EDUDOC SERVICES: CURRENT CONTENT



CURRENT CONTENTS

January - 2020

LIBRARY AND DOCUMENTATION DIVISION

NATIONAL INSTITUTE OF EDUCATION

National Council of Educational Research & Training

Sri Aurobindo Marg, New Delhi - 110016

Phone: 01126592316, 26592237, 26592317

E-mail: dldi.ncert@gmail.com

Compiled By

J.P. Anand

Introduction

"**Current Contents**" prepared by Library and Documentation Division aims to identify the articles published in the learned journals received by the library in the month of January 2020.

Current Contents are arranged alphabetically under the broad subject headings. It gives the details about the name of the Journal, volume, issue month and year of publication. It will be our endeavour to bring out this as a reference tool, which will make our readers aware about the current contents available in different learned journals of their subject of interest.

Current Contents will be useful to our faculty members in selecting/recommending relevant articles for their research.

Keeping in mind the integration of ICT and Digitisation, attempt has been made to provide the Web-link of the current issues, which will facilitate the readers to access the articles, except the '*' marked journal titles

We eagerly await to received your views and comments.

(Prof. Saroj Yadav)
Chairperson, LDD,
NCERT, New Delhi

Sr. No.	Name of Journals	Vol.	Issue	Month	Year	Pages
	Biology					
1.	American Biology Teacher	81	9	Nov-Dec	2019	1
	Economics					
2.	Economist	434	9175 9176 9177 9178	4 Jan 11 Jan 18 Jan 25 Jan	2020	19-26
	Education					
3.	Journal of Educational Measurement	56	4	Winter	2019	56
	Educational Psychology					
4.	British Journal of Educational Psychology	89	4	Dec	2019	14
5.	Educational Psychologist	54	4	Oct-Dec	2019	34
6.	Journal of Educational Psychology	112	1	Jan	2020	57-58
	Educational Research					
7.	शैक्षणिक संदर्भ	12	68(125)	Nov-Dec	2019	76
8.	American Educational Research Journal	56	6	Dec	2019	2
9.	Australian Journal of Education	63	3	Nov	2019	13
10.	Educational Action Research: an International Journal	27	5	Nov	2019	27
11.	Educational Assessment, Evaluation and Accountability	31	1 2 3	Feb May Aug	2019	28-30
12.	Educational Evaluation and Policy Analysis	41	4	Dec	2019	31
13.	Educational Measurement: Issues and Practice	38	4	Winter	2019	32-33
14.	International Journal of Educational Research	94 95 96 97 98		Mar May Jul Sep Nov	2019	45-54
15.	Review of Educational Research	89	6	Dec	2019	75
	Educational Technology					
16.	Technology; Pedagogy and Education	28	5	Nov	2019	93

	Environmental Education					
17.	Globalisation, Societies and Education	17	5	Oct	2019	37
18.	Journal of Environmental Education	50	1-3	Mar-Aug	2019	59-60
	Higher Education					
19.	University News	57	51 52	23 Dec 30 Dec	2019	95-96
	Linguistics					
20.	English Teaching Professional		125	Nov	2019	35
21.	Essays in Criticism	69	4	Oct	2019	36
22.	Indian Literature: Sahitya Akademi's Bi-Monthly Journal	63	5(313) 6(314)	Sep-Oct Nov-Dec	2019	38-43
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	Mathematics Education					
25.	Mathematics Teaching		269	Dec	2019	65
	Physics					
26.	American Journal of Physics	87 88	12 1	Dec Jan	2019 2020	3-6
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	Psychology					
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	Science					
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32.	New Scientist	244	3252 3254 3261-62 3263	19 Oct 2 Nov 21/28 Nov 4 Jan	2019 2019 2019 2020	67-70
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	Science Education					
34.	Scientific American	322	1	Jan	2020	84-85
35.	School Effectiveness and School Improvement	30	4	Dec	2019	77
	Social Science					
36.	Seminar		725	Jan	2020	86
37.	Social Scientist *	47(556 -557) 47(558 -559)	9-10 11-12	Sep-Oct Nov-Dec	2019	87-88
	Special Education					
38.	Intellectual and Developmental Disabilities	57	6	Dec	2019	44
39.	Topics in Early Childhood Special Education	39	3	Nov	2019	94
40.	Journal of Learning Disabilities	52	6	Nov-Dec	2019	61
	Teacher Education					
41.	Teaching and Teacher Education: An International Journal of Research and studies	76 77		Nov Jan	2018 2019	89-92
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42.	Journal of Peace Education	16	3	Dec	2019	62

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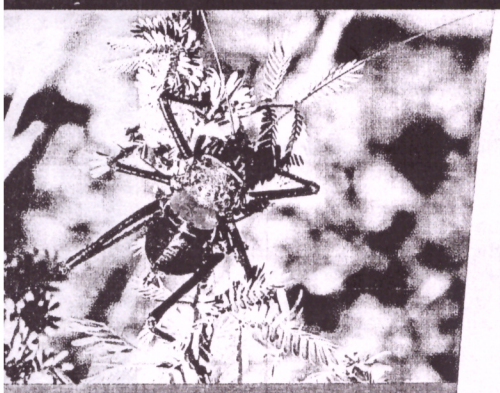
THE AMERICAN BIOLOGY TEACHER



About Our Cover

This fearsome creature – the African armored ground cricket (*Acanthoplus discoidalis*) – is certainly not your average cricket annoyingly chirping in some hard-to-find corner. Also called the Gobabis prawn, bush cricket, armored katydid, or corn cricket, this giant is in the subfamily Bradyporinae, more closely related to katydids than to the true crickets of the family Gryllidae.

These large insects are found in the semiarid areas of southwestern Africa, including Namibia where this photograph was taken. They are flightless, grow to a body length of about 5 cm, and have five rows of spines on their abdomen, spikes on the plate-like pronotum that protects the back of their thorax, and large biting jaws.

Certainly, one of the most interesting facts about these animals is their ability to defend themselves by reflex bleeding (autohemorrhaging) – squirting toxic liquid from gaps in their exoskeleton, to a distance of a few centimeters. Even more fascinating: if this defense is not effective, they can regurgitate food and bite their enemies. Omnivores, they are a pest of food crops such as sorghum and millet and will even attack nesting birds. If food sources are limited they engage in cannibalism, particularly when large numbers are crushed by road traffic.

Males attract females by rubbing certain body parts together to produce the classic cricket mating sound (called stridulation). Like some other insects, the males produce a spermatophore that contains a sperm pouch and a food-rich spermatophylax that acts as a kind of "wedding gift" to entice the female.

This digital image was recorded with a Nikon D850 camera using a 28–300 mm zoom lens with image stabilization. The photographer is *ABT* Editor William F. McComas, Parks Family Professor of Science Education and Director of the Project to Advance Science Education at the University of Arkansas (mccomas@uark.edu).

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In our September 2019 issue, the last name of one of the coauthors for the Guest Commentary article has a misspelling in the Table of Contents. The correct spelling is Vedham Karpakakunjaram. We apologize for this error.

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All articles were accepted under the co-editorship of Mark Berends, Francesca López, Julianne C. Turner, and Suzanne Wilson.

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AMERICAN EDUCATIONAL RESEARCH ASSOCIATION

SAGE

AMERICAN JOURNAL of PHYSICS

CODEN: AJPIAS
ISSN: 0002-9505

Volume 87, No. 12
December 2019

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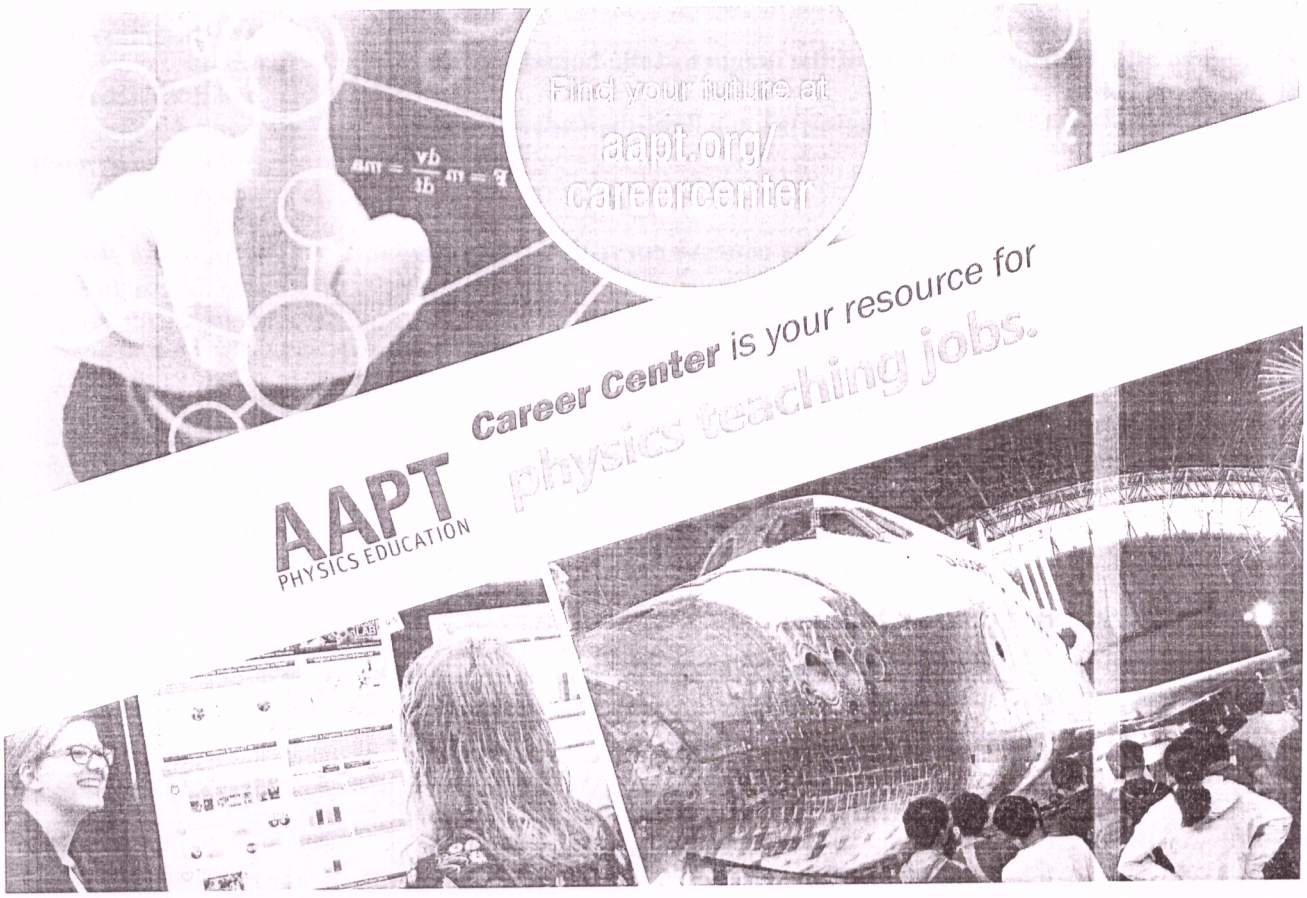

AMERICAN JOURNAL of PHYSICS

CODEN: AJPIAS
ISSN: 0002-9505

Volume 88, No. 1
January 2020

Cover figure: Electric field lines and electric field amplitudes for a point charge moving in a circle (the green arc) at 0.9 light speed. For details see the article on p. 5.

