jobs. An examination of the historical rise of Patidars as the dominant caste in Gujarat and their social capital in reinforcing social bonds reveals its discontents in the educated youth reeling under neo-liberal economic growth. — *Ghanshyam Shah*

Balancing Self-sufficiency and Health Risks

50 Despite a domestic shortage, imports of rapeseed-mustard oil have not increased since the early 1990s due to the blending of the oil with other imported edible oils. Adopting the indigenously developed GM mustard crop could reduce import dependency, but the high levels of erucic acid levels in India's GM mustard crop make it harmful for human consumption. — *Sthany R Nair, Pooja Bhatia*

Rhetoric of Collective Action in North East India

57 In North East India, governments see cooperatives as a new mode of engagement with indigenous growers to overcome the challenges of integrating the region into market-led development. The Ginger Growers Cooperative Federation was set up to bring together ginger growers from different communities to facilitate better connections with the organic ginger market. — *Rajib Sutradhar*

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Economic & Political WEEKLY

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- Estimating Average Effective Tax Rates: Evidence from Firm-level Data in India
- Global Business Cycles and India's Services Exports: An Empirical Analysis
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Failed Examinations

The crisis involving exams conducted by the NTA exposes significant lapses in the agency's competence and governmental oversight along with certain systemic failures affecting India's education and examination system. [page 22](#)

Digital Neutrality

Digital neutrality focuses on creating fair competition in all parts of the digital ecosystem, including search engine usage, e-commerce, and social networking, and not merely in the provision of connectivity. [page 52](#)

Work as Distress

The increase in employment for females is primarily happening through distressed self-employment, where almost 50%–60% of the self-employed personnel are earning less than a dignified level of income. [page 26](#)

Optimality of Taxation

There could be some scope for improving aggregate tax revenues by reallocating taxes on capital income between activities and raising taxation of capital income, in general, to some extent. [page 65](#)

India's Services Exports

Transition probabilities of India's services export growth are more tightly synchronised with those of global growth than what is observed for global services export growth. [page 73](#)

The Impact of Caste in the Indian Boardroom

10 The opening up of the Indian economy has resulted in breaking caste shackles and an educated middle class. — *Saptarshi Purkayastha*

Inequalities in Household Debt

13 The structure of the debt of the lower strata of households still indicates reliance on non-institutional sources. — *K G K Subba Rao*

Rural–Urban Divergence

17 Data from various high-frequency indicators are used to assess the rural economy's demand statistics to investigate the nature of India's economic recovery in the post-pandemic period. — *Isha Gupta*

A Spate of Failed Examinations

22 The results of the National Eligibility-cum-Entrance Test in 2024 have been marred with unprecedented anomalies. — *Anil Swarup, Kartikey Singh*

New Working Poor in Contemporary India

26 It is observed that a mere representation in the workforce often blurs the gendered, unpaid, and distressed nature of employment for women in India. — *Nency Agrawal, Samhitha Narayan & Soham Bhattacharya*

'Hub-and-spoke Agreements' in the Indian Competition Act

30 The power given to the Competition Commission of India to take actions against entities beyond the immediate parties involved in anticompetitive conduct is the right step. — *Anil Kumar*

Illicit Incendiaries and International Humanitarian Law

34 The use of white phosphorous munitions in Gaza has brought back attention to its contentious and complicated use within international conventions. — *Ananya Sharma, Abhishank Mishra*

Employee Mental Health

46 The pursuit of environmental, social, and governance strategies presents a lucrative opportunity for companies to integrate mental health as a function of labour standards and culture. — *Kavya Gupta*

From Net Neutrality to Digital Neutrality

52 Classical principles of net neutrality are no longer sufficient to address the digital ecosystem powered by 5G technologies. — *Rohit Prasad, V Sridhar*

Gender Diversity on the Board of Indian Companies

57 A close look at the European approach is recommended to legislate the appointment of a higher percentage of women directors in Indian companies. — *Shiv Nath Sinha, Hanish Rajpal & Gyanda Girisha*

Estimating Average Effective Tax Rates

65 The average effective tax rates for labour and capital income are estimated using a novel approach with the help of India KLEMS and the CMIE Prowess database. — *Anuragh Balajee, Pawan Gopalakrishnan & Siddhartha Nath*

Global Business Cycles and India's Services Exports

73 India's services exports reveal a higher degree of synchronicity with global gross domestic product growth compared to goods exports. — *Sujata Kundu, Rajeev Jain & Ranjeeta Mishra*

Marginal Chives Cultivation

84 The success of Top Leikai in Manipur inspired the neighbouring villages in Imphal East to shift to chives farming. — *Athili Lolia, Shreedha Chungkham*

Postscript

90 *Nimmagadda Bhargav* on the dilemmas in the ethnography of journalistic practices; *Alok Ranjan* on pursuing justice in *To Kill a Tiger*; *Prasanta Moharaj* on moral ambiguity in *Tiger Nageswara Rao*; and Last Lines by *Ponnappa*.

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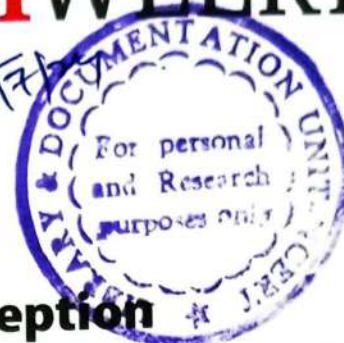
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Review of Women's Studies

Six papers in this edition of RWS offer a survey of women's varied experiences with the law, important trajectories of advocacy, and the lingering incompleteness of transformations in law. The review issue moves between a wide range of mediations in the endeavour to shed more light on the triangulated relationship between law, movements, and social location. These mediations include the interventions of feminist legal practitioners; feminist networking of women's organisations and social movements; the questioning of homogenising law by minority groups; and attempts of the higher judiciary at combatting gender stereotypes in the legal discourse. Women, in their quest to resist oppression and exploitation, have extended the remit of the legal system. However, they have become increasingly conscious of how the law structures their forms of resistance and often prevents them from transforming the complex relationship between hegemonic social relations and legal institutions.

Marital Rape Exception

An alternative reading of Section 375, Exception 2 of the IPC can be made consistent with the right of every individual to equality and dignity. [page 8](#)

Shifts in Feminist Discourses

The question of difference and its value as an analytical category for feminism requires a reconceptualisation of many categories and strategies. [page 15](#)

Sensitisation through Words

One may question whether the Supreme Court's handbook on gender can make a real change in undoing the "familial" and "gendered" interpretations of judicial discourse. [page 23](#)

Dissenting Together

Feminist networks founded on the shared visions of law and rights play a critical role within Muslim women's movements. [page 31](#)

Khap Panchayats in Transition

The interaction of khap panchayats with state laws reveals a complex and pluralistic relationship between the modern state and society. [page 38](#)

Recognising Care Work(ers)

The terrain of legal recognition has been uneven for ASHAs, with the journey beginning from a volunteer to a proposed "worker." [page 46](#)

Transforming Law, State, and Society: Feminist Reflections

- 5 Six papers in this edition of Review of Women's Studies offer a survey of women's varied experiences with the law, important trajectories of advocacy, and the lingering incompleteness of transformations in law. These mediations include the interventions of feminist legal practitioners; feminist networking of women's organisations and social movements; the questioning of homogenising law by minority groups; and attempts of the higher judiciary at combatting gender stereotypes in the legal discourse. — *Ritu Dewan, Prabha Kotiswaran, Maya John*

Nightly Rape: A Reinterpretation of the Marital Rape Exception in India

- 8 The plain language of Section 375, Exception 2 of the Indian Penal Code is critically analysed. It is commonly believed and referred to as the "marital rape exception." An alternative reading of the exception, which would hold husbands liable for sexual abuse under Section 375 of the IPC, is needed. Constitutional compulsions require a contemporary reading of the law consistent with the right of every individual to equality and dignity. — *Indira Jaising*

Diversity and Difference: Shifts in Feminist Discourses

- 15 The shifts in feminist movements in India show the specificities and commonalities of oppression women experience based on their position in the structure of power and privilege. The question of difference and its value as an analytical category for feminism requires reconceptualisation of many categories and strategies to build new solidarities and alliances. This implies looking at various intersections of identities, not as discrete markers of difference but as experiences specific to the social locations of the individuals and communities. — *Sadhna Arya*

Sensitisation through Words: Feminist Jurisprudence and the Supreme Court Handbook on Gender

- 23 The Supreme Court of India released the *Handbook on Combating Gender Stereotypes* in late 2023. The paper traces the genealogy of this document to feminist jurisprudence, epistemologies and the social movements for gender justice. While the handbook reflects a crucial moment in its own right, its efficacy is contingent on a fractured and hierarchical judicial order, where patriarchal discourse is common in lower court deliberations and legal pedagogy is averse towards "non-law" courses. — *Madhura Damle, Garima Dhabhai*

Legal Advocacy and Dilemmas of Feminist Networking in Muslim Women's Movement(s) in India

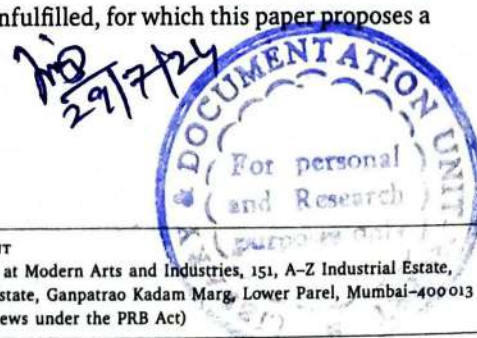
- 31 The critical role played by feminist networks within Muslim women's movements is investigated. The paper examines Bebaak Collective's organising work to build networks, employing dissent within movement spaces as an analytical tool. While anthropologists traditionally explore community formation through kinship networks or various forms of relatedness, the study presents an examination of feminist networks founded on shared visions of law and rights. — *Roshni Chattopadhyay*

Khap Panchayats in Transition: Legal Pluralism, Gender Dynamics, and Sports in Rural Haryana

- 38 The interaction of traditional non-constitutional mechanisms, such as *khap* panchayats in Haryana, with state laws provides a rich understanding of the relationship between the modern state and society. This paper specifically delves into the interaction of the *khaps* with the modern state and whether it has had a substantive impact on the reconstitution of hegemonic relationships by focusing on the culture of sports, especially among women. — *Prachy Hooda*

Recognising Care Work(ers): A Feminist Legal Examination of ASHAs

- 46 Despite being key "front-line" workers, made even more visible by the pandemic, accredited social health activists are not categorised as workers, denying them many entitlements and social security benefits. This paper reviews legal judgments and public policy discourses, locating them in the interstices of women's unpaid care work and the law, to interrogate the conceptualisation of the ASHA. The terrain of legal recognition has been uneven for ASHAs, with the journey beginning from a volunteer to a proposed "worker." However, many of their demands remain unfulfilled, for which this paper proposes a feminist reimagination of care work. — *Rukmini Sen, Aishwarya Rajeev*



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- Uphold the Constitution in Practice

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- Contractualisation of Academic Labour

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- Climate Risk Management: The RBI's Disclosure Norms for Banks and Financial Institutions
- Gambling on Africa: India and the Moral Dilemmas Facing the Global South
- Interstate Inequality in Consumption: Emerging Evidence from HCES 2022–23
- And more ...

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- Finance Commissions' Distance Criterion: Role in Delivering Equalisation
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- Official Statistical System in India: Through a Looking Glass Erroneously

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Devolution to States

The union government must legislatively act to institute limits on the collection of cesses and surcharges and the Sixteenth Finance Commission needs to initiate measures to correct historical wrongs in vertical devolution. **page 35**

India and the Global South

Africa and West Asia are interconnected, and India's attempt to pinpoint one region of the global South is a rather bald attempt to distract from a major problem created by India's alliance with Israel. **page 13**

Interstate Consumption Inequality

Rural areas unravel greater interspatial inequality than urban areas, and education, health, housing, consumer durable goods, and conveyance are some of the items that show greater discrepancies across the states. **page 17**

New Poverty Line

Given the large decline in the poverty headcount ratio in India at the \$3.2 PPP poverty line, India needs an even higher national poverty line to adequately measure deprivation. **page 60**

Ideal Social Discount Rate

To avoid any potential risk of resource misallocation and to help generate the required domestic resources for sustained high growth, a minimum real SDR of 3.72% appears to be ideal for public sector projects. **page 43**

Climate Risk Management

10 The importance of the Reserve Bank of India-mandated climate risk disclosure norms and their implications for Indian banking are discussed. — *Arindam Bandyopadhyay*

Gambling on Africa

13 India's vision to lead the global South turns on its relationship with Africa. — *Shobana Shankar*

Interstate Inequality in Consumption

17 The analysis deals with interspatial disparities across major states in India based on the consumption expenditure data for 2022-23. — *Arup Mitra, Puneet Kumar Shrivastav*

Nullifying 24,000 Jobs

21 The Calcutta High Court recently nullified the entire selection process for appointments in school jobs conducted by the Government of West Bengal on the grounds of systemic fraud. — *Sayan Mukherjee*

Continuing Failure of India's Neighbourhood Policy

26 India's neighbourhood policy since 1947 is the story of the manner in which we ceded space to China and a case of institutional failure. — *Mukul Sanwal*

Devolution to States from the Net Proceeds

35 Some disquieting features of vertical devolution of resources from the union government to the states are discussed and the need for urgent corrective interventions from the Government of India and the Sixteenth Finance Commission are underlined. — *R Ramakumar*

Ideal Social Discount Rate for Public Sector Projects

43 Public sector projects are generally funded by either tax resources or borrowings. It is important, therefore, to undertake a periodic reassessment of the ideal social discount rate by estimating the social time preference rate and the social opportunity cost of deploying resources in a public project. — *Ravindra H Dholakia, Sitikantha Pattanaik & Ajitesh Kumar*

Finance Commissions' Distance Criterion

51 The income distance criterion plays a key role in determining states' shares in the divisible pool of taxes as recommended by several finance commissions, especially from the Ninth Finance Commission. It has been accorded the highest weight among all devolution criteria. It aims at fiscal capacity equalisation in India's fiscal transfer system. — *D K Srivastava, Muralikrishna Bharadwaj, Tarrung Kapur & Ragini Trehan*

Poverty in India over the Last Decade

60 The release of microdata from the Household Consumption Expenditure Survey (2022-23) now allows evaluation of methodological advances on nowcasting poverty developed over the last decade. A key issue raised has been the difficulty in the use of national accounts consumption growth as a measure of survey consumption growth. — *Surjit S Bhalla, Karan Bhasin*

Official Statistical System in India

65 Questions have been raised about the quality of Indian official survey data, the robustness of its designs, and the appropriateness of methodology adopted in building important socio-economic indicators. — *Ashok K Nag*

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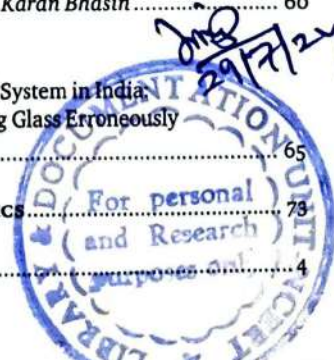
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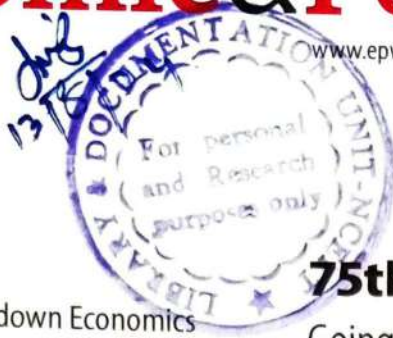
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75th Anniversary of NATO