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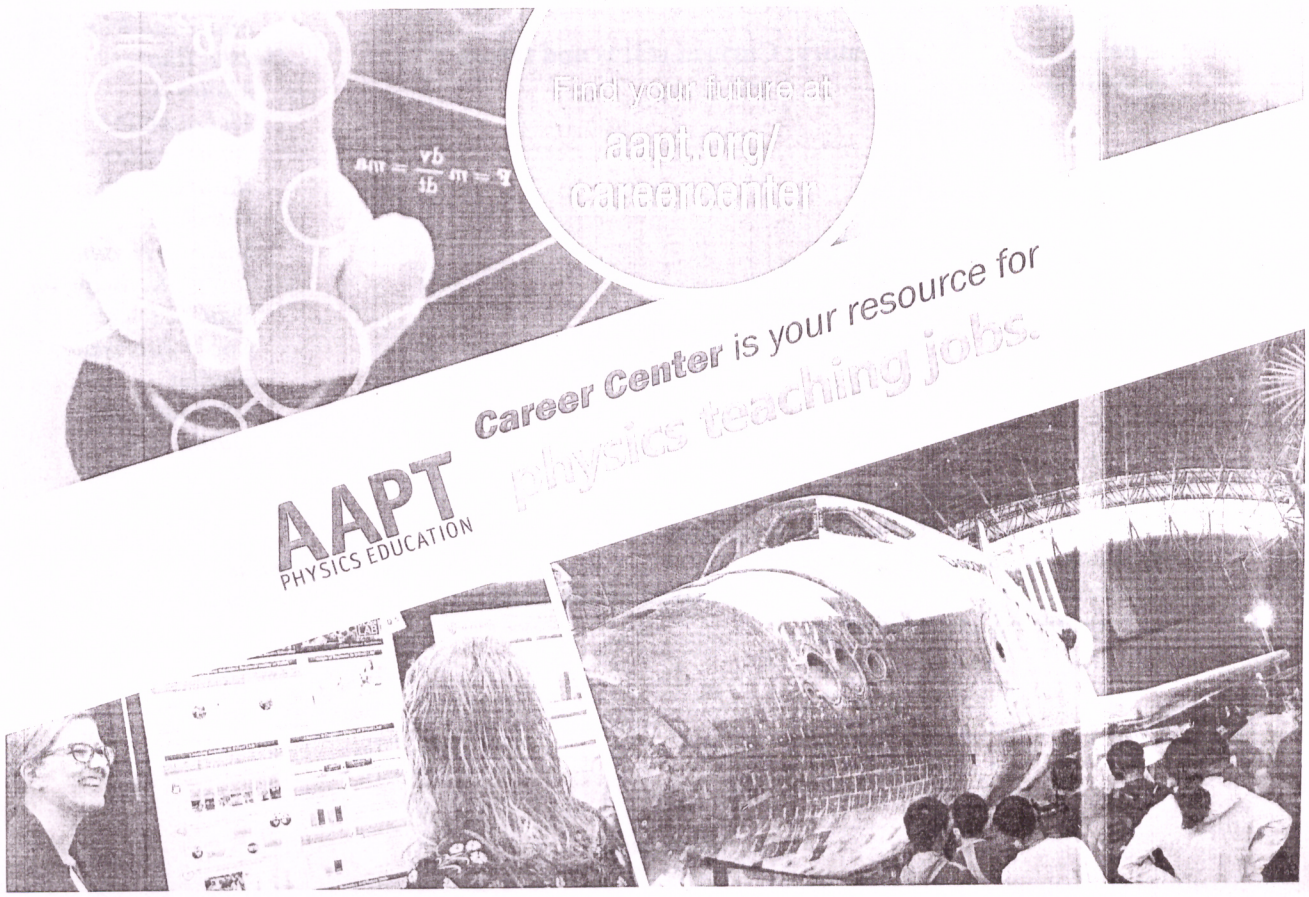

AMERICAN PSYCHOLOGIST®

Journal of the American Psychological Association
https://www.apa.org/pubs/journals/amp

July–August 2019
Volume 74
Number 5

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On the cover: South Branch Sunset, *2015, by Tim Karas. Photograph. Courtesy of the artist, http://timkarasphotography.com. See p. 629 for more about Karas and his art.*

American Psychological Foundation Gold Medal Awards and Teaching Awards

525 Gold Medal Award for Life Achievement in the Practice of Psychology: Lillian Comas-Díaz

527 Gold Medal Award for Life Achievement in Psychology in the Public Interest: Janet E. Helms

529 Gold Medal Award for Life Achievement in the Science of Psychology: Alan E. Kazdin

532 Gold Medal Award for Life Achievement in the Application of Psychology: Bruce E. Wampold

537 Charles L. Brewer Award for Distinguished Teaching of Psychology: R. Eric Landrum

Articles

539 "Forward Flow": A New Measure to Quantify Free Thought and Predict Creativity
Kurt Gray, Stephen Anderson, Eric Evan Chen, John Michael Kelly, Michael S. Christian, John Patrick, Laura Huang, Yoed N. Kenett, and Kevin Lewis

The minds of creative people show more "forward flow," leaving old thoughts quickly behind. This article describes forward flow, demonstrates its link to creativity in experiments and the real world (e.g., acting, business), and provides an online toolbox so anyone can easily measure forward flow. Forward flow helps explain creativity and demonstrates the predictive power of free thought, which can be visualized via "thought plots."

555 Who Watches an ISIS Beheading—and Why
Sarah Redmond, Nickolas M. Jones, E. Alison Holman, and Roxane Cohen Silver

Research over the past decade has highlighted the link between media exposure to acts of terrorism and mental health symptoms. However, little is known about who seeks exposure to non-fictional graphic content. In this 3-year longitudinal study, predictors of and reasons for watching an ISIS beheading video, and the psychological consequences of doing so, were examined among a representative U.S. national sample of over 3,000 adults.

569 Relationship Between the Implicit Association Test and Intergroup Behavior: A Meta-Analysis
Benedek Kurdi, Allison E. Seitchik, Jordan R. Axt, Timothy J. Carroll, Arpi Karapetyan, Neela Kaushik, Diana Tomezsko, Anthony G. Greenwald, and Mahzarin R. Banaji

Under what conditions are implicit attitudes, stereotypes, and identity related to intergroup behavior? This article reports the most comprehensive meta-analysis to date on this issue, synthesizing data from 36,000 participants across 217 papers using the Implicit Association Test (IAT). Beyond demonstration of the implicit-criterion relationship, extensive moderator analyses involving basic characteristics, conceptual variables, and methodological features are presented to inform future applications, theorizing, and study design.

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587 Racialized Violence in the Lives of Black People: Illustrations From Haiti (Ayiti) and the United States
Guerda Nicolas and Chalmer E. F. Thompson

Racism and ethnoviolence are infestations that seep into our socialization, influencing how we see the world and interact with people, potentially destroying the prospect of morally strong and just societies. This article explores the structural manifestations of racialized violence toward Black people in Haiti and the United States and articulates critical measures for psychologists worldwide to systematically address these problems.

Guidelines and Reports

596 Summary of the Clinical Practice Guideline for the Treatment of Posttraumatic Stress Disorder (PTSD) in Adults
Guideline Development Panel for the Treatment of PTSD in Adults, American Psychological Association

Reviewing and evaluating the evidence on the efficacy of interventions is a complex task but necessary for determining options for treatment. The PTSD guideline utilized a high-quality systematic review to undergird recommendations that clinicians can consider in the context of providing evidence-based care. Integrating this information with other relevant research, clinical expertise, and the patient's values and preferences provides a basis for decision making.

608 Guidelines for Education and Training at the Doctoral and Postdoctoral Levels in Consulting Psychology/Organizational Consulting Psychology: Executive Summary of the 2017 Revision
Elizabeth C. D. Gullette, John Fennig, Thomas Reynolds, Carolyn Humphrey, Melanie Kinser, and Dennis Doverspike

Education and training guidelines play a critical role in shaping the future of specialty areas. Produced by a committee of the Society of Consulting Psychology (SCP), the APA-approved guidelines for Education and Training at the Doctoral and Postdoctoral Levels in Consulting Psychology/Organizational Consulting Psychology provide updated guidance for designing programs of study in the evolving field of consulting psychology.

615 Summary Report of Journal Operations for 2018

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617 Integration of Movement Competency Training to Optimize Behavioral Interventions for Child Obesity: Comment on Wilfley et al. (2018)
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620 Fundamental Movement Skills Training in Childhood Obesity Treatments: Reply to Hyman (2019)
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622 The Potential Role of Anxiety Sensitivity in the Risk for and Recovery From Heart Attacks: Comment on Edmondson et al. (2018)
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AMERICAN PSYCHOLOGIST®

Journal of the American Psychological Association
https://www.apa.org/pubs/journals/amp

December 2019
Volume 74
Number 9

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On the cover: The Journey, *2018, by John Lennard. Oil on canvas, 30 inches by 36 inches. Courtesy of the artist and Masters Gallery Ltd., http:// www.mastersgalleryltd.com/. See p. 1207 for more about Lennard and his art.*

Awards Issue 2019

Science Awards and Articles

1000 Award for Distinguished Scientific Contributions: Linda M. Bartoshuk

1003 What Aristotle Didn't Know About Flavor
Linda M. Bartoshuk, Charles A. Sims, Thomas A. Colquhoun, and Derek J. Snyder
Aristotle mistakenly attributed flavor to taste, but flavor sensations actually result when swallowing forces odorants from foods up behind the palate into the nose from the rear (retronasal olfaction). Aristotle's error was not corrected until 1812. Modern research can now study interactions between retronasal olfaction and taste; these studies are leading to new ways to sweeten foods and treat patients with taste nerve damage.

1012 Award for Distinguished Scientific Contributions: Dante Cicchetti

1015 Award for Distinguished Scientific Contributions: David A. Kenny

1018 Enhancing Validity in Psychological Research
David A. Kenny
Donald T. Campbell and colleagues proposed four different validities in psychological research, that is, four different ways to establish the truth in psychology. Various strategies of enhance validity are discussed, including causal diagrams, conducting "what if" analyses, conceptualizing over-time and interpersonal measures multidimensionally, generalizing over stimuli and studies as well as participants, and modeling interdependence in the study of groups.

1030 Award for Distinguished Scientific Applications to Psychology: James S. Jackson

1036 Award for Distinguished Scientific Early Career Contributions to Psychology: Marc G. Berman

1039 Environmental Neuroscience
Marc G. Berman, Andrew J. Stier, and Gaby N. Akcelik
This article outlines the emerging field of environmental neuroscience that examines the bidirectional relationships between neural processing and the physical environment. Environmental neuroscience considers factors that vary across multiple temporal and spatial scales that interact to produce behavior and places a special emphasis on the rigorous quantification of the external physical environment. Ignoring the effects of the physical environment on brain processing may limit our understanding of behavior.