Going forward, NATO's strategy involves stepping up escalation and expansion to construct a global grid-like alliance structure that integrates with the transatlantic alliance and serves as a tool for the US geopolitical ambitions. [page 10](#)

Street Vendors' Vulnerabilities

Street vending is typically not a voluntary choice but rather a consequence of a range of limitations, leading individuals to enter this occupation as a means of survival rather than a preferred livelihood option. [page 13](#)

The Legacy of R B More

Being able to build bridges between anti-caste and communist movements, More demanded a critical rethinking of the means to achieve the categorical imperative that both Marxists and Ambedkarites desired. [page 25](#)

Labour Laws and Employment

Significant gains in job creation in organised manufacturing are likely to occur from the implementation of the new labour codes. [page 33](#)

India's Strategic Multi-alignment

While India has room to exercise strategic choices, there are more negative outcomes if a choice were to be made to align with any one of the major powers. [page 138](#)

Global NATO and the Expanding Theatres of Escalation

10 The agenda of the North Atlantic Treaty Organization is stated clearly during its 75th anniversary summit that it will go all out to ensure Western dominance globally. — *Anuradha Chenoy*

Street Vendors in India

13 Discussing their composition in the labour market, working hours, and gendered difference in wages, the multifaceted challenges encountered by street vendors are discussed. — *Satyaki Dasgupta, Basit Abdullah*

Karnataka Police Order on Protests

16 The Licensing Order issued by the Karnataka police curtails the right of protestors to demonstrate only in Freedom Park. — *Khalil ur Rehman*

Some Aspects of Mental Healthcare in India

19 The broad subclassifications of different socio-economic variables matter a lot in determining the mental well-being of individuals in different states as well as in different socio-economic strata. — *Brijesh C Purohit*

Muchkund Dubey (1933–2024)

23 With the sad demise of Dubey on 26 June 2024, the world has lost a great warrior of the global South and India has lost a true practitioner of economic diplomacy. — *Sachin Chaturvedi*

Labour Regulations and Job Creation

33 Using plant-level panel data for India's organised manufacturing, the impact of labour reforms undertaken by six Indian states during 2014–17 on industrial employment is investigated. A labour demand function in organised sector manufacturing plants is estimated to show that easing labour regulations contributed positively to job creation in Indian manufacturing plants. — *Bishwanath Goldar*

Trajectories of Crime against Women in Contemporary India

123 In India, incidents of crime and crime rates against women are increasing steadily with considerable distributional inequalities among the states, districts, and metropolitan cities. Crime against women varies among the social groups and the crime against Scheduled Castes and Scheduled Tribes women is relatively high. — *Rambooshan Tiwari, Shubham Narayan Dixit*

Electric Vehicles as a Solution to Energy Transition

130 Transport is the second major carbon dioxide emitter after the power sector in India. Electric vehicles reduce overall pollution and demand for imported fuels. A survey of 24-hour charging patterns during lean and peak months shows that e2w growth on the grid in the near-to-medium term may not add to peak load but instead may add revenue for utilities during off-peak times. — *Probal P Ghosh, Jyoti K Parikh*

India's Strategic Choices

138 India's shift from traditional non-alignment towards strategic multi-alignment under Prime Minister Narendra Modi's leadership is examined. The theory of alliances in international relations is analysed, highlighting the relevance of multi-alignment for enhancing India's security architecture, particularly against a rising China. — *Haans J Freddy*

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- Inequalities in Computer Literacy in India: Do Caste and Gender Matter?

CURRENT STATISTICS**POSTSCRIPT****Politics of Othering in Manipur**

The renewed attempt at reservation of forests has been selective in its target, thereby engulfing the state once again into long-drawn ethnic politics, leading to further marginalisation of the hill communities. [page 36](#)

Inequalities in Computer Literacy

To prevent the exacerbation of new forms of digital inequality in the country, community-level measures requisite for computer literacy are needed to improve the social capital of the marginalised groups. [page 53](#)

CT Kurien (1931–2024)

Throughout his illustrious career as a teacher, researcher, institution-builder, and public intellectual, Kurien remained steadfastly focused on the twin problems bedeviling India—poverty and inequality. [page 29](#)

Youth Presence in Parliament

Enhancing youth representation in the Indian Parliament requires a comprehensive approach that addresses structural barriers, empowers marginalised groups, and promotes a culture of inclusivity and respect for diverse voices. [page 13](#)

Critical Pedagogy

It becomes insistent upon the teachers to not let neo-liberal economics of education kill the learning potential of developing meaningful and critical awareness regarding one's self and society. [page 63](#)

NAAC Will Come Knocking

10 Recognising a failure in the old education model, the government is determined to make education more production/results-oriented or job-market ready. — *Debjanee Ganguly*

Young India, Ageing Parliament

13 Youth representation in the Indian Parliament is critically low despite the country's large youth population. — *Pankaj Kumar Patel, T V Sekher*

Politics of Hospitality and Few Ethical Considerations

18 The ongoing situation with Myanmar refugees has reignited discussions surrounding the ethical considerations of hospitality. — *Hemaadri Singh Rana*

Cyber Police Stations and Cybercrime against Women

22 Among the various victim groups targeted by cybercriminals, women have become particularly vulnerable to online harassment and cyberstalking. — *Deepika Rai, Sabina Bano*

A Royal Republic?

26 Despite the dominance and centrality of a liberal-constitutional framework to understand democracy in India, it is not enough to decipher its populist renditions. — *Garima Dhabhai*

CT Kurien (1931–2024)

29 C T Kurien was prominent in at least four different but related roles—as a teacher, researcher, institution-builder, and public intellectual. — *V K Natraj*

Selective Outrage, Selective Targeting

36 While the war on drugs in Manipur is not only anachronistic in its approach but also selective in its outrage, the forest policy is mainly the re-manifestation of the old colonial interest of enclosing the commons. — *Thongkhohal Haokip*

Asset Reconstruction Companies and Indian Banking

42 Asset reconstruction companies were instituted in India in 2002 to combat the issue of non-performing assets in banking. While the Reserve Bank of India effectively corrected the structural issues by changing the ARCs' business model, it failed to adequately create a favourable market for investing in ARCs. — *Aditya Sushant Jain*

The Cooperative Movement in Northern Malabar

47 Despite the pervasive presence of cooperatives in Kerala's society, scholarly accounts of the cooperative movement's history are limited. The contributions of social reform movements, social service organisations, and anti-feudal and anti-colonial movements to Kerala's cooperative movement are explored. — *Ashique Ali Thuppilikkat*

Inequalities in Computer Literacy in India

53 Disparities in computer literacy pose a significant hurdle for individuals belonging to the marginalised caste communities, women and girls, limiting their access to labour market in the information age. The prevalence of computer literacy among individuals aged 15 years and above using the National Sample Survey 78th round (2020–21) is explored. — *Chakradhar Jadhav, Prashant Kumar Choudhary*

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63 *Shilpi Kukreja* on challenging the biases of the discipline of psychology; *Sanjay Pandey* on shared resentment as a tool of mobilisation in *Blue Star*; *Carol D'Souza's* poem "A Tale of City Streets;" and Last Lines by *Ponnappa*.

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Cost of a Healthy Diet

As CoHD and Consumer Food Price Index are correlated but measure different things, the rate of change in the former often outstrips that of the latter, which is thus not a good proxy for CoHD. [page 48](#)

Normative Lens on Elections

The procedural aspects of elections cannot be separated from normative ideals and constitutional principles, so that the requirement of freedom and fairness is understood in a substantive and meaningful way. [page 10](#)

Parliamentary Reforms

The executive has managed to usurp the scrutiny power of the department-related standing committees by either ignoring further improvements or reducing them to another structural arrangement of Parliament. [page 19](#)

Paytm and Regulation of Fintech

To avoid operational failures, governance issues and persistent non-compliances as observed in the Paytm case, there is an urgent need to establish a strong risk and compliance culture in fintech firms. [page 31](#)

Factor Composition of Exports

While India's exports rapidly increased in size in the first decade of the 21st century, they were accompanied by a fall in the labour content of the exports. [page 63](#)

The Changing Face of Indian Elections

- 10 Upholding constitutional morality and the free and fair character of elections calls for a normative reorientation in the study of elections and the need for political and electoral reforms. — *Imtiaz Quadri*

The 2024 Electoral Battle and Adivasi Identities in Telangana

- 15 Electoral battles open up new avenues for competing Adivasi communities to assert their identities, seek space for their representation, and associate with centres of power. — *Jadhav Prathap Singh*

Never Let a Serious Crisis Go to Waste

- 19 The impending reforms of India's Parliament are one of the effective solutions to tackle the democratic aberrations and the dangers of the lingering decline of the institution under one-party dominance. — *Rupak Kumar*

Xi's Well-calculated European Visit: What Was the Agenda?

- 24 Xi Jinping's three-nation state visit to Europe may not have been a repeat of his "charm-offensive" tour to the continent in 2019, but this time around, the Chinese President went with a definite agenda. And, he did not return empty-handed. — *Hemant Adlakha*

Own Sources Revenue of Rural Local Bodies

- 27 The critique of the Expert Committee Report on own sources of revenue of rural local bodies has been carried out based on the existing position of provisions of taxes and non-taxes included in the state panchayat acts and the quantum of own resources mobilised by panchayats at different levels. — *Mahi Pal*

The Paytm Story: What Went Wrong?

- 31 The regulator invoked Section 35 of the Banking Regulation Act, 1949 on 31 January 2024 imposing stringent operational restrictions on Paytm Payments Bank. The issues facing Paytm on account of persistent non-compliance, governance and operational failures are assessed. — *Dipali Krishnakumar, Richa Verma Bajaj*

From 'Home' to 'Homing Desire' in Partition Narratives

- 42 The creative writings that have emerged from the mass migration of "Indians" across the border in 1947 highlight the role of nostalgia in a migrant's life. Though nostalgia helps us locate "home"(s) in the temporal grid, it is argued that there is an "other side" of nostalgia which gives rise to a "homing desire." — *Chandrima Karmakar*

Measuring the Cost of a Healthy Diet in India

- 48 The paper makes a case for routinely computing the COHD alongside the CPI-F. It is shown that, though correlated with the consumer price index for food, they do not always move in the same direction and that the CPI-F is a poor predictor of COHD. — *Sudha Narayanan, Kalyani Raghunathan & Anita Christopher*

Coal Mining in Odisha

- 57 Studying the determinants that are responsible for the poor health status reported by the residents living in close proximity to active coal mines of the Talcher Coalfield region, Odisha, our results show that age, gender, education and distance from healthcare facilities influence the way respondents report their health status. — *Gayatree Sahoo, Asis Kumar Senapati*

Factor Content of India's Exports

- 63 While India's exports increased rapidly in size in the first decade of the 21st century, it was accompanied by a fall in the labour content of exports due to a fall in the labour intensity of the different sectors as well as a change in the sectoral composition of India's export basket. — *Rekha Misra, Shobhit Goel*

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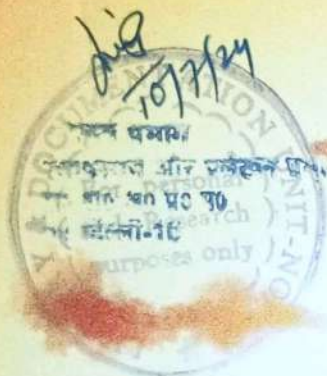
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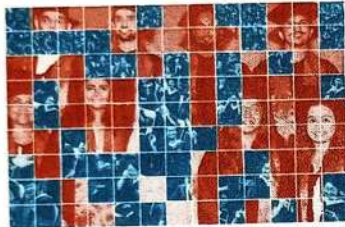
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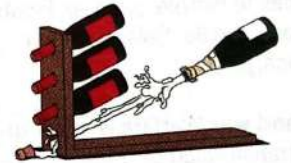
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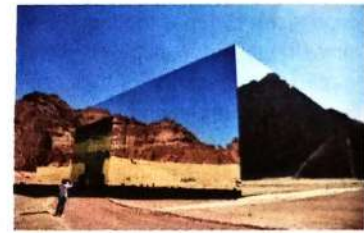
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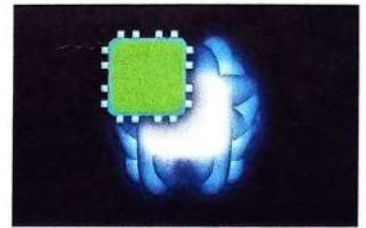
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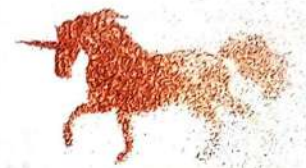
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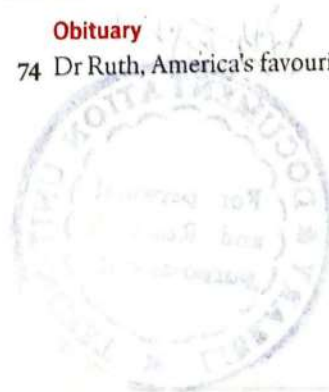