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1053 Award for Distinguished Scientific Early Career Contributions to Psychology: Wiebke Bleidorn

1056 The Policy Relevance of Personality Traits
Wiebke Bleidorn, Patrick L. Hill, Mitja D. Back, Jaap J. A. Denissen, Marie Hennecke, Christopher J. Hopwood, Markus Jokela, Christian Kandler, Richard E. Lucas, Maike Luhmann, Ulrich Orth, Jenny Wagner, Cornelia Wrzus, Johannes Zimmermann, and Brent Roberts
Personality traits are powerful predictors of outcomes in virtually all life domains. This paper presents the case that traits can serve as actionable targets for policy changes and interventions. To that end, the authors pose and answer critical questions regarding the nature of personality traits and their applicability for policy initiatives designed to improve individual and social welfare.

1068 Award for Distinguished Scientific Early Career Contributions to Psychology: Mesmin Destin

1071 A Path to Advance Research on Identity and Socioeconomic Opportunity
Mesmin Destin
The socioeconomic opportunities and challenges surrounding young people shape the development of their identities and influence their experiences as they pursue academic and career goals. This article describes key ways that research in this area can expand and in turn help to inform institutional and structural changes aiming to reduce inequality.

1080 Award for Distinguished Scientific Early Career Contributions to Psychology: Julie D. Golomb

1083 Award for Distinguished Scientific Early Career Contributions to Psychology: Ming-Te Wang

1086 An Integrative Development-in-Sociocultural-Context Model for Children's Engagement in Learning
Ming-Te Wang, Jessica L. Degol, and Daphne A. Henry
For four decades, psychological researchers have used the construct of engagement as a holistic lens for understanding how children interact with learning activities. Using a developmental-contextual approach, this article presents an integrative perspective on engagement that emphasizes the dynamic role engagement plays in shaping children's learning across multiple sociocultural contexts. The integrative model clarifies the conceptualization, facilitators, and functions of children's engagement in learning.

Public Interest Awards

1104 Award for Distinguished Senior Career Contributions to Psychology in the Public Interest: Brian L. Wilcox

1107 Award for Distinguished Early Career Contributions to Psychology in the Public Interest: lore m. dickey

1111 Award for Distinguished Contributions to Research in Public Policy: Sandra J. Bishop-Josef

Education Awards and Articles

1115 Award for Distinguished Career Contributions to Education and Training in Psychology: Emil R. Rodolfa

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1118 Challenges to Psychology Education and Training in the Culture of Competence
Emil Rodolfa and Jack Schaffer

The culture of competence has enhanced the manner in which psychology educates, trains, and evaluates its students. Although a number of advances have occurred, there are numerous challenges to be resolved in this new zeitgeist of the education of future generations of psychologists. This article describes these challenges and encourages the profession to work collaboratively to resolve them.

1130 Psi Chi/APA Edwin B. Newman Graduate Research Award: Lydia G. Roos

Practice Awards and Articles

1134 Award for Distinguished Professional Contributions to Applied Research: David C. Schwebel

1137 Why "Accidents" Are Not Accidental: Using Psychological Science to Understand and Prevent Unintentional Child Injuries
David C. Schwebel

"Accidents" are a leading cause of child death but most are preventable. This article discusses: (a) psychological factors that place children at risk for injuries and (b) how psychological science can change child behavior, change adult supervisor behavior, or change the environments children engage within to reduce risk of unintentional child injury.

1149 Award for Distinguished Professional Contributions to Independent Practice: Shane S. Bush

1151 Use of Practice Guidelines and Position Statements in Ethical Decision Making
Shane S. Bush

Ethics codes provide aspirational principles and enforceable standards. Despite the value of ethics codes, psychologists commonly need additional and more specific guidance for establishing and maintaining ethical practices in specific professional contexts and specialties. This article illustrates ways in which practice guidelines and position statements complement ethics codes and facilitate ethical decision making

1164 Award for Distinguished Professional Contributions to Institutional Practice: Daniel Holland

1167 Activism and Human Rights for People With Mental Disabilities in Postcommunist Europe
Daniel Holland

People with mental disabilities in communist Central and Eastern Europe faced significant challenges due to an entrenched institutional infrastructure and virtually no protection of their personal sovereignty. The post-communist period permitted, for the first time, opportunities for disability activists to promote human rights and community living for those with mental disabilities in this region of the world. This article describes that eventful period.

1179 APA/APAGS Award for Distinguished Graduate Student in Professional Psychology: K. Chinwe Idigo

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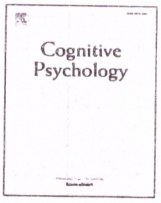

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0010-0285(202002)116:C;1-L

(16) 06/1/2020

Founded: 1932

ISSN: 0011–3891

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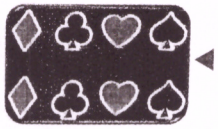

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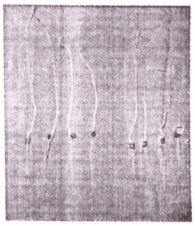

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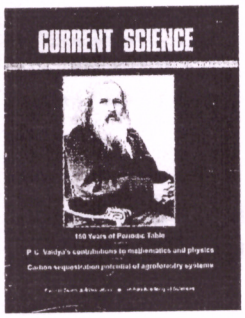

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The editor thanks Dr E. Arunan (Department of Inorganic and Physical Chemistry, Indian Institute of Science, Bengaluru) for agreeing to be Guest Editor for special section.

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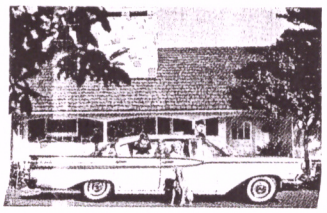

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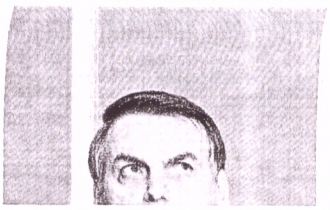

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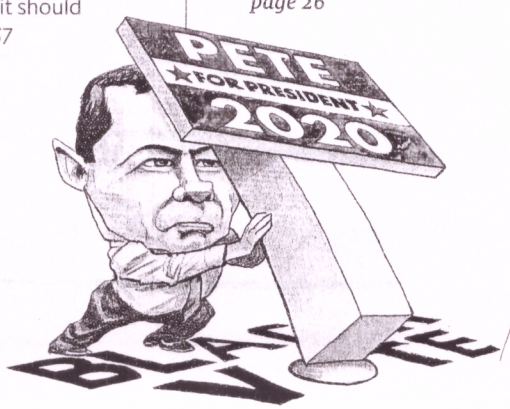

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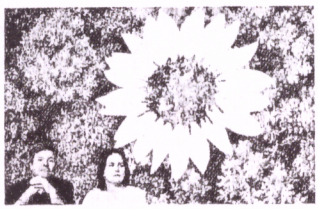

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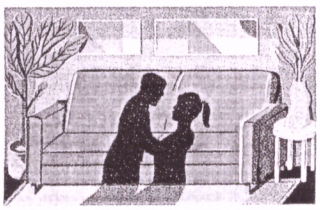

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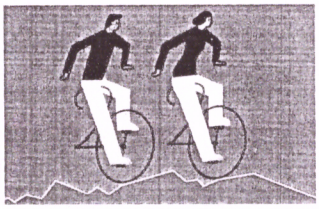

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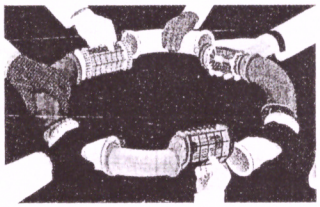

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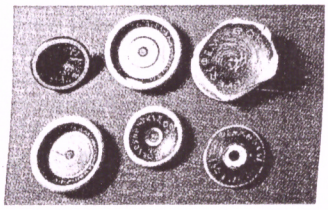

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Published since September 1843
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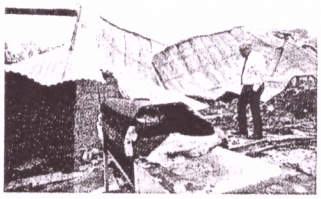

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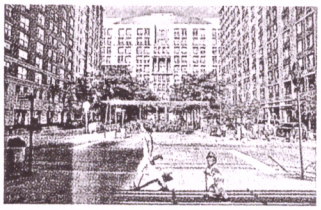

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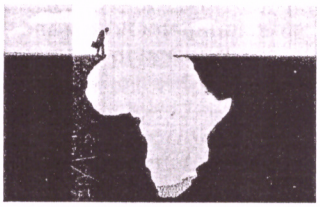

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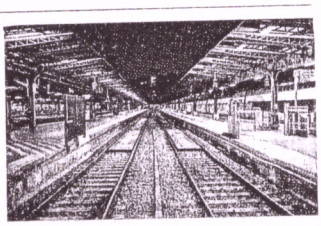

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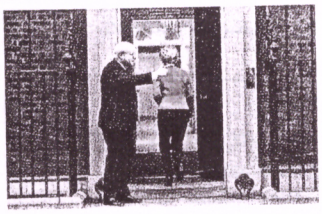

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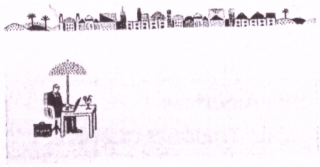

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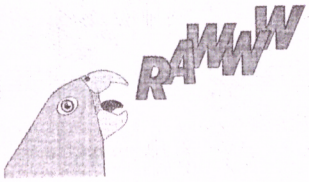

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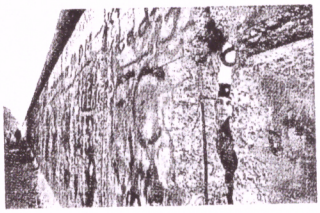

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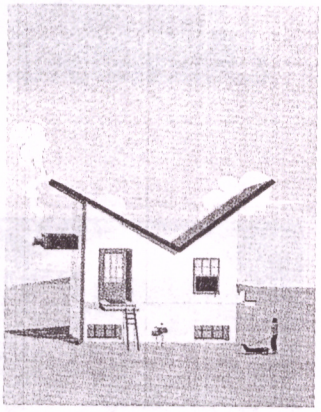

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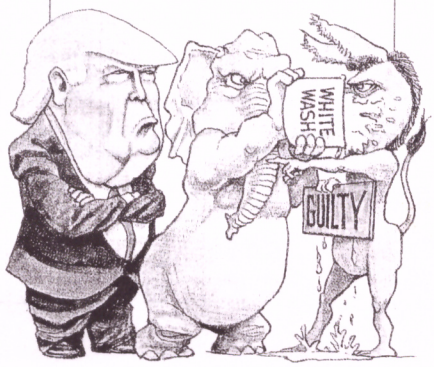