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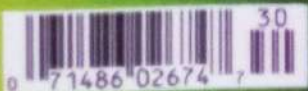
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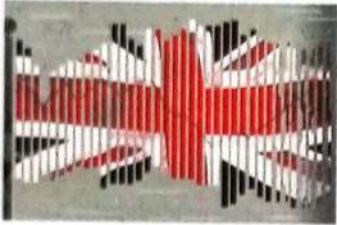
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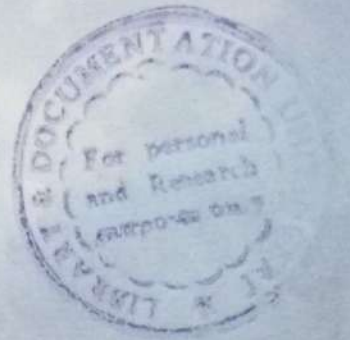
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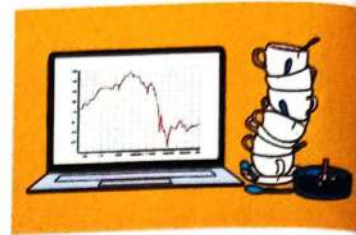
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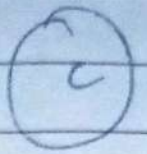
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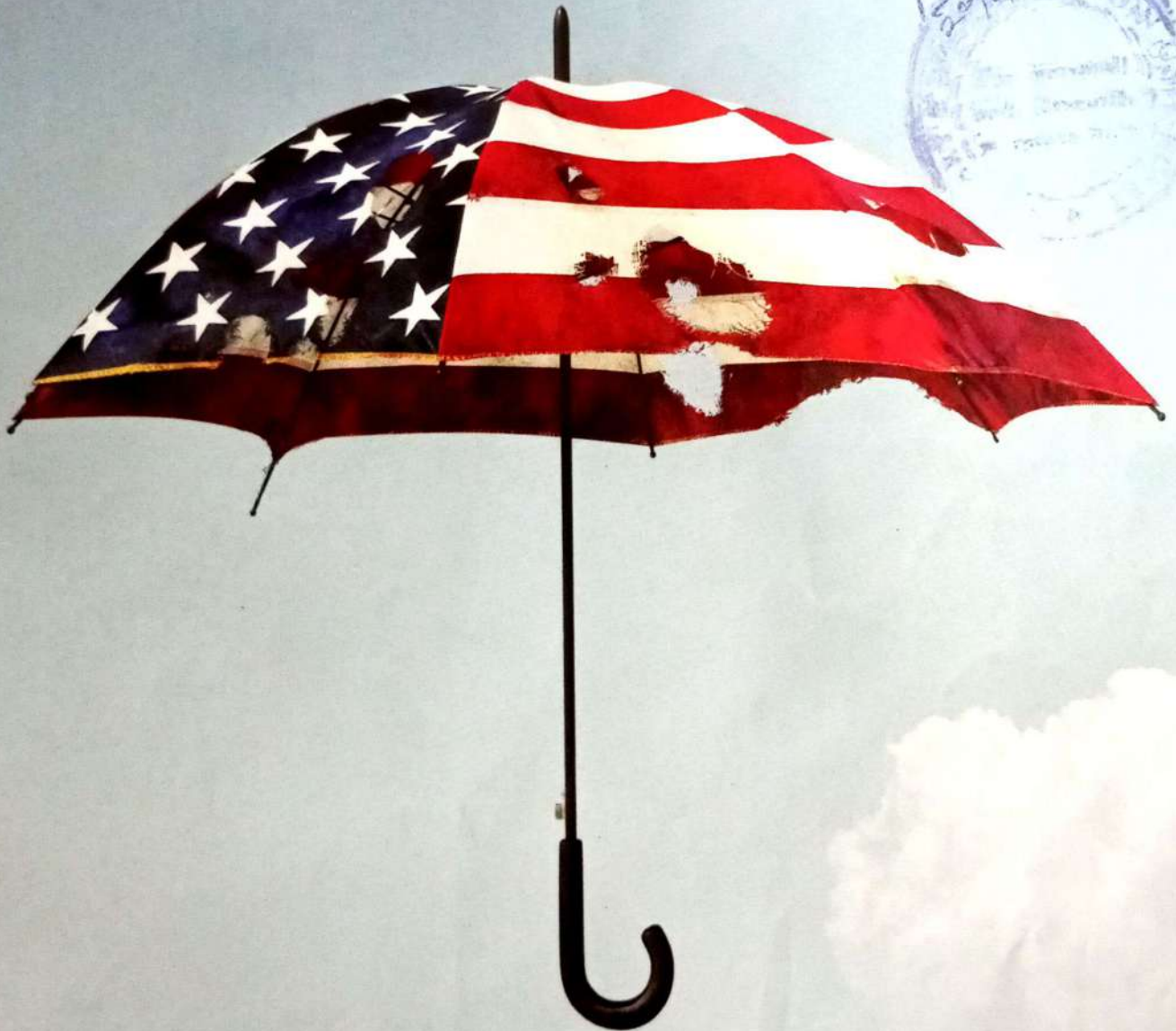
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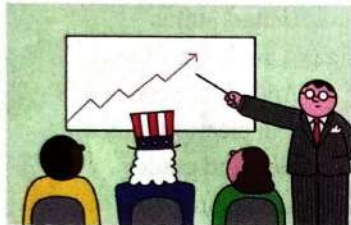
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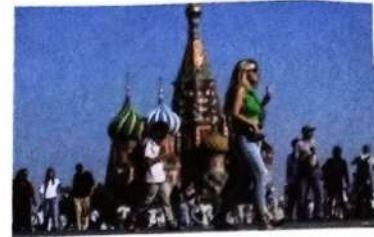
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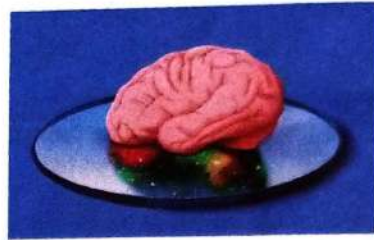
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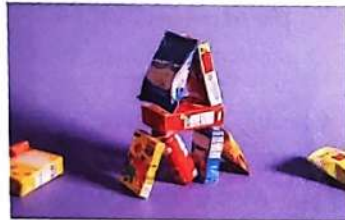
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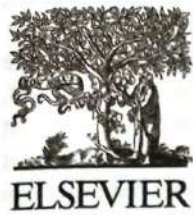
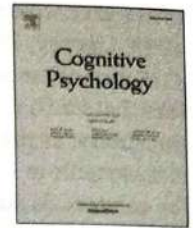
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Retrieving effectively from source memory: Evidence for differentiation and local matching processes

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ARTICLE INFO

Keywords:

Retrieving Effectively from Memory
Source memory
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Null list-strength effect
Output interference
Differentiation

ABSTRACT

The ability to distinguish between different explanations of human memory abilities continues to be the subject of many ongoing theoretical debates. These debates attempt to account for a growing corpus of empirical phenomena in item-memory judgments, which include the *list strength effect*, the *strength-based mirror effect*, and *output interference*. One of the main theoretical contenders is the Retrieving Effectively from Memory (REM) model. We show that REM, in its current form, has difficulties in accounting for source-memory judgments – a situation that calls for its revision. We propose an extended REM model that assumes a local-matching process for source judgments alongside source differentiation. We report a first evaluation of this model's predictions using three experiments in which we manipulated the relative source-memory strength of different lists of items. Analogous to item-memory judgments, we observed a null list strength effect and a strength-based mirror effect in the case of source memory. In a second evaluation, which relied on a novel experiment alongside two previously published datasets, we evaluated the model's predictions regarding the manifestation of output interference in item and lack of it in source memory judgments. Our results showed output interference severely affecting the accuracy of item-memory judgments but having a null or negligible impact when it comes to source-memory judgments. Altogether, these results support REM's core notion of differentiation (for both item and source information) as well as the concept of local matching proposed by the present extension.

1. Introduction

Episodic memory is defined as a memory for an event experienced in a particular context (Tulving, 1983). This definition suggests that episodic memory calls for the storage of at least two types of information: (1) of the event itself, and (2) of the context in which said event took place. In the case of a typical memory experiment where participants study lists of words, each word item would correspond to an event, whereas context would refer to the characteristics surrounding its occurrence, such as the list in which it was studied (e.g., List 1, List 2), or its perceptual characteristics (e.g., color, font). The ability to remember contextual information is commonly referred

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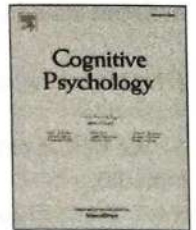
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The structure and development of explore-exploit decision making

Madeline B. Harms^{a,*}, Yuyan Xu^a, C. Shawn Green^a, Kristina Woodard^a,
Robert Wilson^b, Seth D. Pollak^a

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ARTICLE INFO

Keywords:

Exploration
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Adolescence
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Principal component analysis

ABSTRACT

A critical component of human learning reflects the balance people must achieve between focusing on the utility of what they know versus openness to what they have yet to experience. How individuals decide whether to explore new options versus exploit known options has garnered growing interest in recent years. Yet, the component processes underlying decisions to explore and whether these processes change across development remain poorly understood. By contrasting a variety of tasks that measure exploration in slightly different ways, we found that decisions about whether to explore reflect (a) random exploration that is not explicitly goal-directed and (b) directed exploration to purposefully reduce uncertainty. While these components similarly characterized the decision-making of both youth and adults, younger participants made decisions that were less strategic, but more exploratory and flexible, than those of adults. These findings are discussed in terms of how people adapt to and learn from changing environments over time. Data has been made available in the Open Science Foundation platform (osf.io).

1. Introduction

It is common for people to be in situations that require them to decide between a familiar option with a known value or to choose a new option with unknown (but perhaps advantageous) value. Examples of this type of decision problem include choosing between selecting a familiar meal at the cafeteria versus trying a new food; choosing between staying with a familiar peer group versus pursuing a different social opportunity; or sticking with a current job versus making an employer or career change. Decisions involve tradeoffs, and the optimal choice is often not clear at the time a decision is made. Familiar options might afford less stress, anxiety, and avoiding an outcome that is worse than the status quo. However, staying with the familiar may prevent a person from discovering and learning new information about the world. Acquisition of new information is particularly important in childhood and adolescence.

For this reason, the development of healthy decision-making involves flexibility navigating between exploration and exploitation, depending on the context and relative risks involved (Hills et al., 2015; Mekern et al., 2019; Mehlhorn et al., 2015; Schulz & Gershman, 2019; Wilson et al., 2021). Despite an emerging literature that is examining how humans learn to manage these decisions (Addicott et al., 2017; Giron et al., 2022; Gopnik, 2020; Meder et al., 2021; Schulz et al., 2019; Somerville et al., 2017; Wilson et al., 2014), little is currently understood about the specific cognitive processes underlying these behaviors or the extent to which these processes change across development. Here, we identify processes that contribute to explore-exploit decision making using multiple common measures

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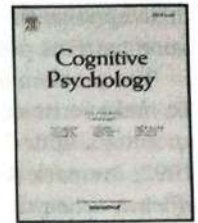
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Repeated rock, paper, scissors play reveals limits in adaptive sequential behavior

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ARTICLE INFO

Keywords:

Adaptive reasoning
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Rock–paper–scissors

ABSTRACT

How do people adapt to others in adversarial settings? Prior work has shown that people often violate rational models of adversarial decision-making in repeated interactions. In particular, in *mixed strategy equilibrium (MSE)* games, where optimal action selection entails choosing moves randomly, people often do not play randomly, but instead try to *outwit* their opponents. However, little is known about the adaptive reasoning that underlies these deviations from random behavior. Here, we examine strategic decision-making across repeated rounds of rock, paper, scissors, a well-known MSE game. In experiment 1, participants were paired with bot opponents that exhibited distinct stable move patterns, allowing us to identify the bounds of the complexity of opponent behavior that people can detect and adapt to. In experiment 2, bot opponents instead exploited stable patterns in the human participants' moves, providing a symmetrical bound on the complexity of patterns people can revise in their own behavior. Across both experiments, people exhibited a robust and flexible attention to *transition patterns* from one move to the next, exploiting these patterns in opponents and modifying them strategically in their own moves. However, their adaptive reasoning showed strong limitations with respect to more sophisticated patterns. Together, results provide a precise and consistent account of the surprisingly limited scope of people's adaptive decision-making in this setting.

1. Introduction

People's ability to adapt to others in adversarial interactions lies at the heart of sports and games and is a hallmark of popular stories; at a larger scale, it is crucial to negotiations and international relations. In these settings, examples of people's creativity, flexibility, and strategic sophistication abound. For instance, tennis star Andre Agassi famously beat world-class opponent Boris Becker by recognizing that every time he served the ball, Becker unknowingly stuck his tongue out in the direction he was about to serve.¹ On the other hand, adversarial reasoning often poses a number of challenges such as remembering previous decisions (Rapoport & Budescu, 1997), recursive reasoning about others (Stahl & Wilson, 1995), or planning many steps ahead (van Opheusden, Kuperwajs, Galbiati, Bnaya, Li, & Ma, 2023). These challenges have allowed artificial intelligence systems to beat human competitors in a range of adversarial settings, even those once thought to be far beyond the reach of strategic algorithms (Silver et al., 2016). *How do people construct predictive models of an opponent in adversarial settings and what are the limitations of this ability?* In the current work, we investigate a fundamental component of this problem: the ability to recognize exploitable patterns

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¹ <https://www.facebook.com/watch/?v=1249137535168463> – January 18, 2017.



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The joint operations of teacher-student and peer relationships on classroom engagement among low-achieving elementary students: A longitudinal multilevel study

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ARTICLE INFO

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Between- and within-person effects
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ABSTRACT

Although both teacher-student relationship (TSR) and peer relationship (PR) have been found important for the development of students' classroom engagement, little research has been done regarding the joint operations of these two factors. Guided by a developmental systems framework, this study examined longitudinal between-person and within-person associations between TSR/ PR and classroom engagement in a sample of 784 low-achieving students in the first three years of elementary school. A multidimensional approach was used to distinguish positive and negative dimensions of TSR, as well as peer liking and disliking. At the between-person level, results showed that students' classroom engagement was positively predicted by positive TSR and PR liking and was negatively predicted by negative TSR and PR disliking. Both positive and negative TSR interacted with PR disliking at the between-person level, such that the associations between positive/negative TSR and classroom engagement were stronger for students with lower levels of PR disliking. At the within-person level, changes in classroom engagement were associated with contemporaneous year-to-year changes in positive/negative TSR and PR disliking. No within-person level interaction effects were found. Cross-level interaction showed that the effects of within-person negative TSR on classroom engagement were stronger for students with lower overall levels of PR disliking. Findings highlighted the importance of using a multilevel multidimensional approach to understand the joint operations of TSR and PR in the development of classroom engagement in low-achieving students in early elementary school.

1. Introduction

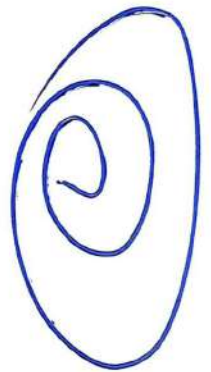
Classroom engagement refers to students' self-directed academic behaviors and cooperative participation in various learning activities in the classroom settings (Hughes & Kwok, 2006, 2007; Ladd & Dinella, 2009). Extensive research underscores classroom engagement as a critical prerequisite for long-term academic success (Duncan et al., 2007; Hughes et al., 2008; Ladd & Dinella, 2009; Wang et al., 2020). As young children transition to formal schooling, they face a growing number of academic and social requirements and demands that can act as stressors

(Carter et al., 2010; Hamre & Pianta, 2001). As such, understanding processes that engage students in classroom learning during this critical transition is essential to identify early risk and protective factors influential to the long-term academic trajectories (Archambault et al., 2022; Welsh et al., 2020). Teacher-student relationships (TSR) and peer relationships (PR) are two proximal social contexts that play influential roles in the development of students' classroom engagement and motivations (Wentzel & Ramani, 2016; Yang et al., 2018). Positive social interactions with teachers and peers promote students' engagement, achievement, and academic well-being by way of facilitating the

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Educational Psychology in Practice

Theory,
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- 139 The iBelong Scale: Construction and Validation of a Measure of Racial–Ethnic–Cultural Belonging*

B. Andi Lee and Helen A. Neville

This article discusses the construction and validation of the iBelong Scale, a measure of belonging for Black, Indigenous, and other people of color (BIPOC) in relation to their racial–ethnic–cultural identities. The iBelong Scale can be useful for researchers studying BIPOC identity, belonging, and wellness, and counselors working with BIPOC in assessment and therapeutic avenues.

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- 170 When You Are the “Other”: A Scoping Review of the Experiences of Clinicians of Color Working With White Clients

Elise J. Y. Choe, Jasmine Blake, Morgan C. Huenergarde, Liz S. Wells, and Emily N. Srisarajivakul

This scoping review on the experiences of clinicians of color (COCs) working with White clients suggests that COCs not only have a different professional experience than their White colleagues but also lack the proper training and support to address client-led microaggressions and negative experiences. More nuanced understanding of the unique experiences of COCs is imperative to guide systemic change for the field.