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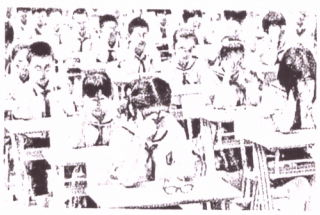

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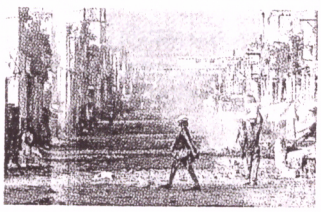

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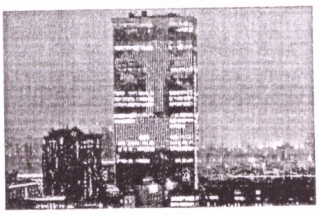

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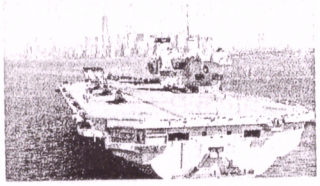

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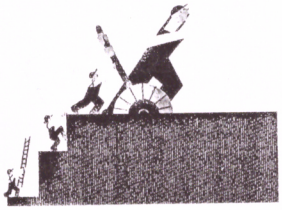

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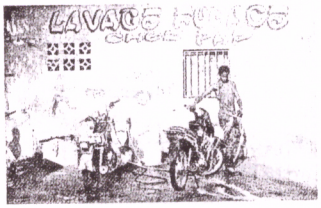

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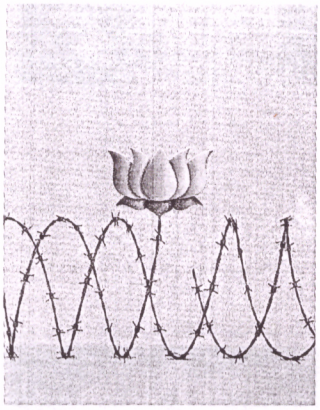

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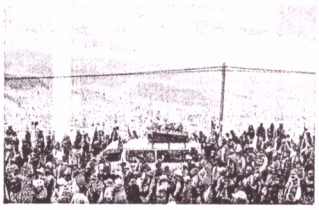

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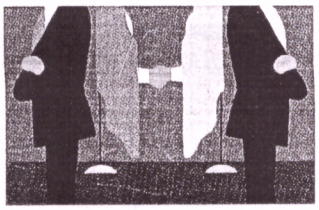

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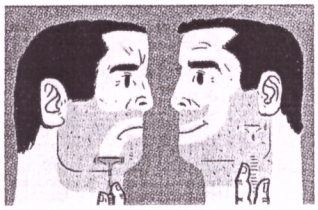

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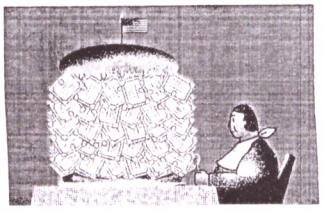

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*Accepted under the editorship of Joshua Cowen, Cassandra Guarino, Spyros Konstantopoulos, and Peter Youngs

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03/11/2020

Educational Psychologist

Official Publication of the
Division of Educational Psychology of the
American Psychological Association

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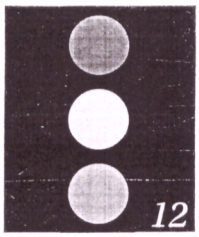

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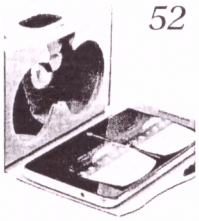

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OXFORD
UNIVERSITY PRESS

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Indian Literature

Sahitya Akademi's Bimonthly Journal

No. 313 September/October 2019
Vol. LXIII No. 5

Editorial Office:
Sahitya Akademi, Rabindra Bhavan,
35, Ferozeshah Road, New Delhi-110001.

All original, unpublished submissions should be sent to indianlit@sahitya-akademi.gov.in

Cover Paintings: Suwagmoni Saikia

In India inclusive of mailing: single copy, one hundred rupees; one year (six issues) five hundred rupees; three years (eighteen issues) one thousand three hundred rupees. *Abroad by airmail:* single copy, fifteen US dollars; one year (six issues) seventy five US dollars; three years (eighteen issues) two hundred US dollars. *Abroad by seamail:* single copy, six US dollars; one year (six issues) thirty two US dollars; three years (eighteen issues) ninety US dollars.

Send your subscription to Sahitya Akademi, Sales Section, 'Swati,' Mandir Marg, New Delhi 110001. Ph: 011-23745297, 23364204 • 4 D L Khan Road, (Near SSKM Hospital), Kolkata 700025 • Central College Campus, Dr. B.R. Ambedkar Veedhi, Bengaluru 560001 • 172, Mumbai Marathi Granth Sangrahalaya Marg, Dadar, Mumbai 400014 • Main Building, Guna Buildings (Second Floor), 443 (304), Anna Salai, Teynampet, Chennai 600183.

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Published by K. Sreenivasarao, Secretary, Sahitya Akademi, Rabindra Bhavan, 35, Ferozeshah Road, New Delhi-110001, India and printed by him at Wellwish Printers, P/P-5 Maurya Enclave, Delhi-110034.

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IMPRESSIONS, EXPRESSIONS

The Swedish Academy selecting Austrian writer Peter Handke as the winner of the Literature Nobel this year has left the writers and readers of the world vertically divided. While one side argues that whatever the political beliefs or public utterances and discourses the author in question indulges in, only the text/s that won the Prize should be taken into account and nothing that is extraneous to it should be considered, the other side seems to imply that the man is the text — his writings, public utterances, political stances and every aspect of his personality included. In Peter Handke's case, his originality and poetic gifts are not in question — even his detractors admit that his creative power is enormous. But when the mind which hums as a dynamo of creation also strives to maintain absolute silence on the genocide in Srebrenica and to exonerate Slobodan Milosevic, the normal world is outraged. The Bosnian-German author Sasa Stanisic, who recently won the prestigious German Book Prize for his novel *Herkunft*, said in his acceptance speech, as reported in *Foreign Policy*, "I had the luck of escaping that which Peter Handke doesn't describe in his texts," in an obvious reference to Handke's apparent silent approval of the actions of Milosevic. *The Spiegel* further reports that Handke wrote a text on Visegrad (Stanisic's hometown which had suffered untold violence under Milosevic), which Stanisic commented on in his book prize speech, because Handke relativizes crime in it. Stanisic says: "In his text, Handke writes about 'militias who cannot have barefoot committed the crimes they have committed.' He does not mention these militias and their militia leader, who is called Milan Lukic and (is) a lifelong liar, for crimes against humanity, he does not mention the victims, he says it is impossible for these crimes to happen, but they have happened. I am so shocked that something like this is awarded." Stanisic stresses that Handke's treatment denies that the genocide ever happened. Another authentic literary voice in this context, the Bosnian-American writer Aleksandar Hemon, asserts that what Handke embarked upon was "a literary project whose value should dissolve like a body in acid before the magnitude of crimes its author repeatedly denied and thus endorsed." The credibility of the Nobel Committee is shot to smithereens by Slavoj Žižek, the internationally famous philosopher, who told *The Guardian*, "In 2014, Handke called for the Nobel to be abolished, saying it was a 'false canonisation' of literature. The fact that he

Indian Literature

Sahitya Akademi's Bimonthly Journal

No. 314. November/December 2019
Vol. LXIII No. 6

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Published by K. Sreenivasarao, Secretary, Sahitya Akademi, Rabindra Bhavan, 35, Ferozeshah Road, New Delhi-110001, India and printed by Wellwish Printers, P/P-5 Maurya Enclave, Delhi-110034.

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Convenience Store Woman is a slim novel of 163 pages by the Japanese novelist Sayaka Murata published in 2016. Of her ten novels, this is the first one to be translated into English. I read this novel at the suggestion of one of our former editors, Sri Nirmal Kanti Bhattacharjee, who said this book was making waves around the world. A record 6,66,000 copies of the Japanese original have been sold, and it won Japan's most prestigious literary award, the Akutagawa Prize; this novel in English translation has been on the *Los Angeles Times* best-seller list.

Keiko Furukura, the protagonist, had behaved very oddly at times as a child. For example, when she and her mother were sitting in a park, the child came upon a small, pretty bird which was dead. She carried it to her mother, who felt pity for it and suggested that they should dig a small grave and bury it. But all those soft feelings were lost on Keiko, who said to the horror of the mother that they could grill and eat it because her dad loved yakitori (a kind of tikka). Keiko could never understand why her mother was so appalled; thinking that it was because one was too little, she suggested that there were a few other birds strutting about, and they could catch them and grill them all! On another occasion, some boys of her class were making a ruckus; the teacher exclaimed that someone should stop them. Keiko picked up a spade lying nearby and whacked one across the head one of the boys, and they stopped their quarrel! She was absolutely pragmatic about it and not at all emotional or excited; it never occurred to her that it was wrong to resort to violence—in fact, she expected the teacher to congratulate her! Her mother was called to the school and given a talking to; at that point, she realized that she must have done something amiss, but she could not understand why they thought she was wrong. In another instance, their young class teacher became hysterical over some issue and yelled, striking the desk with a thick register. As Keiko thought that she was not going to stop her yelling, she walked up to the teacher and yanked down her skirt and knickers! When asked why she did so, Keiko said she had seen on TV how a grown up woman who was all worked up had been treated the same way, and she had calmed down! Anyway, the adults around Keiko then told her not to open her mouth, which she religiously followed from then on and went completely silent, so much so that she never spoke a word in school or at home which was not absolutely necessary. So, her

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International Journal of Educational Research

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Website: http://www.elsevier.com/locate/ijedures

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ELSEVIER

0883-0355(2019)94:C;1-0

Indexed/Abstracted in *Aus. Educ. Indx;* Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®

LOC 77-81507

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Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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International Journal of Educational Research

Vol. 95 May 2019

Website: http://www.elsevier.com/locate/ijedures

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0883-0355(2019)95:C;1-N

Indexed/Abstracted in *Aus. Educ. Indx;* Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®

LOC 77-81507

95 1–236 (2019)

Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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0883-0355(2019)96:C;1-M

Indexed/Abstracted in
Aus. Educ. Indx;
Also covered in the abstract and citation database Scopus®.
Full text available on ScienceDirect®
LOC 77-81507
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Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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ELSEVIER

0883-0355(2019)97:C;1-L

Indexed/Abstracted in
Aus. Educ. Indx;
Also covered in the abstract and citation database Scopus®.
Full text available on ScienceDirect®
LOC 77-81507
97 1–212 (2019)

Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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ELSEVIER

0883-0355(2019)98:C;1-K

Indexed/Abstracted in *Aus. Educ. Indx;* Also covered in the abstract and citation database Scopus®. Full text available on ScienceDirect®

LOC 77-81507

98 1-394 (2019)

Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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Educational Psychology®

January 2020

Volume 112
Number 1

www.apa.org/pubs/journals/edu

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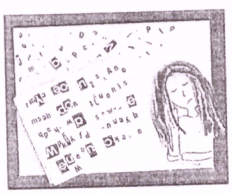

About the Artist: Natalie A. Smith is 14 years old and in the ninth grade. She created this artwork, "Dyslexia," in her eighth-grade art class. Her teacher submitted her work to the Scholastic Art Awards in Connecticut. It was accepted, and Natalie won an award for her artwork depiction of having dyslexia. Her artwork was then on display as part of an exhibition in the Silpe Gallery at the Hartford Art School, University of Hartford, from January 14 through February 2, 2018. In November, at the national conference for the Council of Social Work Education, Natalie also assisted in a presentation, "Diagnosing Dyslexia: Social Workers Leading Inter-professional Education to Support Students with Dyslexia." Additionally, Natalie is assisting with a book to increase parent understanding of dyslexia.

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A study of Macao tertiary students' attitudes to issues in postcolonial Macao's language policy and planning

Xi Yan
Huaqiao University

This study focuses on Macao, a former Portuguese colony and a Special Administrative Region of the People's Republic of China after 1999. A questionnaire survey and semi-structured interviews were conducted in 2012 and 2013 respectively among freshmen of the University of Macau to investigate their attitudes to issues in Macao's language policy and planning (LPP). Findings of this study reflect their practical attitudes, as reflected in their attitudes towards the choice of English or Portuguese as the first foreign language in Macao public schools. At the same time, their attitudes also reflect their strong local allegiances and resistance to Mainland China's cultural practices, as reflected in their views on the issue of the official status of Putonghua in the Macao SAR, the choice of Putonghua or Cantonese as the medium of instruction, and the maintenance of traditional Chinese characters, written Cantonese, and Cantonese Romanization System in Macao.

Keywords: Macao, language attitudes, language policy and planning (LPP)

Introduction

After the Second World War, nation building of the newly independent nations gave a boost to language policy and planning (LPP). Their governments started thinking and implementing the strategies of nation building through language(s) (Fishman 1969; Stavans & Hoffmann 2015). Postcolonial societies may follow different paths of decolonization and different patterns of nationalism, and differ from each other in terms of the sociolinguistic situation. This study focuses on

https://doi.org/10.1075/lplp.00033.yan
Language Problems and Language Planning 43:3 (2019), pp. 241–261. issn 0272-2690 e-issn 1569-9889
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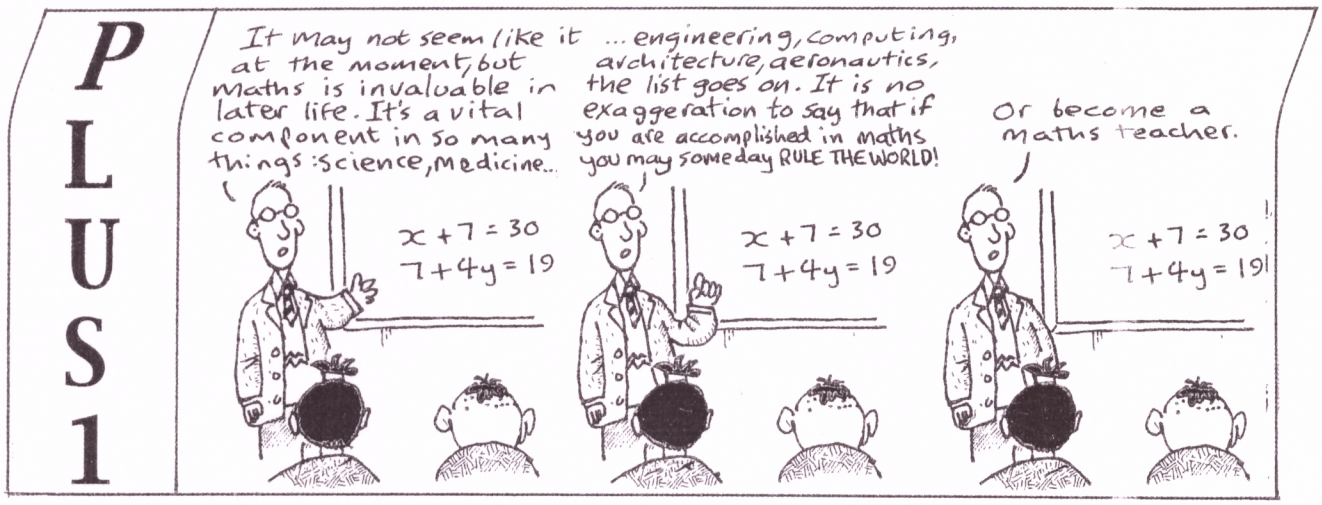

Plus 1 drawn by Harry Venning.

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

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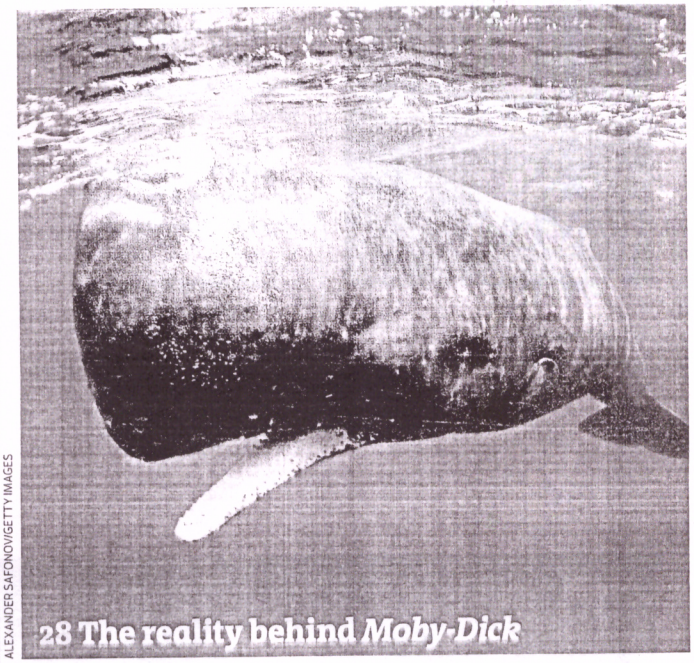

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Cover image: Francesco Ciccolella

Editor's note

MANY thanks to everyone who joined us for another four-day spectacular at New Scientist Live last weekend. As ever, the exhibits on the show floor were immense, but for me, the best bit is meeting our readers – and seeing the talks.

Some of the highlights are showcased on pages 8-10 and 31-33. To hear scientists describe their latest work – whether building liquid xenon detectors for dark matter, or using hot water to drill through the Antarctic ice sheet – is a thrill and a huge privilege.

Rock-star palaeoanthropologist Lee Berger was the standout for me. His story of discovering *Homo naledi* at the bottom of a suffocatingly narrow shaft in a cave in South Africa is one he tells brilliantly and with sparkling humour (see page 9). But every talk I went to inspired me.

After hearing Joe Pecorelli at the Zoological Society of London talk about the citizen science behind the return of eels and seahorses to the Thames, I feel so differently about the murky river that I walk past most days – for all that its crabs are now stuffed full of microplastics (see page 8).

We know that not all of you – our Australian and US readers for example – are able to make it to a show in London. We are working on this, but in the meantime, we did film all the stages this year, and we will put the talks online for subscribers as soon as we can.

For those of you within striking distance of London, please put 15-18 October next year into your diaries. We'll be doing it all again – just with barrel-loads more new science. *Emily Wilson*

New Scientist Live

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पुस्तकालय और प्रलेखन प्रभाग
डा० शे० अ० प्र० प०
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Welcome all to your bumper holiday edition of the magazine. I hope you will agree that we have stacked the treats pretty high this year, whether you are interested in runaway stars, a dodo mystery, an intimate history of roundabouts, mixing yourself a Pan Galactic Gargle Blaster... or simply in looking back over an extraordinary decade of science, technology and planetary change. I really hope you enjoy the issue and, on behalf of all the staff here, I would like to thank you, our very wonderful readers, for making *New Scientist* part of your lives.
Emily Wilson, Editor

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Want to discover the truth about diet and exercise?
Join us in London on 15 January for an evening exploring the facts behind the headlines. For more information visit: newscientist.com/science-events

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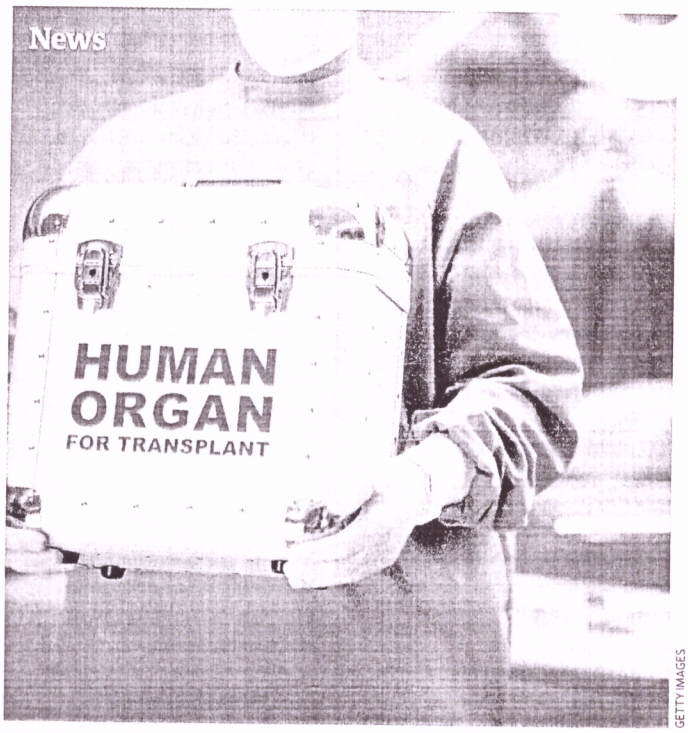

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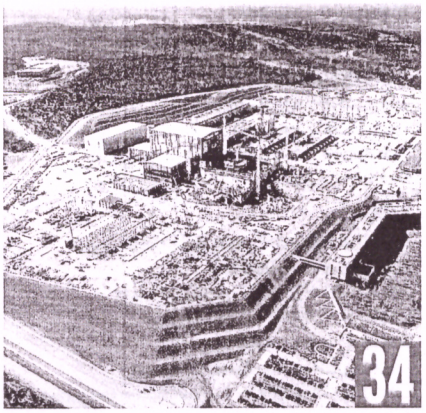

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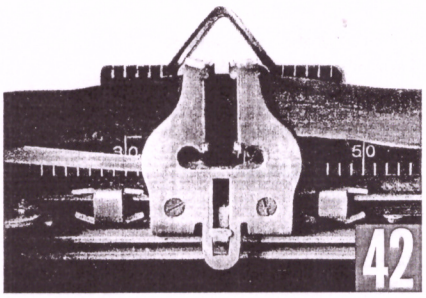
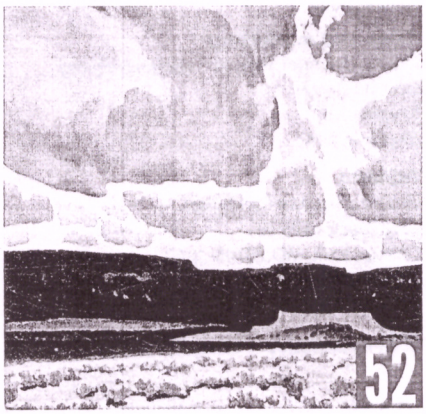
In 1953, as a political battle raged over the US's nuclear future, the eminent physicist lost a classified document, about the hydrogen bomb, on an overnight train from Philadelphia to Washington, DC.