- 179 Members’ Goal Orientation and Working Alliance in Group Therapy: A Response Surface Analysis[†]

Martin Kivlighan, Gerta Bardhoshi, Kun Wang, Christopher Anders, and Sigal Zilcha-Mano

This study sought to examine if various levels of a group member’s alliance to the group and their goal orientation (mastery orientation, performance-approach orientation, and performance-avoidance orientation) related to their perceived improvement in group therapy. Results indicated that a high alliance to the group and high mastery goal orientation or high approach goal orientation was related to high levels of improvement. Additionally, a low avoidance orientation and high alliance to the group was related to high levels of improvement. This study advances the group alliance literature by studying an understudied yet related construct, members’ goal orientation.

Patient Attachment and Reflective Functioning as Predictors for Therapist In-Session Feelings

Fredrik Falkenström, Jonatan Bjerén, Fredrik Björklund, Rolf Holmqvist, and Annika Ekeblad

This study indicates that therapists treating depressed patients with less developed mentalizing capacity feel less positive and more negative feelings in sessions as treatment gets closer to its end compared to when treating patients with better mentalizing ability. However, patient self-reported attachment showed no relationship to therapist in-session feelings.

Other

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- 203 **Impact of Racial Microaggressions in Psychotherapy Vignettes With African American Clients: An Experimental Analogue Design**
Brendalisse Rudecindo, Zac E. Imel, Patty B. Kuo, William A. Smith, and Karen W. Tao
African Americans tend to exhibit consistently negative reactions in response to therapist racial microaggressions, regardless of how racially explicit they are. These experimental findings can inform the culturally sensitive training of therapists.
- 215 **“It’s Like Having a Superpower”: Reclaiming Creativity and the Intersectional Experiences of Trans Young Adults of Color***
M V. Pease, Naru Kang, Garden Oluwakemi, Lily Jin, Benjamin Bradshaw, and Thomas P. Le
Interviews with a diverse sample of young adults found that trans people of color have complex experiences navigating the overlap of social stigma and harm from transphobia and racism. Participants used creativity to construct their identities, survive oppression, and create strength and joy. Particularly in the context of antitrans legislative attacks across the United States, these experiences should be recognized and honored by efforts to address structural injustice and inequity, promote rights and dignity, and create environments where the creativity of trans people of color can thrive.
- 229 **Mental Health Disparities of Sexual Minority Refugees and Asylum Seekers: Provider Perspectives on Trauma Exposure, Symptom Presentation, and Treatment Approach**
Christine Bird, Angela R. Somantri, Raksha Narasimhan, Irene Lee, Gray Bowers, Stephanie Loo, Lin Piwowarczyk, and Lauren C. Ng
This study assessed mental health providers’ perspectives on the treatment needs of sexual minority refugees and asylum seekers. Providers identified multiple challenges and barriers to positive mental health outcomes when treating this population and adaptations that could be leveraged to reduce disparities for sexual minority refugees and asylum seekers. The need for additional intervention research was highlighted.
- 242 **The Hidden Curriculum of Gatekeeping: Dismissal Experiences of Health Service Psychology Trainees**
Xiang Zhou, Aashna Aggarwal, Krista A. Robbins, Amani Khalil, and Ayşe Çiftçi
This mixed-methods study reports the prevalence of clinical dismissal from practicum and internship for health-service psychology trainees, as well as demographic trends within dismissal. Interviews with trainees who have lived experiences of dismissal highlight the ambiguous nature of such procedures and their personal and professional impacts on trainees. Recommendations to create more equitable and empowered environments for trainees are provided.

- 255 "Too Much of a Burden": Lived Experiences of Depressive Rumination in Early Adulthood
Delia Ciobotaru, Christina J. Jones, Roi Cohen Kadosh, Ines R. Violante, and Mark Cropley
 Our study highlights the complex sources and manifestations of harmful, repetitive negative thinking in early adults. We focus on the maladaptive processing of events, the impact of social expectations and stigma, problems with rest, and how these issues affect overall health. We propose a framework to identify and evaluate these issues early, focusing on prevention and care that is tailored to each person over circumscribed, reactive treatments.
- 268 Heterosexual Couples' Initial Role and Outcome Expectations as Predictors of the Therapeutic Alliance and Relationship Satisfaction Prior to the Fourth Session[†]
Edmund W. Orłowski, Myrna L. Friedlander, Lee N. Johnson, and Shayne R. Anderson
 Heterosexual couples routinely completed measures of role and outcome expectations (before Session 1), the expanded therapeutic alliance (before Session 3), and relationship satisfaction (before Sessions 1 and 4). The alliance was stronger when as a couple, both partners anticipated positive results and expected each other to play an active role in therapy; men rated the alliance more positively when the couple's initial outcome expectations were less discrepant. At the outset of therapy, both partners expected to be more actively engaged in the process than their partner. Nonetheless, the best predictor of Session 4 relationship satisfaction was how positively clients rated their relationship before therapy began.
- 278 Development and Validation of the Work Capital Scale
Taewon Kim and Blake A. Allan
 This study developed the 16-item Work Capital Scale to assess people's perceived resources based on their social class when securing a job. The scale includes Economic Work Capital, Human Work Capital, Social Work Capital, and Cultural Work Capital. The new scale is applicable to multiple groups and is reliable and valid for researchers, practitioners, and advocates interested in social class-related resources.
- 291 Practice-Based Evidence for Spiritually Integrated Psychotherapies: Examining Trajectories of Psychological and Spiritual Distress
Joseph M. Currier, Ryon C. McDermott, Peter Sanders, Michael Barkham, Jesse Owen, David Saxon, and P. Scott Richards
 Clients who engaged in spiritually integrated psychotherapies typically experienced clinical improvement with the sharpest changes in psychological distress occurring in the first month of treatment. Clinicians' use of certain spiritual interventions (e.g., spiritual assessment, exploring religious questions/doubts) was generally favorably linked with clients' rate and duration of changes in psychological and spiritual distress over the course of their psychotherapy.
- 304 Cultural Humility and Racial Microaggressions in Cross-Racial Clinical Supervision: A Moderated Mediation Model
Melanie M. Wilcox, Aisha Farra, Stephanie Winkeljohn Black, Elinita Pollard, Joanna M. Drinane, Karen W. Tao, Cirleen DeBlaere, Joshua N. Hook, Don E. Davis, C. Edward Watkins Jr., and Jesse Owen
 The current findings demonstrate that racial microaggressions in cross-racial clinical supervision are negatively related to supervisees' satisfaction with supervision through their detrimental impact on the supervisory working alliance; and they appear to be most impactful when supervisor cultural humility is high. Still, even when microaggressions occurred, the supervisory working alliance was still stronger when supervisory cultural humility was higher. These results emphasize the importance of cultural humility as well as repairing microaggression-related ruptures in cross-racial clinical supervision.

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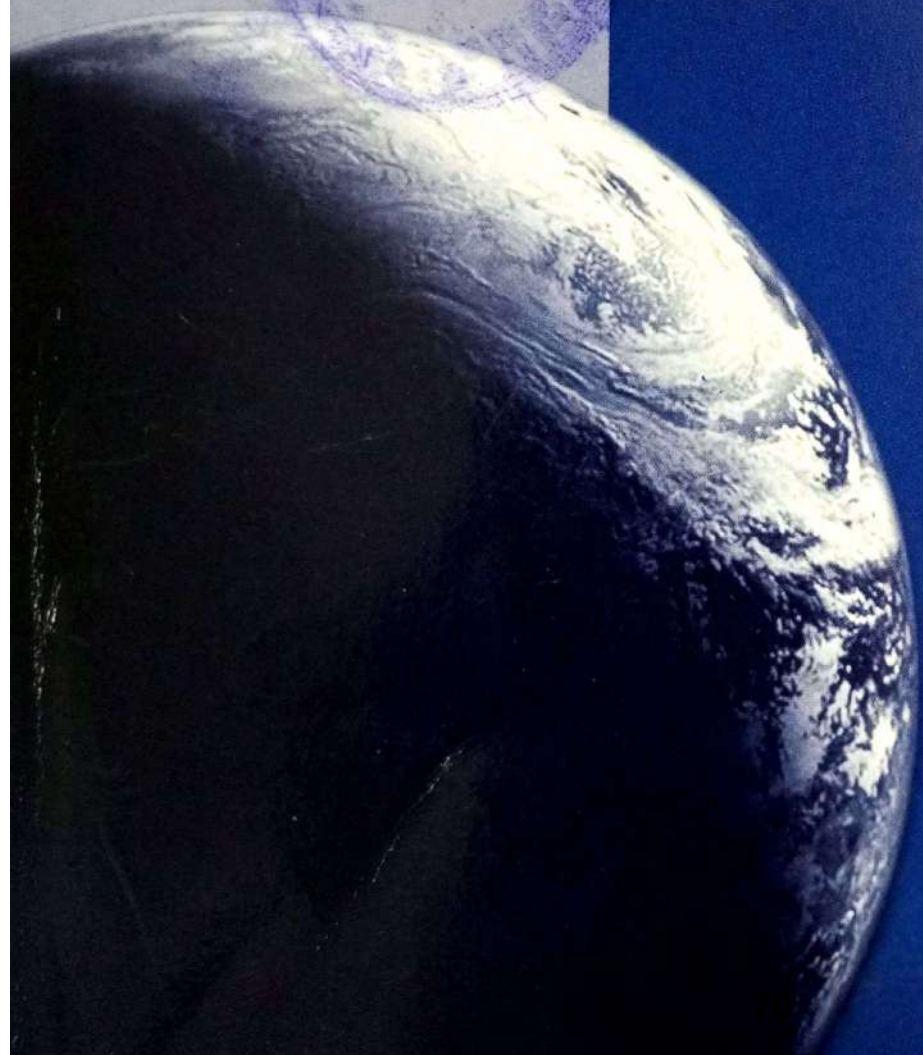
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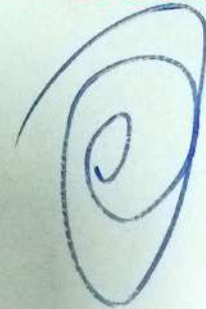
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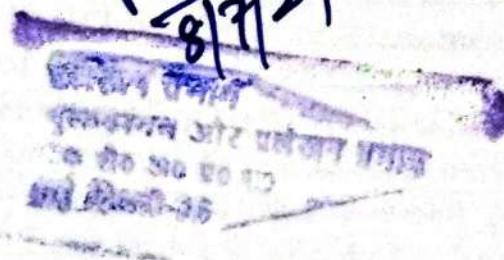
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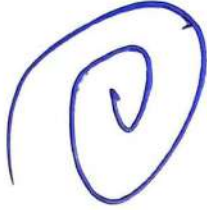
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Special Issue:

**Broken mirrors — reflexivity, relationships and complicity in
researching education in emergencies**

Guest Editors:

Bilal Barakat, Michelle J. Bellino and Julia Paulson

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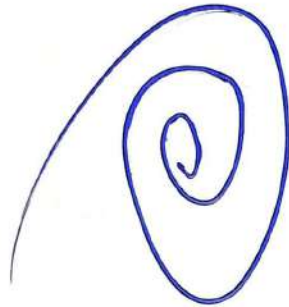


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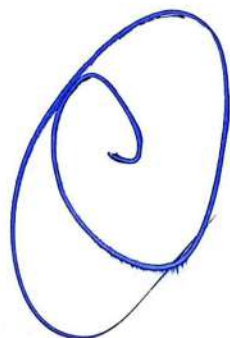
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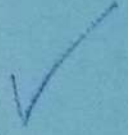
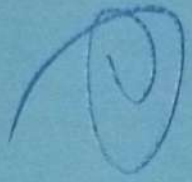
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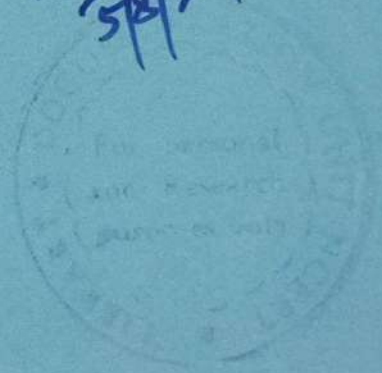
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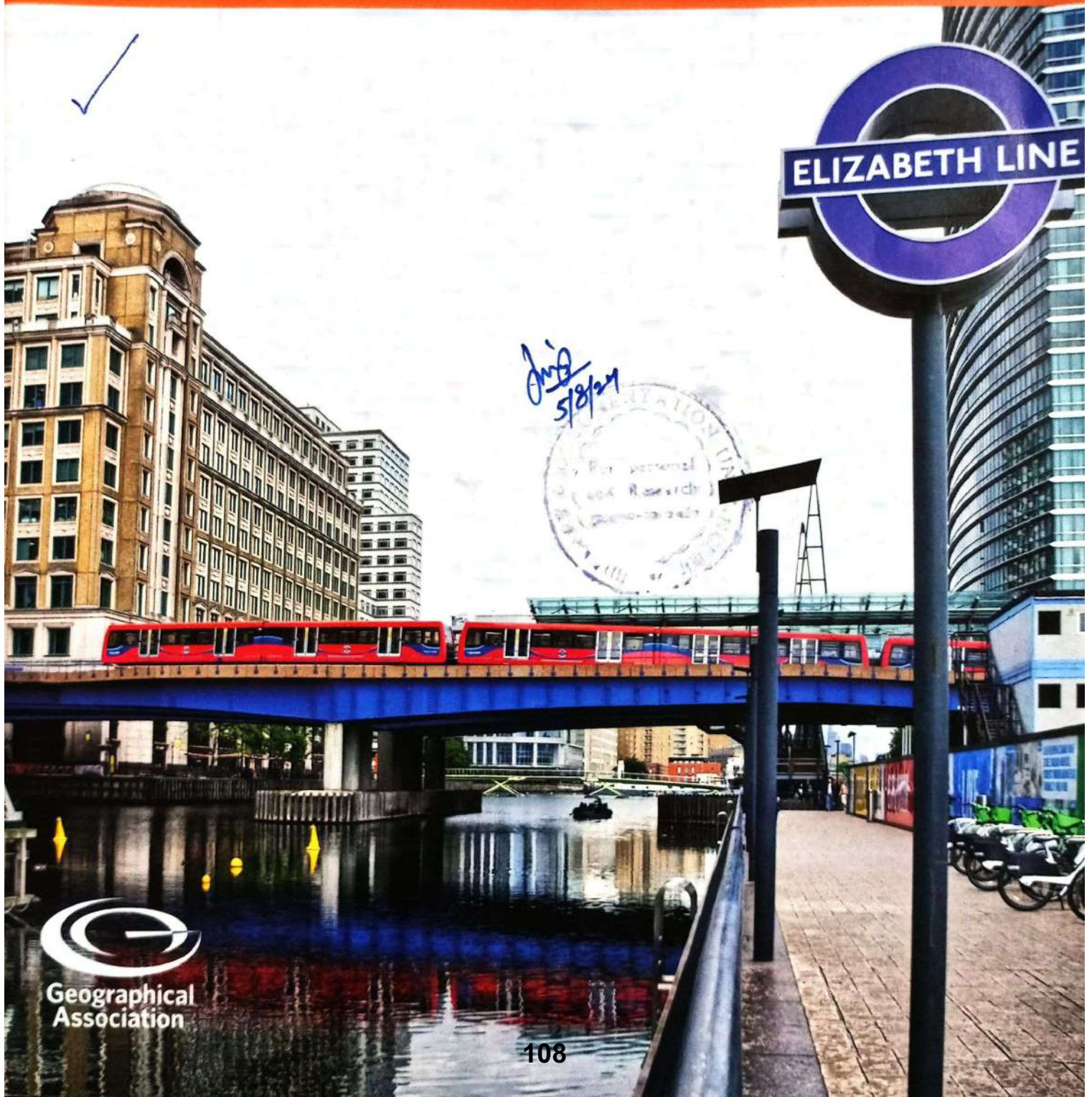
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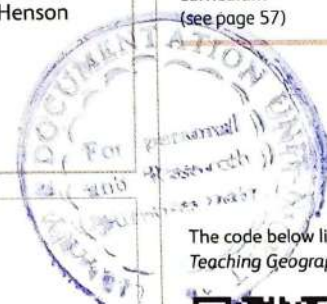


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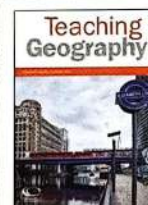
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LANGUAGE LEARNING

A Journal of Research in Language Studies

**Cognitive Neuroscience of Language
Embodiment and Relativity**

Guillaume Thierry, Rasha Abdel Rahman, and
Panos Athanasopoulos

Editors

A Supplement to Language Learning

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**Cognitive Neuroscience of Language Embodiment
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Guillaume Thierry, Rasha Abdel Rahman, Panos
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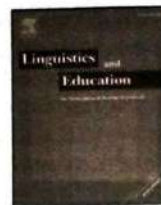
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Linguistics and Education

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Language policy on the ground in Norwegian kindergartens

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ABSTRACT

The study explores literacy conditions for preschool children acquiring *Nynorsk*, a lesser used Norwegian written language. Norway has no official language policy for the use of *Nynorsk* and *Bokmål*, the majority written language, in preschool education. By observing when and how *Nynorsk*, *Bokmål*, and other varieties are involved in activities where texts and print play a role, we examine language policy appropriation in kindergartens in a community where the children are going to have *Nynorsk* as first written language when they attend formal education. The study shows that the predominant literacy practices create spaces for kindergarten staff's language policy agency, but that their choices are limited – especially by textual artefacts. Teacher-made materials are often in *Nynorsk*, while materials from the outside are in *Bokmål*. The lack of official language policy results in kindergarten staff being the ones, if anyone, to ensure written language stimulation for 'the *Nynorsk* children'.