52 Climate and weather in Physics Today

Charles Day

The magazine marks the centenary of the American Meteorological Society by looking back at how our coverage of meteorology has evolved.







ON THE COVER: This month the American Meteorological Society celebrates its 100th anniversary. PHYSICS TODAY's editor-in-chief, Charles Day, marks the momentous milestone, starting on **page 52**, by looking back at how the magazine has covered, or neglected to cover, progress in the science of climate and weather since the first issue was published in May 1948. (Detail from *Skyscape*, 1912, by Nicholas Roerich/Tretyakov Gallery, Moscow/Bridgeman Images.)

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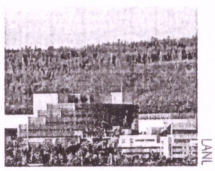

Secret physics

At Los Alamos National Lab, physicists Chris Fryer and Tess Light can pursue interdisciplinary research and take up tangential projects. But the secrecy around their work can get complicated. Sarah Scoles tells their stories to explore the advantages and drawbacks of a career in national security science.

physicstoday.org/Dec2019a



Quantum dots

To track pollen's movement between flowers, biologist Corneile Minnaar attached quantum dots to pollen and observed their fluorescence with a 3D-printed box that fits under a dissection microscope. Sarah Wild reports on how the method helped researchers probe an intriguing flower species.

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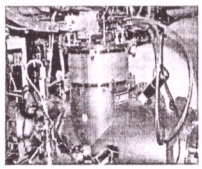

Proton radius

The charge radius of the proton was thrown into question in 2010, when an experiment yielded an unexpectedly small value of about 0.84 femtometers. A pair of experiments now confirm that measurement. PHYSICS TODAY's Heather Hill explains whether the results settle the decade-old mystery.

physicstoday.org/Dec2019c

PHYSICS TODAY (ISSN 0031-9228, coden PHTOAD) volume 72, number 12. Published monthly by the American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Periodicals postage paid at Huntington Station, NY, and at additional mailing offices. POSTMASTER: Send address changes to PHYSICS TODAY, American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Views expressed in PHYSICS TODAY and on its website are those of the authors and not necessarily those of AIP or any of its member societies.

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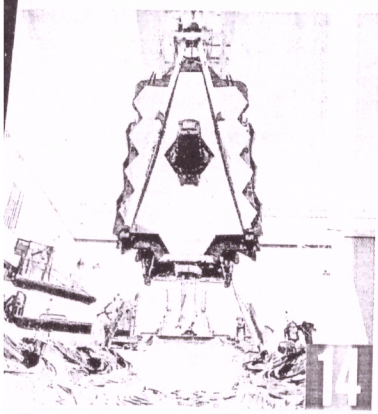

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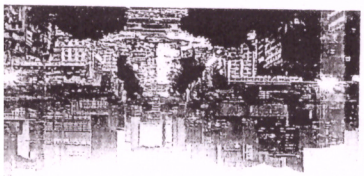

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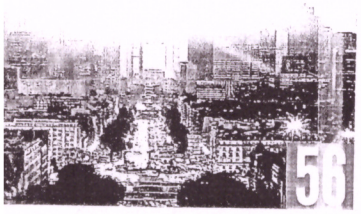

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Senior director of news & magazines
Larry Fishbein *lfishbein@aip.org*

Editor-in-chief
Charles Day *cday@aip.org*

Managing editor
Richard J. Fitzgerald *rjf@aip.org*

Art and production
Donna Padian, art director
Freddie A. Pagani, art and production associate
Cynthia B. Cummings, photographer
Nathan Cromer

Editors
Melinda Baldwin *mbaldwin@aip.org*
Toni Feder *tf@aip.org*
Martha M. Hanna *mmh@aip.org*
Heather M. Hill *hhill@aip.org*
David Kramer *dk@aip.org*
Alex Lopatka *alopatka@aip.org*
Christine Middleton *cmiddleton@aip.org*
Johanna L. Miller *jlm@aip.org*
Gayle G. Parraway *ggp@aip.org*
R. Mark Wilson *rmw@aip.org*

Online
Paul K. Guinnessy, director *pkg@aip.org*
Andrew Grant, editor *agrant@aip.org*
Angela Dombroski *atd@aip.org*
Greg Stasiewicz *gls@aip.org*

Assistant editor
Cynthia B. Cummings

Editorial assistant
Tonya Gary

Contributing editors
Rachel Berkowitz
Andreas Mandelis
Allison Rein

Sales and marketing
Christina Unger Ramos *cunger@aip.org*
Unique Carter
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Address
American Center for Physics
One Physics Ellipse
College Park, MD 20740-3842
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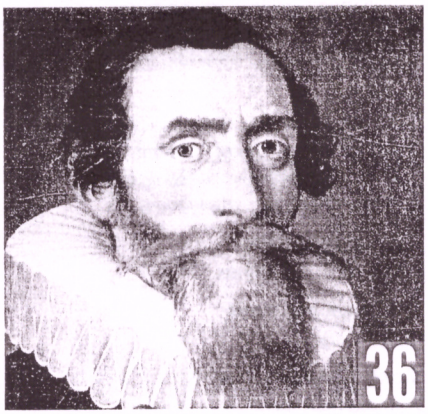

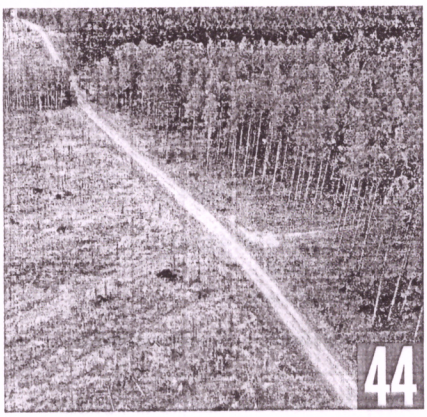

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The great astronomer linked the speed of planetary orbits to musical scales—and to the harmonious interaction of humans on Earth during a time of religious warfare.

44 Negative carbon dioxide emissions

David Kramer

As the world continues to spew carbon dioxide at record levels, it's becoming clear that emissions reductions alone can't prevent the greenhouse gas from rising to dangerous levels.



ON THE COVER: Carbon dioxide emissions are expected to reach record levels this year, even as the need for dramatic reductions is becoming more obvious. Beginning on **page 44**, PHYSICS TODAY's news editor David Kramer reviews some of the ways to remove CO_2 directly from the atmosphere. Shown here is a Climeworks plant that uses direct air capture. The Swiss company is the first to commercially deploy the technology. (Photo courtesy of Climeworks.)

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D. PADIAN/F. PAGANI/C. CUMMINGS



Best of 2019

Take a look at PHYSICS TODAY's most popular stories from last year, including several that can be found only online. Topics include a baffling crystal that melts at two different temperatures and an explanation of why Mercury is, on average and most frequently, the nearest planet to Earth.
physicstoday.org/Jan2020a

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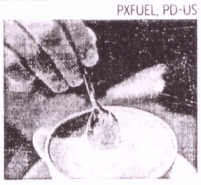

Sound of solutes

Recently a research team was able to distinguish between sand from different beaches by analyzing the sound of a stirrer mixing the samples into an acidic solution. David Adam explains how a cup of hot chocolate led to the development of a technique that characterizes solids via acoustic measurements.
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NOAA



5G and weather

In November an international delegation agreed on an emission standard for 5G telecommunication networks operating at 24 GHz. PHYSICS TODAY's Alex Lopatka reports that many meteorologists think the new limits aren't strict enough to avoid contaminating the data collected by moisture-tracking weather satellites.
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PHYSICS TODAY (ISSN 0031-9228, coden PHTOAD) volume 73 number 1. Published monthly by the American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Periodicals postage paid at Huntington Station, NY, and at additional mailing offices. POSTMASTER: Send address changes to PHYSICS TODAY, American Institute of Physics, 1305 Walt Whitman Rd, Suite 300, Melville, NY 11747-4300. Views expressed in PHYSICS TODAY and on its website are those of the authors and not necessarily those of AIP or any of its member societies.

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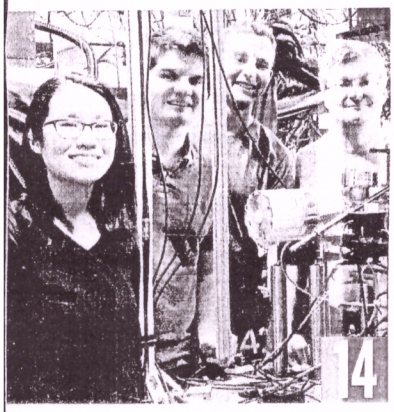

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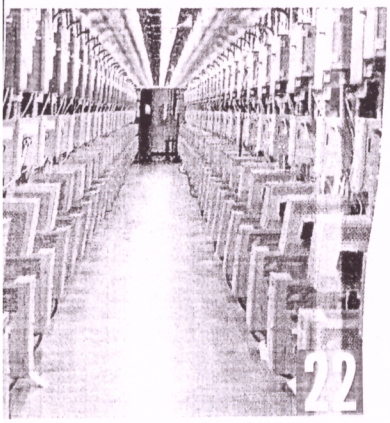

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Melinda Baldwin *mbaldwin@aip.org*
Toni Feder *tf@aip.org*
Martha M. Hanna *mmh@aip.org*
Heather M. Hill *hhill@aip.org*
David Kramer *dk@aip.org*
Alex Lopatka *alopatka@aip.org*
Christine Middleton *cmiddleton@aip.org*
Johanna L. Miller *jlm@aip.org*
Gayle G. Parraway *ggp@aip.org*
R. Mark Wilson *rmw@aip.org*

Online
Paul K. Guinnessy, director *pkg@aip.org*
Andrew Grant, editor *agrant@aip.org*
Angela Dombroski *atd@aip.org*
Greg Stasiewicz *gls@aip.org*

Assistant editor
Cynthia B. Cummings

Editorial assistant
Tonya Gary

Contributing editor
Andreas Mandelis

Sales and marketing
Christina Unger Ramos *cunger@aip.org*
Unique Carter
Krystal Dell
Skye Haynes