1. Introduction

1.1. The topic

Preschool children are exposed to letters, words, and texts in their daily environment – on screens, on signs, on labels and in books and magazines. This has an important value as literacy learning resources which can develop children's reading and writing skills. Even children who do not know how to read are enabled to make hypotheses about shapes and regularities of a given written language by frequent patterns in written input (Treiman & Kessler, 2014; 2022). Print and texts are also important as constituents in children's everyday lives' communication, identity-building, and meaning-making (Heath, 1982; Worthington & van Oers, 2017).

Our study explores literacy conditions for children in kindergartens located in a community where *Nynorsk*, a lesser used yet official written language in Norway, is the local language. Norwegian is codified as two written languages, *Nynorsk* and *Bokmål*. Currently, *Nynorsk* (literally 'new Norwegian') is comprising 500,000–600,000 users and around 11 per cent of Norwegian school pupils, chiefly located in the western part of the country. *Bokmål* ('book language') is used by the majority of Norway's approximately 5.5 million inhabitants (Bjørhusdal, 2024). The children in our study will, if they continue to live in the community, be taught *Nynorsk* as first written language when they attend primary school. According to the Norwegian language law (Språkløva, 2021),

Bokmål and *Nynorsk* should not be called "standards" or "varieties" but "written languages", hence the latter term is used in this article.

1.2. Aims

By the means of classroom observation in two kindergartens in a *Nynorsk* community in rural Western Norway, we examine how staff members and children are involved in *literacy events*, understood as observable activities where texts or print plays a role (Heath, 1982), and thus, *language policy appropriation* in and by kindergartens (Johnson & Johnson, 2015). By primarily analysing written language practices in a policy perspective, the study differs from most studies on language use, literacy, and language policy in early childhood education and care (ECEC).

According to Norway's national curriculum for ECEC, the *Framework Plan for the Content and Tasks of Kindergartens* (Ministry of Education and Research, 2017), kindergarten staff are not supposed to explicitly teach reading and writing, but to "support the children as they play with and explore written language" (Ministry of Education and Research, 2017, p. 48). We are interested in how staff members handle these tasks, but more specifically, the goal of the study is related to the facts that children in Norway grow up in a context with *two* Norwegian written languages, that Norwegians usually speak their local dialects in all situations, whether official or informal, and that many write a dialect-like variety in their everyday life (see, e.g., Røyneland et al.,

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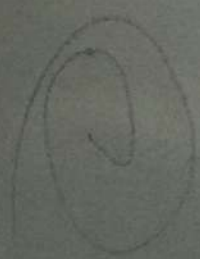


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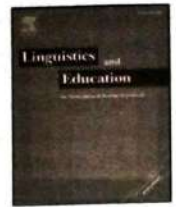
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Language policy on the ground in Norwegian kindergartens

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ABSTRACT

The study explores literacy conditions for preschool children acquiring *Nynorsk*, a lesser used Norwegian written language. Norway has no official language policy for the use of *Nynorsk* and *Bokmål*, the majority written language, in preschool education. By observing when and how *Nynorsk*, *Bokmål*, and other varieties are involved in activities where texts and print play a role, we examine language policy appropriation in kindergartens in a community where the children are going to have *Nynorsk* as first written language when they attend formal education. The study shows that the predominant literacy practices create spaces for kindergarten staff's language policy agency, but that their choices are limited – especially by textual artefacts. Teacher-made materials are often in *Nynorsk*, while materials from the outside are in *Bokmål*. The lack of official language policy results in kindergarten staff being the ones, if anyone, to ensure written language stimulation for 'the *Nynorsk* children'.

1. Introduction

1.1. The topic

Preschool children are exposed to letters, words, and texts in their daily environment – on screens, on signs, on labels and in books and magazines. This has an important value as literacy learning resources which can develop children's reading and writing skills. Even children who do not know how to read are enabled to make hypotheses about shapes and regularities of a given written language by frequent patterns in written input (Treiman & Kessler, 2014; 2022). Print and texts are also important as constituents in children's everyday lives' communication, identity-building, and meaning-making (Heath, 1982; Worthington & van Oers, 2017).

Our study explores literacy conditions for children in kindergartens located in a community where *Nynorsk*, a lesser used yet official written language in Norway, is the local language. Norwegian is codified as two written languages, *Nynorsk* and *Bokmål*. Currently, *Nynorsk* (literally 'new Norwegian') is comprising 500,000–600,000 users and around 11 per cent of Norwegian school pupils, chiefly located in the western part of the country. *Bokmål* ('book language') is used by the majority of Norway's approximately 5.5 million inhabitants (Bjørhusdal, 2024). The children in our study will, if they continue to live in the community, be taught *Nynorsk* as first written language when they attend primary school. According to the Norwegian language law (Språkløva, 2021),

Bokmål and *Nynorsk* should not be called "standards" or "varieties" but "written languages", hence the latter term is used in this article.

1.2. Aims

By the means of classroom observation in two kindergartens in a *Nynorsk* community in rural Western Norway, we examine how staff members and children are involved in *literacy events*, understood as observable activities where texts or print plays a role (Heath, 1982), and thus, *language policy appropriation* in and by kindergartens (Johnson & Johnson, 2015). By primarily analysing written language practices in a policy perspective, the study differs from most studies on language use, literacy, and language policy in early childhood education and care (ECEC).

According to Norway's national curriculum for ECEC, the *Framework Plan for the Content and Tasks of Kindergartens* (Ministry of Education and Research, 2017), kindergarten staff are not supposed to explicitly teach reading and writing, but to "support the children as they play with and explore written language" (Ministry of Education and Research, 2017, p. 48). We are interested in how staff members handle these tasks, but more specifically, the goal of the study is related to the facts that children in Norway grow up in a context with *two* Norwegian written languages, that Norwegians usually speak their local dialects in all situations, whether official or informal, and that many write a dialect-like variety in their everyday life (see, e.g., Røyneland et al.,

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Mathematics Teaching

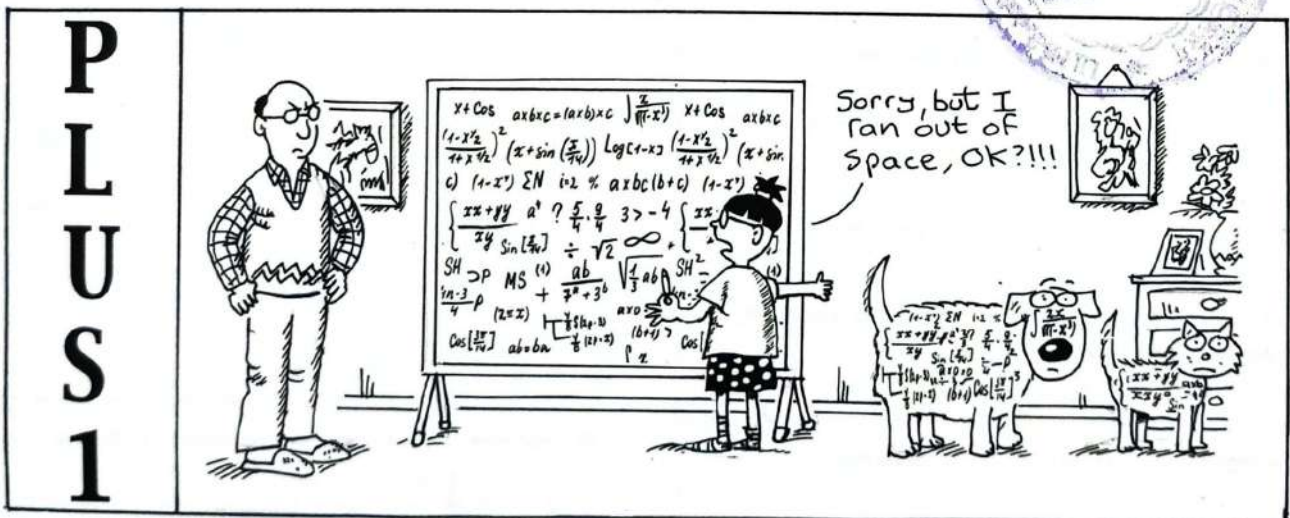
Issue 292

June 2024

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Plus 1 drawn by Harry Venning.

The cover photograph was taken by Simon Carey. He can be contacted at sdcarey@gmail.com

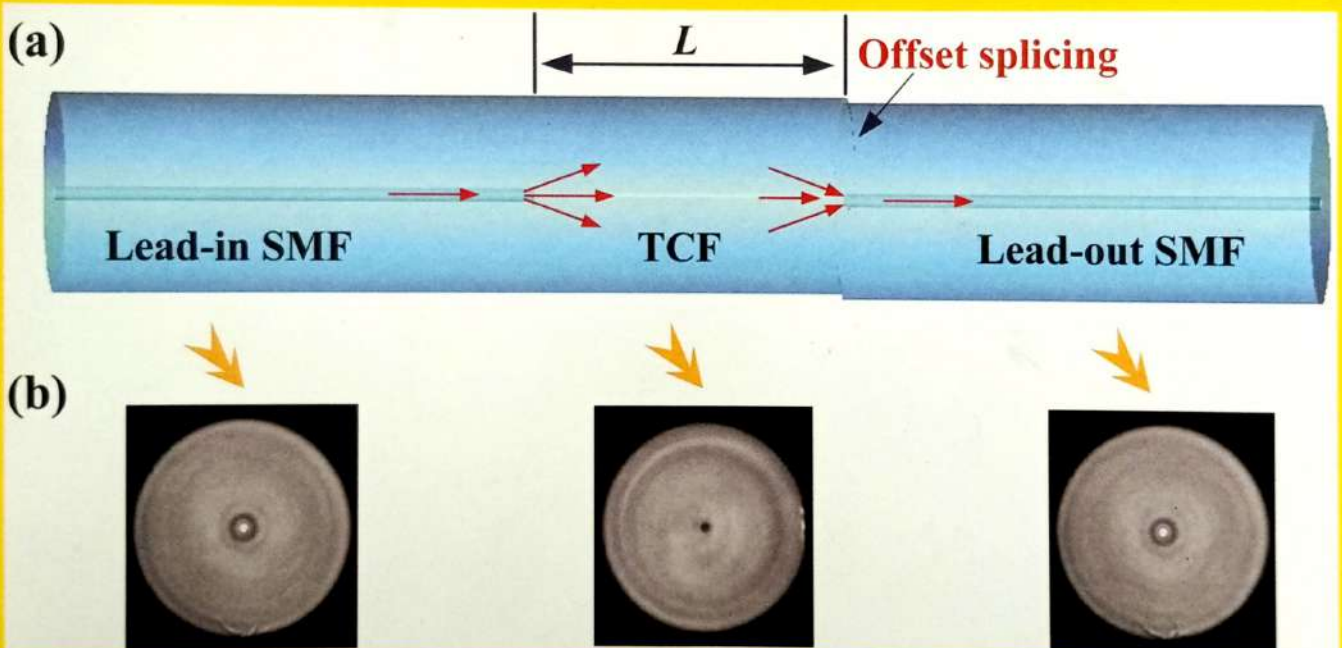
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Volume 92, No. 5, May 2024

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A PUBLICATION OF THE AMERICAN ASSOCIATION OF PHYSICS TEACHERS

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In this issue: May 2024

John Essick, Jesse Kinder, Claire A. Marrache-Kikuchi, Raina Olsen, Beth Parks, Cameron Reed, Donald Salisbury, and Todd Springer, *Editors*

(Received 27 March 2024; accepted 27 March 2024)

<https://doi.org/10.1119/5.0210880>

These brief summaries are designed to help readers easily see which articles will be most valuable to them. The online version contains links to the articles.

Letters to the editor

“J. Robert Oppenheimer, Physicist”

Robert N. Cahn and Chris Quigg

92(5), p. 327. <https://doi.org/10.1119/5.0209857>

“Virtual learning via spreadsheets: Real-time simulation of an RC circuit”

Fayzan Ahmed, Majid Iqbal, Iqbal Tariq, and Muhammad Talat

92(5), p. 328. <https://doi.org/10.1119/5.0199004>

Please enjoy these letters and consider writing one yourself. I'd love to hear from you.

Whose work matters? A tool for identifying and developing more inclusive physics textbooks

Tai Xiang, William Gray, and Janice Hudgings

92(5), p. 329. <https://doi.org/10.1119/5.0148649>

Motivated by a desire for textbooks to describe the work of scientists from more diverse backgrounds, the authors of this paper developed a simple tool to characterize the backgrounds of scientists whose work appears in textbooks. The paper describes the methodology and algorithm as well as the results from testing a range of textbooks. The tool is freely available, with the goal of helping authors develop more representative textbooks as well as helping students and instructors analyze existing textbooks.

Labor-based grading practices in the physics classroom

Jeremy M. Wachter

92(5), p. 336. <https://doi.org/10.1119/5.0121625>

Essentially anyone who has attended college or worked in an academic setting will recognize assessment as a central component of a course. Instructors will also be familiar with the variety of ways in which traditional assessments can actually impede learning. Alternative assessment frameworks are becoming more popular, and this article presents one such approach where students' labor determines their grade. We hope that this article leads readers to critically examine the role assessment plays in their courses.