Address
American Center for Physics
One Physics Ellipse
College Park, MD 20740-3842
+1 301 209-3100
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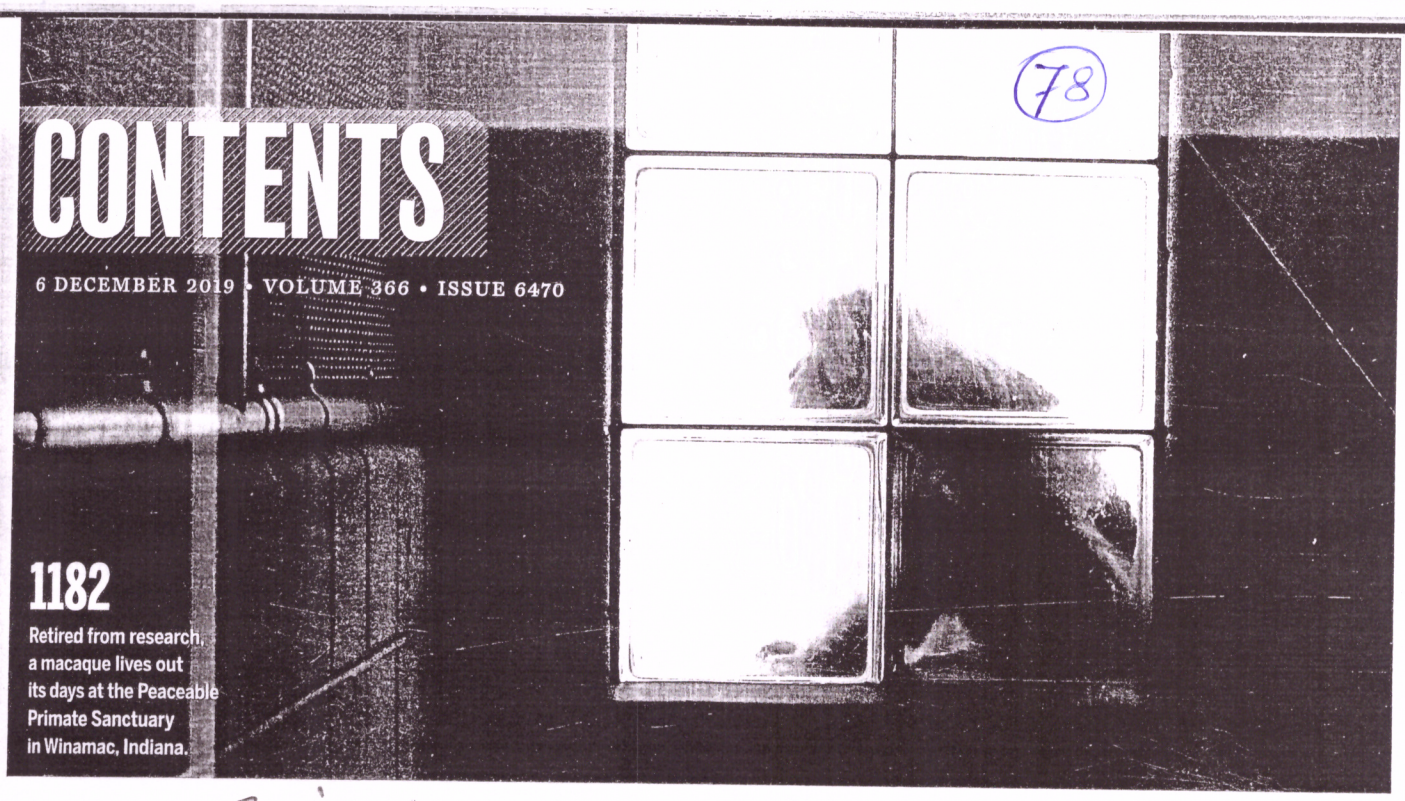

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PHOTO: ALYSSA SCHUKAR

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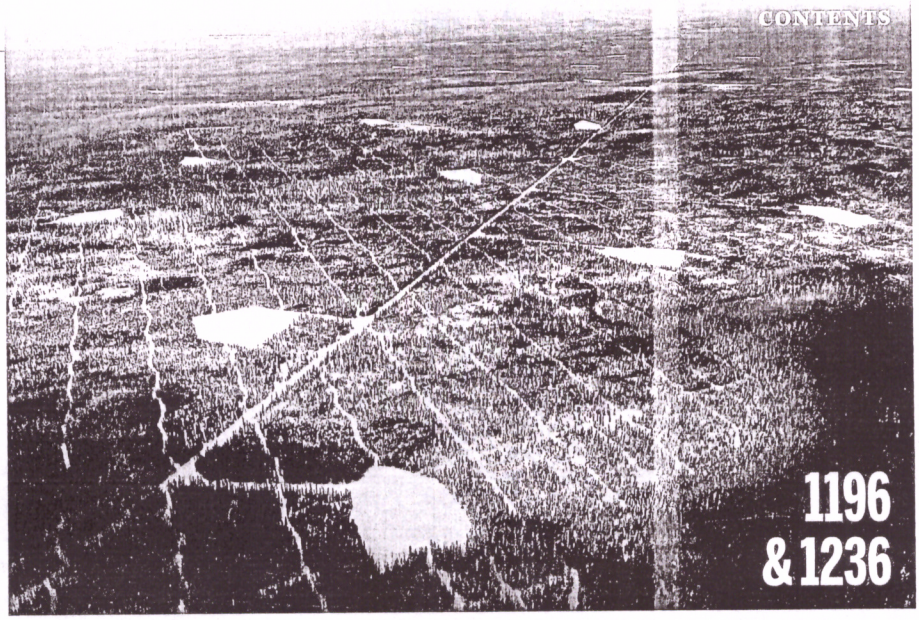

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SCIENCE (ISSN 0036-8075) is published weekly on Friday, except last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2019 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): $165 ($74 allocated to subscription). Domestic institutional subscription (51 issues): $1971; Foreign postage extra: Mexico, Caribbean (surface mail) $55; other countries (air assist delivery): $98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #125488122. Publications Mail Agreement Number 1069024. **Printed in the U.S.A.**
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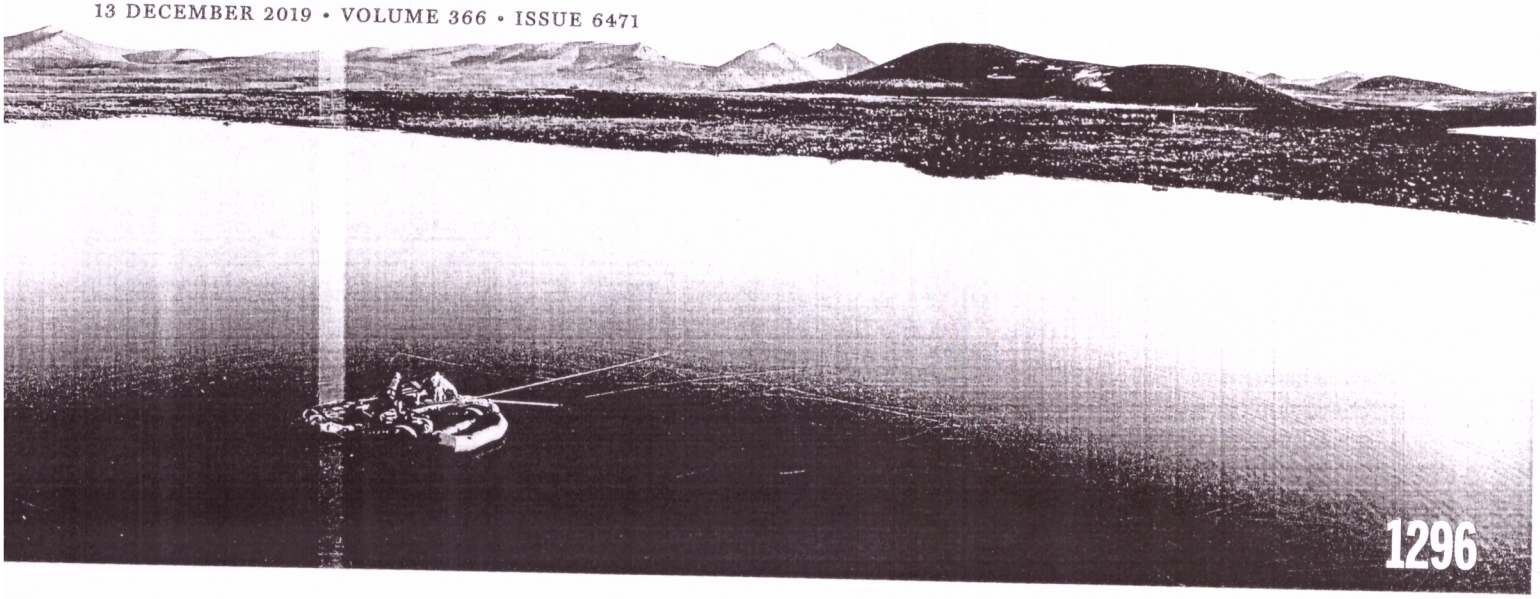

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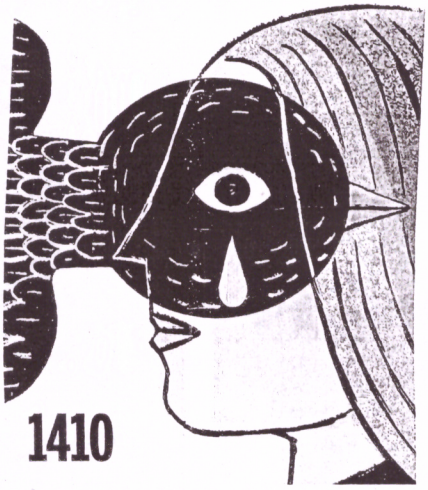

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Gigantism evolved multiple times in the oceans, especially among filter-feeding organisms. Baleen whales, such as this humpback whale, represent the most recent radiation of gigantic filter feeders and rank among the largest animals ever. Researchers used direct measures of feeding performance and prey quality to determine the energetic drivers and limits that whales encounter at extremely large body sizes. See pages 1316 and 1367. *Photo: Karim Iliya*

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SCIENCE (ISSN 0036-8075) is published weekly on Friday, except last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2020 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): $165 ($74 allocated to subscription). Domestic institutional subscription (51 issues): $2148; Foreign postage extra: Air assist delivery: $98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #125488122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. **Change of address:** Allow 4 weeks, giving old and new addresses and 8-digit account number. **Postmaster:** Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090–6178. **Single-copy sales:** $15 each plus shipping and handling available from backissues.sciencemag.org; bulk rate on request. **Authorization to reproduce** material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act can be obtained through the Copyright Clearance Center (CCC), www.copyright.com. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