A modern interpretation of Newton's theorem of revolving orbits

Nolan Samboy and Joseph Gallant

92(5), p. 343. <https://doi.org/10.1119/5.0166698>

It is commonly known that Newton derived the Kepler orbits that result from an inverse square central force in his famous work *Principia*. But fewer people know that Newton

also considered precessing orbits in *Principia*, showing that they are produced by an inverse cubed central force. Subsequent texts on precessing orbits explored the problem with such technical detail that the simplicity of the original problem was often lost. This paper presents the derivation using modern techniques, while also frequently referring back to Newton's original derivation to provide context, providing a nice introduction to the topic appropriate for undergraduate mechanics students.

Effects of general relativistic post-Newtonian approximations on the configuration space properties of elliptical orbital trajectories

Prasenjit Bose

92(5), p. 349. <https://doi.org/10.1119/5.0159075>

This straightforward analysis of predicted orbital precession could serve in introductory physics and astronomy courses, particularly in evaluating the likelihood of orbital collisions.

Recovering seldom-used theorems of vector calculus and their application to problems of electromagnetism

A. Pérez-Garrido

92(5), p. 354. <https://doi.org/10.1119/5.0182191>

Readers who are familiar with differential forms will enjoy seeing how they can be employed to prove several new vector calculus identities. But even readers who do not follow those derivations will benefit from seeing how these identities can be employed to find forces and torques on current-carrying loops.

Static dielectric response and screening in solid state physics: Why dimensionality matters in dielectrics

Cesar E. P. Villegas, Aider Vasquez-Marcani, and Alexandre R. Rocha

92(5), p. 360. <https://doi.org/10.1119/5.0122288>

Screening in dielectrics is a measure of the strength of Coulomb interactions. Because of the reduced dimensionality, screening is hampered in 2D or quasi-1D materials, with important consequences in nanometer-scale systems that are currently important to the condensed matter community. This paper explains the reduced screening. Appropriate for undergraduate electromagnetism classes or advanced condensed matter courses.

Magnetic hyperfine interaction made easier

Wayne Saslow

92(5), p. 367. <https://doi.org/10.1119/5.0167423>

This article describes two classical derivations of the hyperfine interaction in hydrogen. In contrast to familiar derivations, these involve no singularities in the magnetic field

of the electron. Instead, the interaction energy of a localized proton magnetic moment in the smooth field of an electron in a 1-s orbital is calculated using both bound magnetic charges and bound currents, and the general equivalence of these two approaches is proved. The analysis is accessible in a junior-level electrodynamics course and connects classical electrodynamics to quantum mechanics, as well as the 21-cm line used in astronomy and astrophysics.

The Born rule: Axiom or result?

Jay Lawrence

92(5), p. 371. <https://doi.org/10.1119/5.0151405>

The Born rule predicts the probability of the outcome of a measurement on a quantum system, which depends on the projection of the initial state onto the eigenstates of the observable operator. This article shows that the Born rule can be derived from the other axioms of quantum mechanics theory by assuming non-contextuality: The probability of the outcome only depends on the final observed eigenstate. These derivations do not assume any particular interpretation of the theory and could be used as an exercise for undergraduate or graduate students studying the foundations of quantum mechanics.

Statistical physics of frictional grains: Some simple applications of the Edwards statistics

Eric Bertin

92(5), p. 375. <https://doi.org/10.1119/5.0094141>

Since the late 20th century, granular materials have been recognized as forming a distinct state of matter, neither solid nor liquid, but amenable to a statistical description. It turns out that dissipation, through inter-grain friction, governs the large-scale properties of these systems, so that the usual Boltzmann-Gibbs statistics is replaced by the Edwards statistics. These statistics are full of surprises. For instance, model granular systems can exhibit a critical point at infinite-temperature. To know more, you can delve into this paper, which can be used in advanced statistical physics courses, or as a graduate-level introduction to soft matter.

An in-fiber Mach-Zehnder strain sensor for studying multimode interference of light

Gang Zhang, Linguang Xu, and Qiang Ge

92(5), p. 385. <https://doi.org/10.1119/5.0173941>

This paper reports the development of an advanced instructional laboratory experiment aimed at teaching undergraduates about the physics and applications of multimode interference effects in optical fibers. The experiment is based on an in-fiber Mach-Zehnder strain sensor, which is fabricated by fusion-splicing a thin core fiber between two single-mode fiber leads. The experiment introduces students to

optical fiber sensing in a cost-effective way and applies theoretical concepts they have learned in courses in the areas of wave guides, optical interference, and spectral analysis. Experimental results are presented for the sensor's output optical interference spectrum as well as the spectral response to strain. This experiment will be of interest to advanced laboratory and upper-level optics course instructors.

Arduino cavity controller for LIGO analogy lab [Am. J. Phys. 87, 44 (2019)]

Dennis Ugolini

92(5) p. 392. <https://doi.org/10.1119/5.0193289>

The LIGO analogy lab [Am. J. Phys. 87, 44 (2019)] includes advanced experiments in which op-amp-based mixing and feedback circuits are used to lock the length of an optical cavity using heterodyne detection. This Note describes an alternate, Arduino-based controller that implements the heterodyning technique in a significantly less complex and easier to troubleshoot manner. This simplified approach makes the advanced LIGO analog experiments accessible to a wider audience in advanced instruction and optics laboratory courses.

A simple treatment of the trolley paradox

Len Zane

92(5), p. 395. <https://doi.org/10.1119/5.0187579>

This is a short resolution of the paradox concerning the motion of a rolling wheel, involving standard Lorentz transformations. It can serve as an insightful application in classroom introductions to the special theory of relativity.

Which is greater: e^π or π^e ? An unorthodox physical solution to a classic puzzle

Andrés Vallejo and Italo Bove

92(5) p. 397. <https://doi.org/10.1119/5.0094141>

No calculator allowed: Which is greater: e^π or π^e ? If you bet on the former, you win. This brief paper shows how this question can be answered by applying the second law of thermodynamics to a reservoir at absolute temperature e in contact with a finite body of temperature π and evaluating the change in entropy as they come to equilibrium. The argument is then extended to showing that, in general, the inequality $e^x > x^e$ also holds. A fun example for all thermodynamics students.

Book review— Solar Power Finance Without the Jargon, 2nd Edition by Jenny Chase

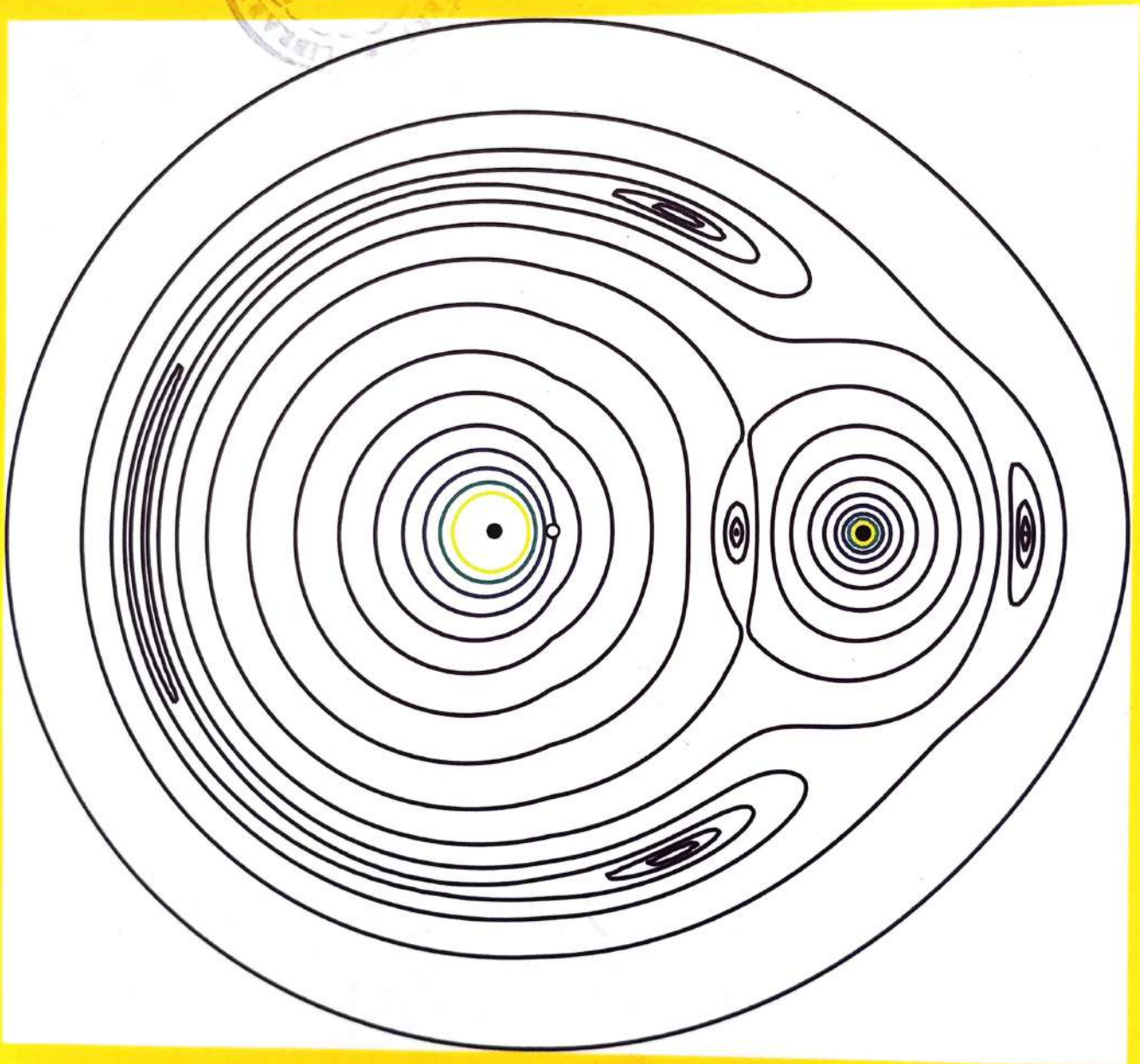
Daniel V. Schroeder, Reviewer

92(5), p. 399. <https://doi.org/10.1119/5.0209209>

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In this issue: June 2024

John Essick, Jesse Kinder, Claire A. Marrache-Kikuchi, Raina Olsen, Beth Parks, B. Cameron Reed, Donald Salisbury, Todd Springer, and Keith Zengel, Editors

(Received 28 April 2024; accepted 29 April 2024)

<https://doi.org/10.1119/5.0216283>

These brief summaries are designed to help readers easily see which articles will be most valuable to them. The online version contains links to the articles.

Orbital mechanics with the Global Positioning System

William H. Baird and Kelly R. Patton

92(6), p. 407. <https://doi.org/10.1119/5.0146547>

Global Navigation Satellite Systems, such as GPS, have locations that must be known very precisely and that are publicly available. For that reason, they provide an ideal data set for studying orbits, both at an introductory level and for more advanced projects such as observing the effects of Earth's equatorial bulge, the Moon's gravitational attraction, or solar radiation pressure. The authors provide Python scripts that will process the satellite data into formats that can be used by students.

Lagrange points and regionally conserved quantities

Eric M. Edlund

92(6), p. 414. <https://doi.org/10.1119/5.0160904>

The James Webb telescope is today providing an astounding view of the early universe. It is located at a fixed equilibrium position relative to the earth and the sun - a so-called Lagrange point. This article offers an innovative derivation of these Lagrange points, employing a notion of local conservation that can be exploited in upper-level undergraduate mechanics courses.

Dynamics of a bouncing capsule: An impulse model vs. a Hertzian model

Xinrui Li, Guangyuan Chen, Ren Jie Tee, Jie Xu Liu, and Christopher Ong

92(6), p. 424. <https://doi.org/10.1119/5.0169258>

We all know that a ball dropped from rest will not rebound all the way to its original height, but that does not mean that rebounds to greater heights are not possible. A capsule-shaped object dropped from rest with an initial angular velocity might convert some rotational energy into potential energy and end up higher than it started. The authors present and compare two models that make this simple but surprising experiment accessible to a wide range of students.

On Bell's dynamical route to special relativity

Frederick W. Strauch

92(6) p. 434. <https://doi.org/10.1119/5.0159408>

In this paper, the author explores a suggestion by John Bell for teaching special relativity: To introduce length contraction and time dilation as dynamical phenomena arising from the laws of motion, without reference to the Lorentz transformations. The paper provides historical and

philosophical insight into the development of special relativity alongside an analysis of electron orbits in a classical model of an atom. Using only the Lorentz force law, the author illustrates the deformation of orbits of moving and accelerating atoms with approximate, exact, and numerical calculations that reveal time dilation and length contraction. Instructors may find these derivations useful in teaching courses on modern physics, relativity, classical mechanics, electrodynamics, or numerical methods.

Determining the difference between local acceleration and local gravity: Applications of the equivalence principle to relativistic trajectories

Steven A. Balbus

92(6) p. 444. <https://doi.org/10.1119/5.0162082>

Linearized differential equations appear in this article in the context of light and particle deflection in Schwarzschild spacetime, the simplest metric solution of Einstein's equations. The procedures can be easily employed in upper-level undergraduate courses, and the results illustrate the frequent failure of the Einstein equivalence principle in predicting deflection due to spatial curvature. The full geodesic equations are themselves readily accessible, but they need not necessarily be derived or addressed in order for students to gain an appreciation of the limited validity of equating particle motion in an accelerating Lorentz frame of reference to motion under the influence of Newtonian gravity.

On the state principle of classical thermodynamics

J. G. Smith and B. E. Schmidt

92(6) p. 450. <https://doi.org/10.1119/5.0179939>

The state principle of classical thermodynamics asserts that the state of a simple compressible system can be uniquely determined by specifying two properties, such as temperature and pressure. However, there are situations where such a specification does not guarantee a unique state; for example, specifying the pressure and temperature of liquid water around its freezing point gives two possible volume states. In this paper, the authors explore how to guarantee a unique state by choosing two properties from the trio of a thermodynamic potential and its two natural variables. A handy table of results lists 12 pairs of intensive variables that are guaranteed to specify a unique state for a single-phase, single-component substance. It is appropriate for intermediate-level thermodynamics students.

A new unit of measurement for introductory physics lab

Christopher Aubin, Jan C. Bierowiec, and Jackson Saunders

92(6) p. 455. <https://doi.org/10.1119/5.0159531>

Experimental research in physics often involves repeated measurements of an unknown quantity by different groups. Ultimately (after careful analysis and comparison of results), a scientific consensus can be reached. This process often differs from a traditional undergraduate laboratory experience, where students might already know the result and simply aim to confirm it. In this article, the authors describe one way to make the laboratory experience more scientifically authentic: By developing special measuring devices that employ a newly created, nonstandard system of units. This article will be of interest to readers who would like to develop curricula which foster scientific reasoning and research skills.

Linewidth measurement of external cavity laser

Tom A. Kuusela

92(6), p. 459. <https://doi.org/10.1119/5.0207084>

This paper presents a low-cost interferometric technique for measuring the linewidth of a laser. The author first provides context for the interferometric technique by giving a comprehensive, clear, and detailed description of other techniques that can be used to measure a laser's linewidth, including the benefits and drawbacks of each. The principle behind the interferometric method is then presented and the required experimental setup is explained. Data obtained by applying the interferometric technique to an external cavity laser are presented and the analysis of these data, along with the resulting linewidth value, is given. This work provides a well-suited experiment for an advanced instructional physics laboratory or optics/laser course. It will also hold appeal as a cost-effective tool for laser linewidth measurement in laboratory research.

Quantum versus classical quenches and the broadening of wave packets

K. Schönhammer

92(6), p. 466. <https://doi.org/10.1119/5.0174441>

Quantum quenches occur when the Hamiltonian of a system is suddenly changed, so that the system is driven out of equilibrium. This paper, appropriate for graduate-level

quantum mechanics classes, examines the similarities and differences of quantum quenches compared to their classical counterparts for three one-dimensional examples: The harmonic oscillator, the linear potential, and the zero potential for which the broadening of a non-Gaussian wave packet is addressed.

Mutual inductance between an infinite solenoid and a surrounding loop – A paradox resolved

Ian C. Malcolm

92(6) p. 473. <https://doi.org/10.1119/5.0172133>

When students obtain the right answer using an unjustified method, instructors are faced with a grading quandary. Finding himself in that situation, this author asked "Why?" The resulting paper, which will be enjoyed by instructors of electromagnetism, shares the explanation, involving the mutual inductance of a solenoid and a loop.

On the "contact" hyperfine interaction

Wayne M. Saslow

92(6) p. 476. <https://doi.org/10.1119/5.0174056>

In this short note, author Wayne Saslow examines the history of the contact hyperfine interaction, and he revisits and elucidates a calculation by Hendrik Casimir from 1936. The note illustrates how the hyperfine interaction emerges within the framework of classical electrodynamics, and it reveals how the interaction of two spatially extended current distributions can give rise to what appears to be a singular "contact" interaction. The calculation provides a link between classical electrodynamics and quantum mechanics and should be accessible to students in a junior-level electrodynamics course.

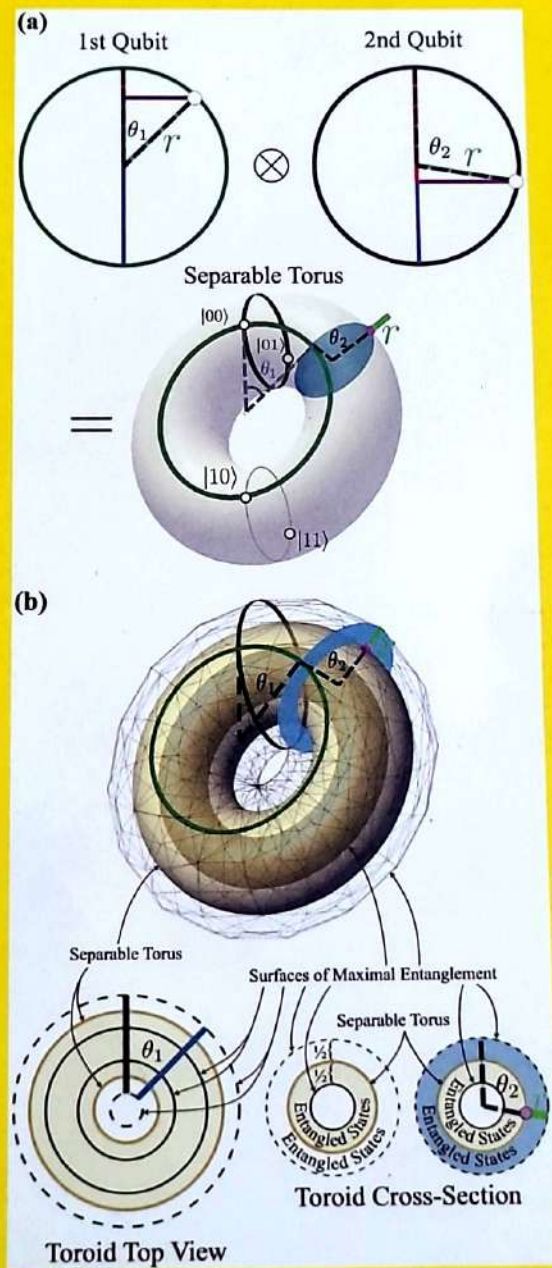
Review of *The Visual Elements—Photography: A Handbook for Communicating Science and Engineering* by Felice C. Frankel

Ram Seshadri, Reviewer

92(6), p. 479. <https://doi.org/10.1119/5.0216761>

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Cover figure: Readers will know that single qubit states can be visualized on a Bloch sphere. This paper shows how 2-qubit states can be visualized on a toroid. While this visualization is limited to a subset of 2-qubit states, it allows the encoding of the degree of qubit entanglement and helps students build intuition for why maximally entangled 2-qubit states are so useful in quantum information algorithms. For more information, see "Geometric visualizations of single and entangled qubits" by Chang, et al., p. 528.

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NEWS

**Ernest Moniz on
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30 Putting microLED technology on display

Vikrant Kumar, Keith Behrman, and Ioannis Kymissis

After some two decades of advances in manufacturing processes, microLEDs have the quality and capabilities necessary for many display applications.



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38 Electron microscopy for attosecond science

Mohammed Hassan

Some of the fastest processes in physical and biological systems can be studied by generating ultrashort electron pulses.

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44 Deep convection drives oceanic overturning

Bishakhdatta Gayen and Andreas Klockner

Research that combines fluid dynamics and climate science is uncovering the inner workings of the North Atlantic's overturning circulation. Future changes to that circulation system could trigger major disruptions to global weather patterns.



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ON THE COVER: MicroLEDs produce light by the same process that their larger LED cousins use: When electrons and holes in a semiconductor material recombine, photons are emitted. But compared with conventional LEDs and other light emitters, microLEDs are much brighter—an advantage that has drawn the interest of makers of augmented- and virtual-reality headsets, whose displays need to compete with the Sun in outdoor environments. On **page 30**, Vikrant Kumar, Keith Behrman, and Ioannis Kymissis discuss the manufacturing challenges of microLEDs and highlight display-industry applications. (Image by J. Keisling.)

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WILL LUNDEN

Seaworthy optical clock

Optical atomic clocks are exquisitely accurate and precise, but their bulkiness and sensitivity limit them largely to lab settings. Now researchers have debuted a more mobile optical clock, based on molecular iodine, that has the performance and robustness to stably keep time on a ship navigating rough seas.

physicstoday.org/Jun2024a



WU ET AL., NATURE 626, 779 (2024)

Flexible ceramic

For many industrial components, ceramics are essential, but they tend to be brittle and intolerant to strain. A newly designed ceramic material is unusually strong and flexible. The key to the advance was fabricating stacks of twisted-layer 2D structures that were then integrated into an interlocked 3D matrix.

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Ammonia catalysts

The Haber-Bosch process requires high temperatures and pressures to synthesize ammonia. But new candidates emerge for potential low-energy catalysts—if their magnetism is suppressed. Researchers demonstrated the approach by placing lanthanum near a cobalt catalyst to enhance ammonia production.

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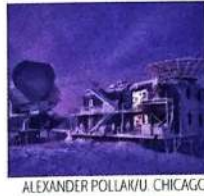
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A planned \$800 million project to study ancient cosmic radiation using telescopes at the South Pole and in Chile is getting delayed because of the need to upgrade infrastructure in Antarctica. The recent NSF decision has implications for CMB-S4 scientists and others doing research near the South Pole. physicstoday.org/Jul2024b



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Dipolar-molecule BEC

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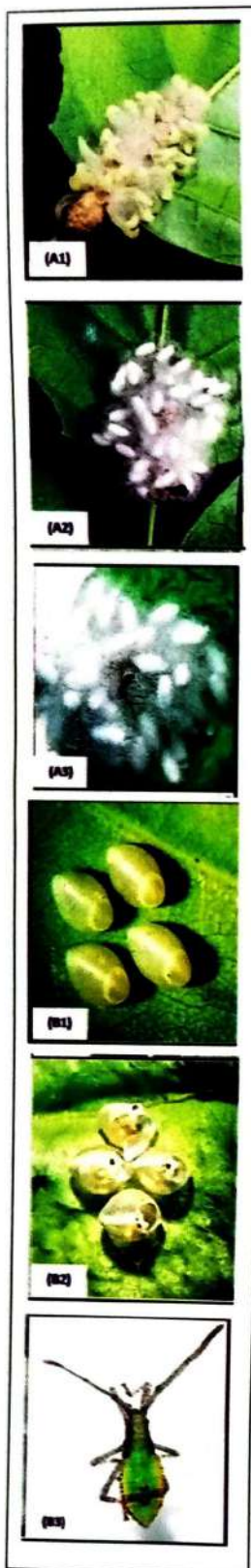


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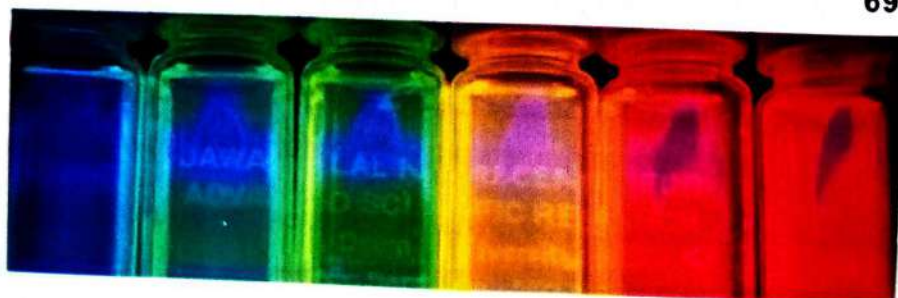


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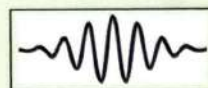
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Artist's illustration of the extremely energetic cosmic ray observed by a surface detector array of the Telescope Array experiment, named "Amaterasu particle."

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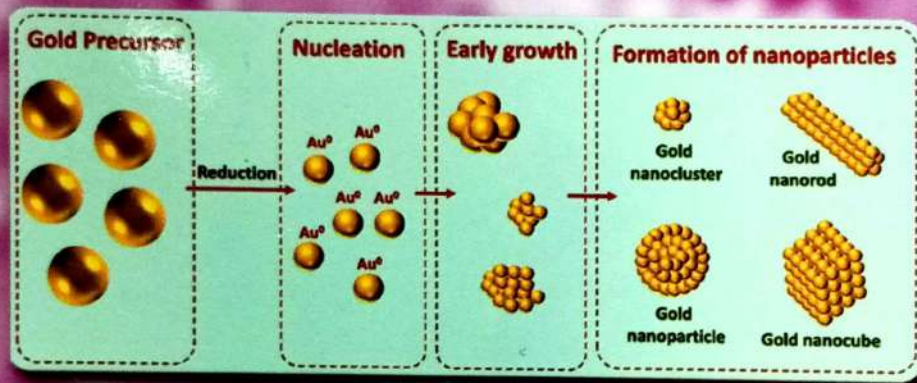
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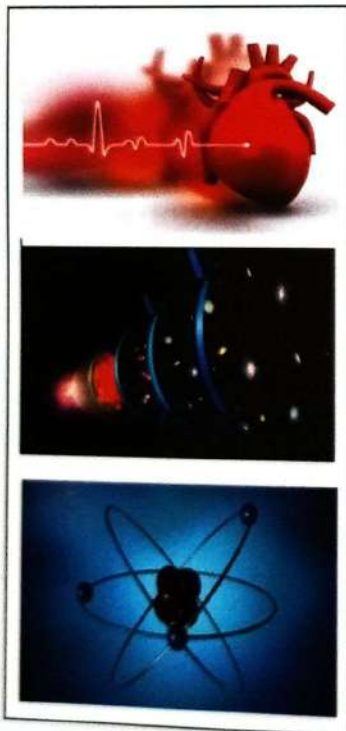


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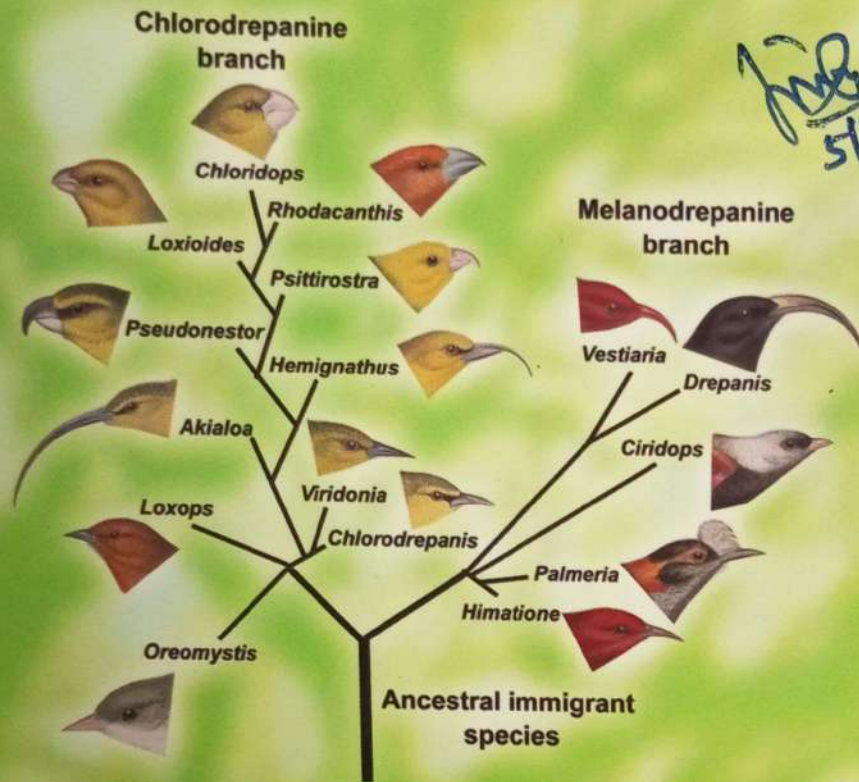
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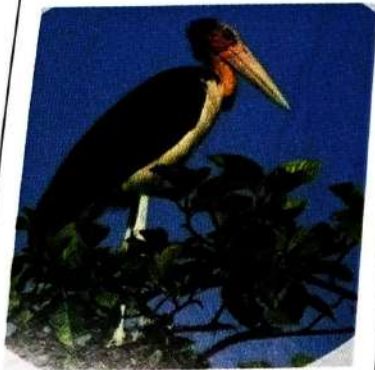
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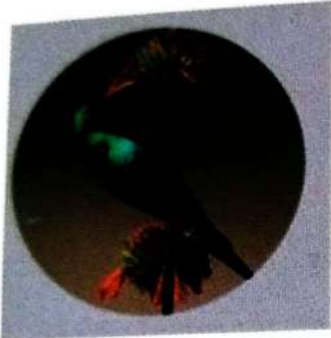
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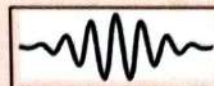
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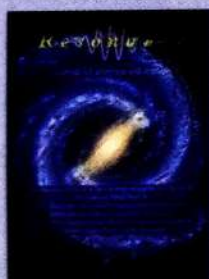
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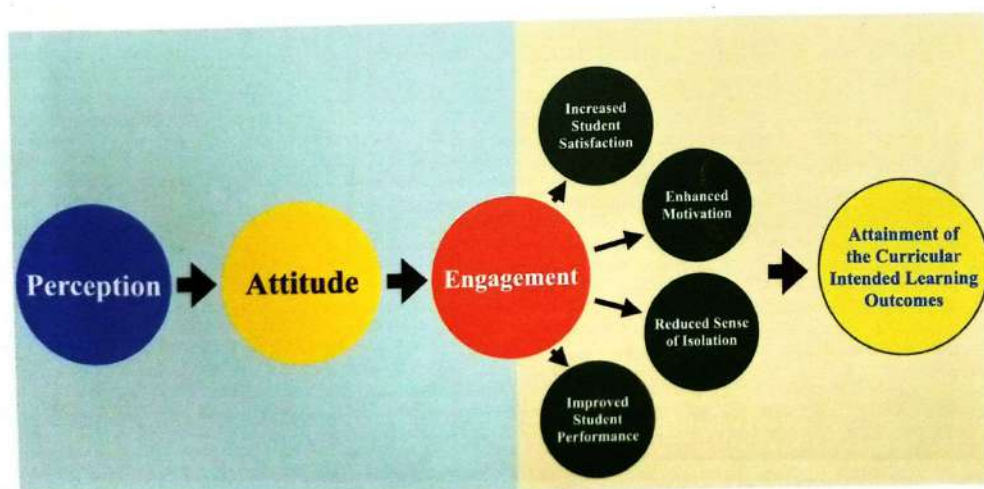
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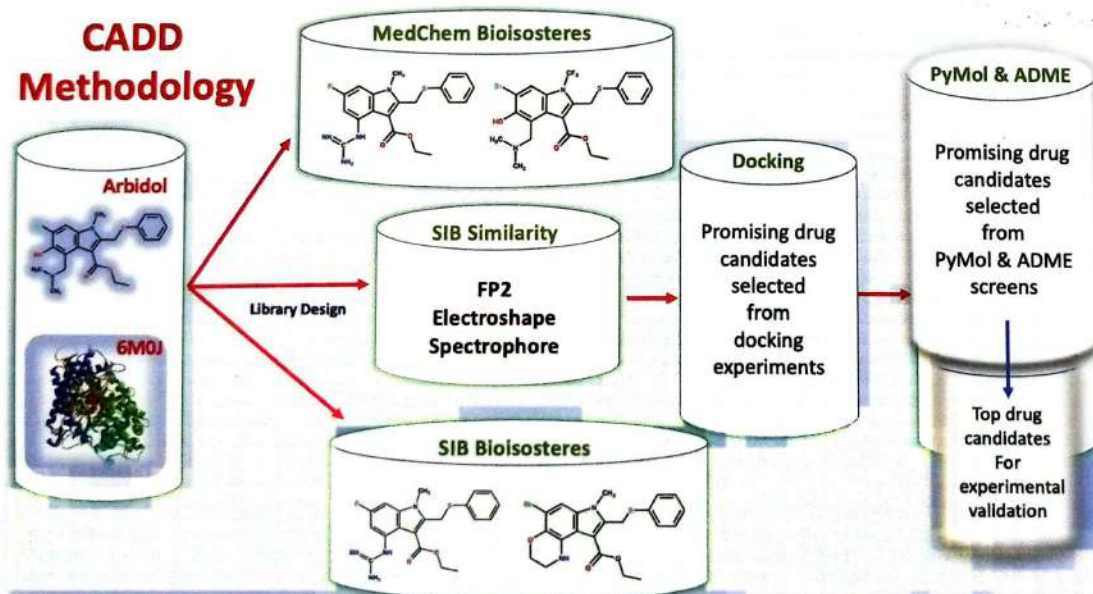
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Molecular Biology