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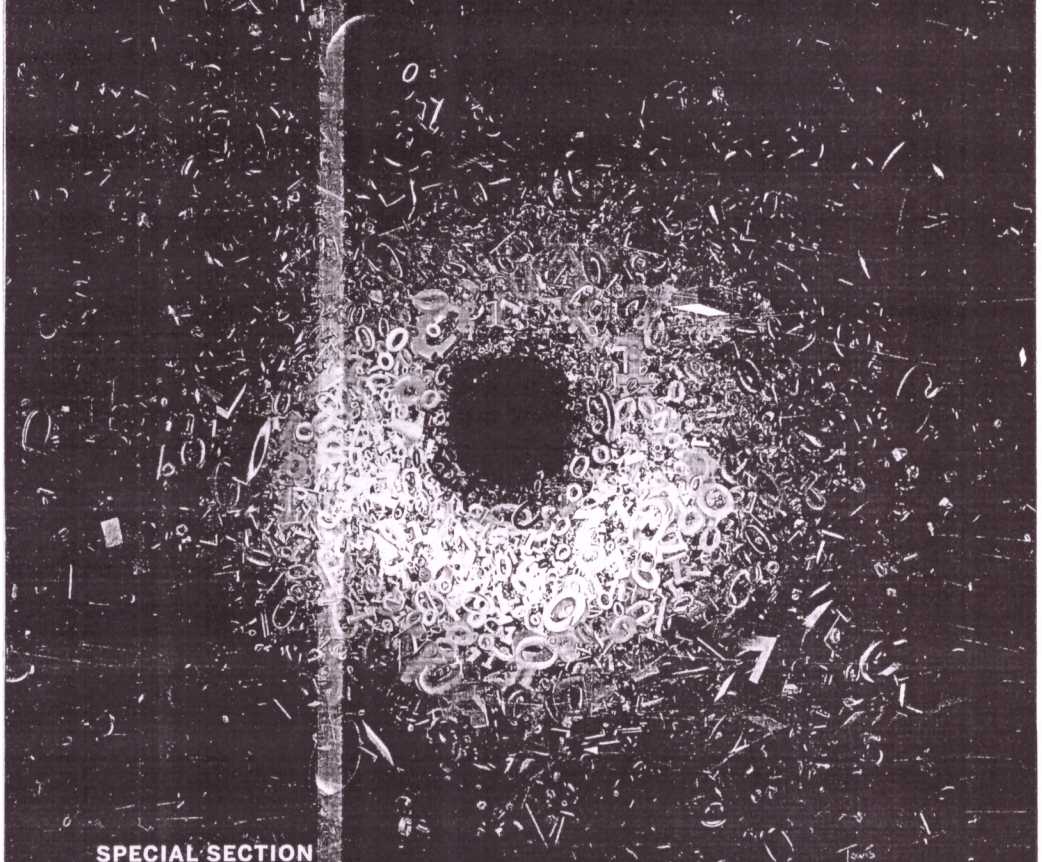

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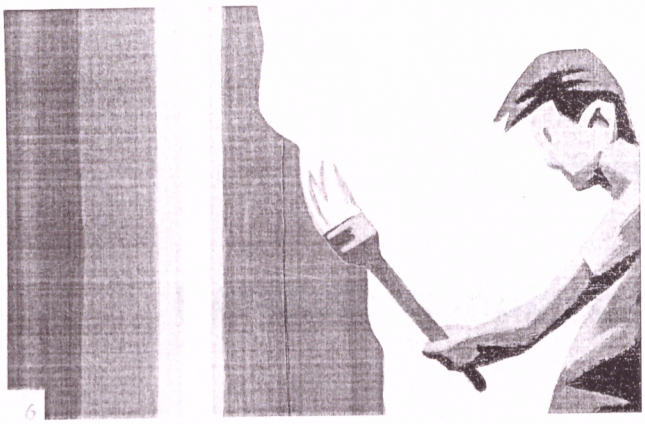



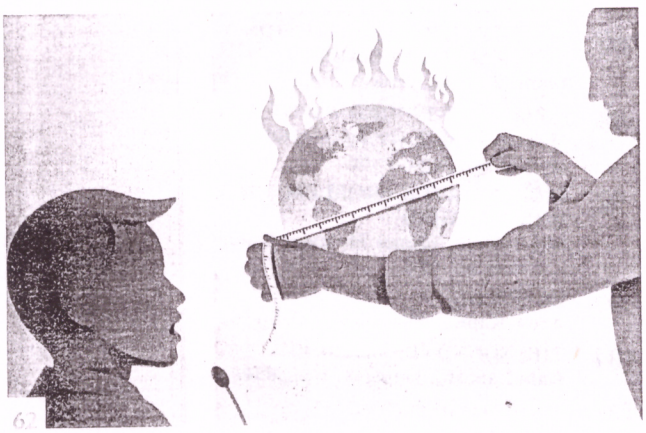

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Scientific American (ISSN 0036-8733), Volume 322, Number 1, January 2020, published monthly by Scientific American, a division of Nature America, Inc., 1 New York Plaza, Suite 4600, New York, N.Y. 10004-1562. Periodicals postage paid at New York, N.Y., and at additional mailing offices. Canada Post International Publications Mail (Canadian Distribution) Sales Agreement No. 40012504. Canadian BN No. 127387652RT; TVQ1218059275 TQ0001. Publication Mail Agreement #40012504. Return undeliverable mail to Scientific American, P.O. Box 819, Stn Main, Markham, ON L3P 8A2. **Individual Subscription rates:** 1 year $49.99 (USD), Canada $59.99 (USD), International $69.99 (USD). **Institutional Subscription rates:** Schools and Public Libraries: 1 year $84 (USD), Canada $89 (USD), International $96 (USD). Businesses and Colleges/Universities: 1 year $399 (USD), Canada $405 (USD), International $411 (USD). Postmaster: Send address changes to Scientific American, Box 3187, Harlan, Iowa 51537. **Reprints inquiries: (212) 451-8415. To request single copies or back issues, call (800) 333-1199. Subscription inquiries: U.S. and Canada (800) 333-1199; other (515) 248-7684. Send e-mail to scacustserv@cdsfulfillment.com.**

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0742-051X(201811)76;1-S

ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

ISSN 0742-051X
76 1–308 (2018)

Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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TEACHING AND TEACHER EDUCATION

An International Journal of Research and Studies

Website: http://www.elsevier.com/locate/tate/

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ELSEVIER

ISSN 0742-051X
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Volume 77

(91)

Jan. 2019

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An International Journal of Research and Studies

Website: http://www.elsevier.com/locate/tate/

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ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

0742-051X(201901)77:1-P

ISSN 0742-051X
77 1–390 (2019)

Printed by CPI Antony Rowe, Pegasus Way, Melksham, UK

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TEACHING AND TEACHER EDUCATION

An International Journal of Research and Studies

Website: http://www.elsevier.com/locate/tate/

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UNIVERSITY NEWS

Vol. 57 December 23-29,
No. 51 2019
Price Rs. 25.00

A Weekly Journal of Higher Education Published by the Association of Indian Universities

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Subscription is payable in advance by Bank Draft/MO only in favour of Association of Indian Universities, New Delhi.

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the views and policies of the Association.

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Valuable Value Framework

Dhanappa M Metri*

The National Assessment and Accreditation Council (NAAC) has been initiated in India to make the Higher Education System qualitative. The Quality rating agency is essential amidst one of the third largest fast expanding systems with the responsibility of educating its fifty percent young population. Higher Education Stakeholders seriously following the quality lessons by the NAAC in the quality enhancement journey, definitely have the feelings; "Adaptability thy name is NAAC!" The quality assessing and grading agency has been adding the new quality concepts and criteria to the accreditation procedure since its inception in 1994. The agency has added educational jargons and the Indian stake holders are still struggling to comprehend their clear conceptual meaning. The stakeholders' perfect knowledge of all criteria, key aspects, the concept of best practice, right meaning and the pronunciation of the terms like *alumni* and *alma mater*is rare in majority of the cases. The initial institutes volunteering for the self-academic audit are now in the third and the fourth cycle. Many IQAC clusters are trying their best to strengthen the quality concepts.

The financial gain of grants and the academic autonomy are now attached to the institutional accreditation status. Technology is turning the entire process transparent. Barring a few individuals and the institutes, we are still far away from the appreciation mode of the accreditation of the institution by an external agency. Ritualization of the accreditation process in majority cases is rampant when it should have been a spiritualized academic endeavor. Amidst the rejection mode due to quality illiteracy and failure of Total Quality Management the system is very slow in its evolving. When we should have success stories of changing the destiny of the nation through quality higher education, we still have National level workshops to learn the new manuals which are slight modification of the original quality concepts by the NAAC. We still take it like a rote examination where one scores with tactful answers and the experts in this process are much in demand when every stakeholder should be quality literate along with at least a few quality domain experts in every institute. Very few institutes have the spiritual approach of understanding the quality concepts and applying them religiously.

Understanding the core values is indispensable first challenge in the way of understanding the quality journey the NAAC has provided. However, comprehension of the Value Framework, a classic presentation of the expectations from the third largest Indian Higher Education system has remained limited to the understanding of only committed IQAC coordinators and the few interested stakeholders in many institutes. Understanding the framework is equal to understanding the soul of quality higher education and the institutional academic identity. Decoding the document and fine tuning the

*Vice Principal, Sangameshwar College, Solapur-413001 (MS).
metri_dmm@yahoo.com

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UNIVERSITY NEWS

Vol. 57 December 30, 2019
No. 52 January 05, 2020
Price Rs. 25.00

A Weekly Journal of Higher Education Published by the Association of Indian Universities

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Subscription is payable in advance by Bank Draft/MO only in favour of Association of Indian Universities, New Delhi.

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Towards Best Teaching-learning Practices in Indian Higher Education

Mariamma A Varghese*

Quality of Higher Education is highly dependent on the quality of curricular transactions. This is primarily done through teaching, learning processes. It deals with the efforts of the institution to serve students of different backgrounds and abilities through effective teaching –learning experiences. Learning centered education is the key to effective learning system. This includes the nature of the program, the processes of learning and teaching, how they are designed and delivered, technology requirements, teacher requirements, the facilitating role of teachers, student involvement in learning, the use of computer aided and web based learning, and flexibility of learning with reference to time, place and capability. In all aspects of knowledge management, learning centered process is expected to maximize the student success because of their active involvement and learning. Use of appropriate technology and teacher quality, teacher student ratio are important indicators in this respect. Interactive instructional techniques that engage students in higher order thinking and investigation through the use of interviews, focused group discussions, debates, projects, presentations, experiments, practicum, internship and use of e- resources are important considerations. It also probes into the adequacy and competence of the faculty who handle the programs of study as well as their continuous professional development. Evaluation is an essential part of teaching learning process and hence the effectiveness of the system needs to be probed into.

Focus on Future Teaching -learning Processes

According to NAAC, the focus of Teaching, Learning should be through the following features:

- catering to individual differences among learners,
- facilitating effective operation of the teaching, learning,
- a well-conceived plan for monitoring student progress continuously,
- evaluation procedures should be rigorous and fair,
- efficient mechanism to recruit qualified and adequate faculty,
- provide opportunity for continued academic progress and professional development for faculty.

In Teaching-learning Process, the future focus should be on Experiential Learning Methodologies for Participative Learning, by making use of Educational Technology, Problem Solving Approach, Computer-aided Information Retrieval by students and staff, Use of Library Resources, Use of Laboratory Equipment/field experiences

*Former Vice Chancellor, SNDT Women's University, Former Senior Consultant, National Assessment and Accreditation Council, Res: 12, Prestige, Dorchester Jakkur, Bangalore-560064 (Karnataka). drmavarghese@gmail.com

06/1/2020