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How a new perspective
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healthier for longer

PLUS
INDESTRUCTIBLE
ROBOT HAND
BEST SCIENCE
DOCUMENTARIES
WHICH CATS
LIVE LONGEST

IS IT ALIENS?
Astronomers spy possible
space megastructures

A 50,000-YEAR-OLD COLD
Ancient viruses in Neanderthal
DNA could be resurrected

NATURE'S CHORUS
Mapping the world's
biodiversity using only sound



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EPIC MATHS PROOF IS
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CAN YOU REALLY
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ULTRA-PROCESSED FOOD?

HOW TO THINK ABOUT

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*Causality / Quantum biology / Rogue planets / Fractals / Cancer /
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Quantum entanglement / Net zero*

PLUS
LOST BRANCH
OF THE RIVER NILE /
ARCTIC JELLYFISH INVASION /
GIVE YOURSELF 360° VISION /
**COULD WE ALL LIVE
IN TREE CITIES?**

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JUST THREE HOT YEARS
ARE ENOUGH TO BREACH
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THE SCIENTIFIC WAY TO
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INFLUENCE PEOPLE

QUANTUM LOOPS

We're about to send a particle back in time



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WHY TOO MUCH POSITIVITY CAN BE BAD FOR YOU

CAN GOOGLE TAME ITS AI SEARCH TOOL?

✓
THE

SALT

FIX



The surprisingly simple way to satisfy your cravings without damaging your health

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ANCIENT EGYPTIAN CANCER TREATMENT
BIGGEST GOOSE THAT EVER LIVED

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How the drug could help treat
depression and addiction

WHERE SPACE-TIME ENDS

We are finally confronting the quantum
weirdness at the heart of black holes

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DODO DE-EXTINCTION / ARE NEWBORNS CONSCIOUS? /
PERFECT PUFF PASTRY / **BEST MILKY WAY PHOTOS**

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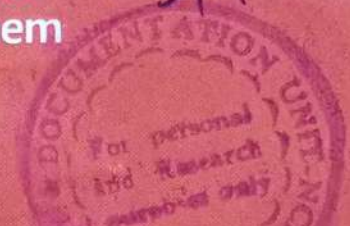
RUSSIA FACES HUGE CLIMATE BILL FOR UKRAINE WAR

HOW TO SPOT A BROKEN ALIEN WARP DRIVE

GROWING UP ONLINE

An evidence-based guide to the risks of screen time - and how to overcome them

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PLUS COLOURFUL BLACK HOLES
HOW TO DEAL WITH SOCIAL ANXIETY
MATHEMATICALLY IMPOSSIBLE MARIO LEVELS

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We finally know why some people don't get covid-19

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SPECIAL ISSUE

OUR COSMIC PERSPECTIVE

The biggest questions about the universe and our place in it



**IS THE UNIVERSE INFINITE? / WHERE DO SPACE AND TIME COME FROM? /
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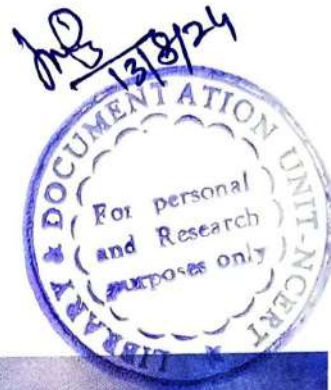


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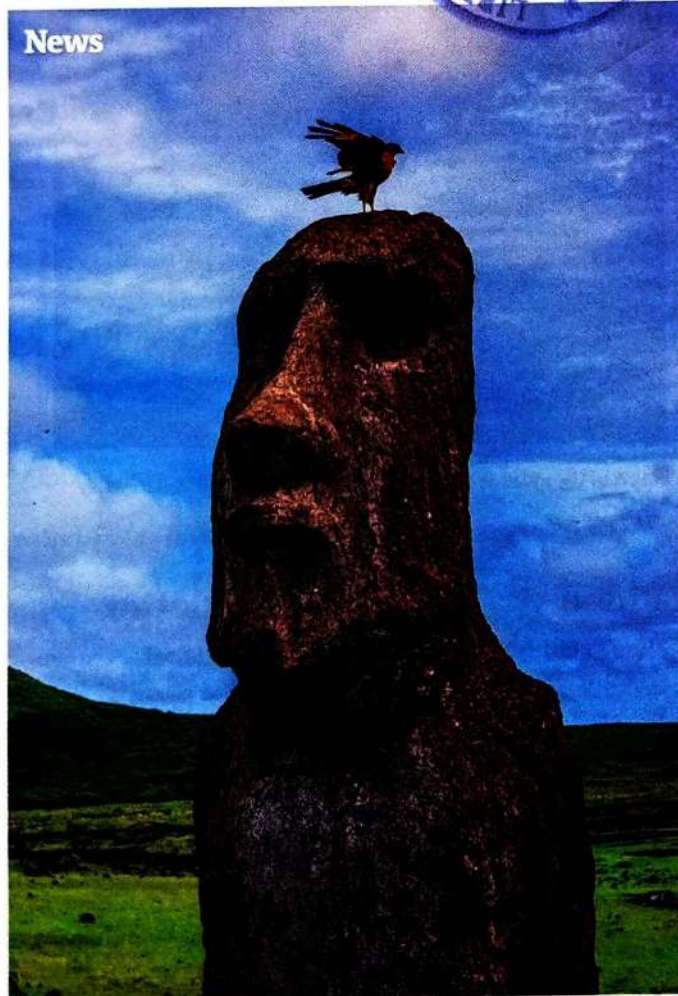
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Special Issue: Beyond disciplinary engagement:
Researching the ecologies of interdisciplinary learning

Guest Editors: Lina Markauskaite, Baruch Schwarz,
Crina Damşa and Hanni Muukkonen



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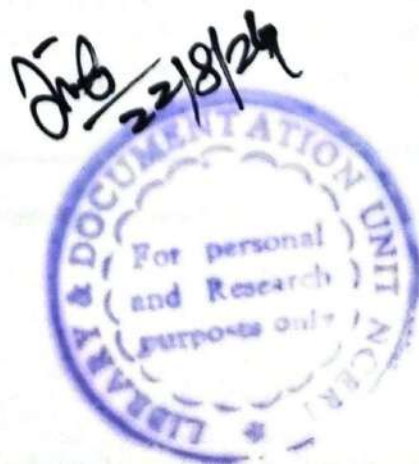
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Does Freedom Have a Future in Pakistan?

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How Democracy Beats Populism

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*Generative AI's Real Dangers ■ Gulf State Sharp Power
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Why Autocrats Target LGBTIQ Rights

Phillip Ayoub and Kristina Stoeckl



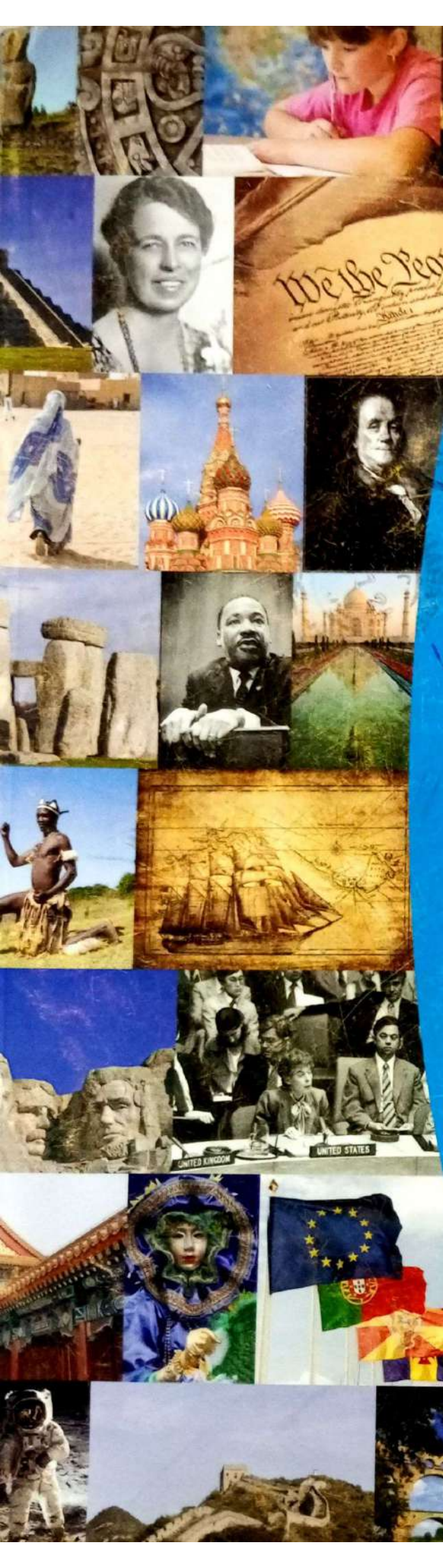
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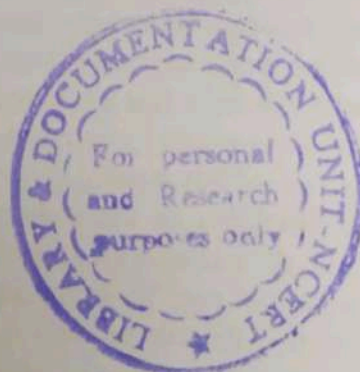
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Guest Editors: T.J. Ó Ceallaigh and Corinna Connolly

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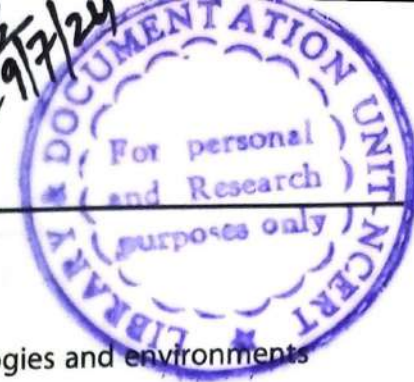


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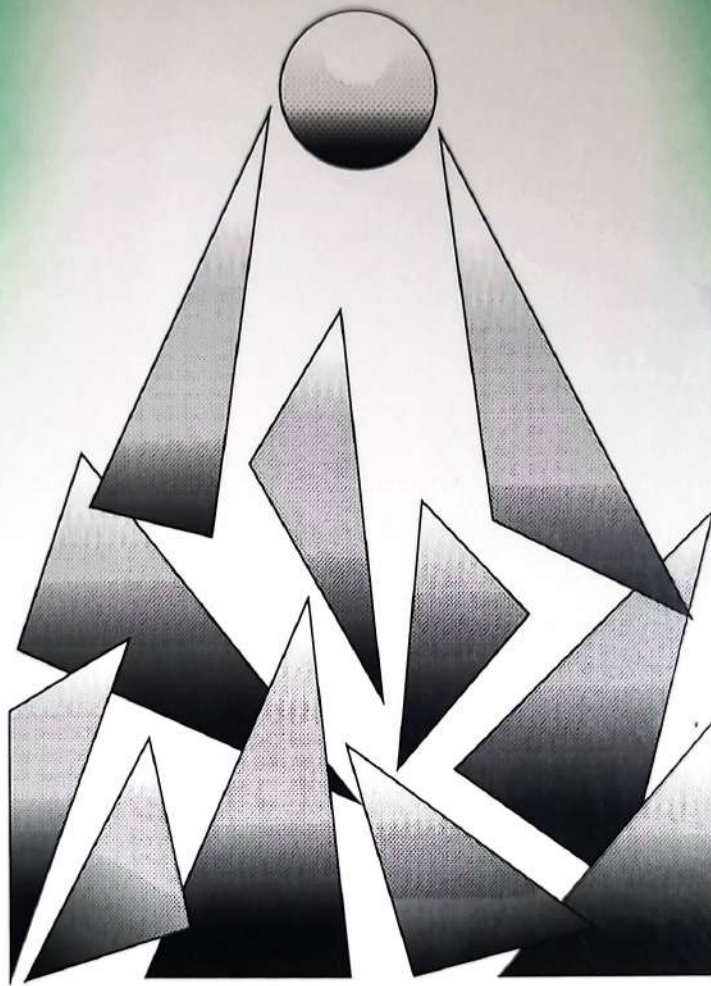
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