APCG 2026

UBT
جامعة الأعمال و التكنولوجيا
UNIVERSITY OF BUSINESS AND TECHNOLOGY

The 19th Asia-Pacific Conference on Giftedness

Conference Proceedings

University of Business and Technology UBT
Jeddah, Saudi Arabia
7 - 11 February 2026

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The 19th Asia-Pacific Conference on Giftedness (APCG) 2026

About the Conference

The 19th Asia-Pacific Conference on Giftedness 2026 (APCG 2026) is a global platform dedicated to rethinking the future of gifted education. Organized by the **Asia-Pacific Federation on Giftedness (APFG)**, APCG is a biennial conference that has, since its inception in 1990, brought together educators, researchers, policymakers, and institutions from across the world to advance dialogue, research, and practice in gifted and talented education.

Hosted in cities across the Asia-Pacific region; including Manila, Taipei, Seoul, Singapore, Sydney, Dubai, Bangkok, Beijing, and most recently Takamatsu, Japan (2024)—APCG 2026 marks a significant milestone as the conference convenes in **Jeddah, Saudi Arabia**, for the first time. Building on more than three decades of legacy, APCG 2026 invites bold thinking, shared responsibility, and collective action to shape how giftedness will be identified, nurtured, and sustained toward 2050.

Key highlights of APCG 2026 include:

- 15 Inspiring Keynote Sessions
- 25 Symposiums & Panel Discussions
- 12 Pre-Conference Workshops
- 150+ Scientific Paper Presentations
- GenAI Youth Summit
- Gifthone: Hackathon on Educational Innovation
- Launch of the world's first Global Giftedness Index
- Global Networking Opportunities
- Cultural Activities: Exploring Jeddah & Saudi Arabia

APCG continues to unite a global community of educators, researchers, and thought leaders to shape the future of gifted education in the Asia-Pacific region and beyond**.**

APCG2026 Conference Theme

"Fast Forward: Building a Better Future for Gifted Education 2050"

At its heart, APCG 2026 is a call to reimagine gifted education in a world that is constantly evolving. With challenges like globalization, emerging technologies, and increasing diversity, the need for adaptable and inclusive approaches has never been more urgent.

The conference will focus on four critical themes:

- **Increased Diversity in Gifted Education:** Adapting to the growing diversity in the gifted population.
- **Personalized Learning Pathways:** Creating tailored educational experiences for every gifted learner.
- **Support for Twice-Exceptional (2e) Learners**: Enhancing support for gifted students with unique challenges.
- **21st- Century Workforce:** Preparing gifted students to thrive in a dynamic global economy.

With keynote addresses, research symposiums, and collaborative dialogues, the conference promises both theoretical depth and practical impact.

APCG 2026 brings together educators, researchers, practitioners, and policy experts from around the world, united by the conference's central theme, *"Fast Forward: Building a Better Future for Gifted Education 2050."*

APCG2026 Conference Venue

The University of Business and Technology (UBT), Jeddah, Saudi Arabia

About UBT

Since its establishment in 2000, the University of Business and Technology (UBT) has been a pioneer in private higher education, providing undergraduate and graduate programs that are responsive to current and future market needs. With four diverse colleges in the fields of Business Administration, Engineering, Advertising, and Law and over 60 programs and tracks, UBT is dedicated to offering quality education that is transformative in nature – This means the university is value-driven, market-oriented, and focused on delivering a learning experience that empowers students to thrive.

UBT serves over 5,000 students across 28 undergraduate and graduate programs and has proudly graduated more than 12,000 individuals. Many of its alumni now hold leadership positions both in Saudi Arabia and internationally. As a leading institution in Saudi Arabia's private education sector, UBT fosters a dynamic environment for innovation and collaboration, complemented by state-of-the-art facilities designed to host impactful events such as APCG 2026.

Vision

To be a leading university at the national level and internationally recognized in the field of education and research for the advancement of society.

Mission

To contribute to society through the pursuit of high-quality market-driven undergraduate and graduate programs and executive education that prepare competent professionals, future leaders, and entrepreneurs, and research with tangible impact on the economy and community.

APFG Executive Committee

- **Prof. Kyungbin Park** (President, Professor Gachon University, South Korea)
- **Prof. Ching-Chih Kuo** (Immediate Past President, Professor at National Taiwan University, Taipei, Taiwan)
- **Prof. Jae Yup Jung** (Vice President, Professor at the School of Education, University of New South Wales, Australia)
- **Dr. Letchmi Ponnusamy** (Secretary, National Institute of Education, Singapore)
- **Dr. Vararom Pachimsawat** (Treasurer, President of Friends of Arts Foundation, Thailand)
- **Prof. Manabu Sumida** (Executive Committee Member, Professor at Ehime University, Japan)
- **Dr. Paromita Roy** (Executive Committee Member, Director of Jagadis Bose National Science Talent Search, India)

APCG 2026 Executive Committee

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- **Dr. Liela Ahmed Jamjoom** (General Conference Coordinator, Dean of Deanship of Social Responsibility, University of Business and Technology)

APCG 2026 Scientific Committee

Name	Position
Prof. Abdullah Aljughaiman	**Chairman of Scientific Committee** Professor of Gifted Education, King Faisal University
Prof. Heidrun Stoeger	**Vice Chair of Scientific Committee** Professor, University of Regensburg, Germany
Prof. Ching-Chih Kuo	**Scientific Committee Member** Professor, National Taiwan Normal University
Prof. Abdulhamid Alarfaj	**Scientific Committee Member** Professor of Gifted Education, King Faisal University
Dr. Abdulnasser Al-Husaini	**Scientific Committee Member** Associate Professor in Giftedness & Creativity Jeddah University, CEO of Gester (Jeddah)
Dr. Abdulrahman bin Khalid Al-Sayyed	**Scientific Committee Member** Head of the Department of Special Education, King Faisal University
Dr. Daniel Patrick Balestrini	**Scientific Committee Member** University of Regensburg – Germany
Prof. Fahad Al-Faiz	**Scientific Committee Member** Professor of Gifted Education, King Saud University
Dr. Fahad Al-Naeem	**Scientific Committee Member** Associate Professor, King Faisal University
Dr. Majed Wadaani	**Scientific Committee Member** Associate Professor of Talent and Innovation, Jazan University
Dr. Mohammad A. Kanan	**Scientific Committee Member** Vice Dean of Scientific Research, University of Business and Technology
Dr. Nourah bint Fareed Al-Mulhim	**Scientific Committee Member** Department of Special Education, King Faisal University
Prof. Osama bin Hasan Maajini	**Scientific Committee Member** Former Vice Dean for Graduate Studies and Scientific Research and Supervisor of the Center for the Care of Talented and Creative Students at King Abdulaziz University
Dr. Sarah Khalid Al-Fawzan	**Scientific Committee Member** Specialist in Intellectual Disability, King Faisal University

Keynote Speakers

Keynote 1: Towards Sustainable Development: Highlights on Current and Future "Mawhiba" Initiatives and Programs

H.H. Dr Faisal Mashary Al Saud
Consultant
King Abdulaziz & His Companions Foundation for Giftedness and Creativity (Mawhiba), KSA

Keynote Abstract
King Abdulaziz & His Companions Foundation for giftedness and Creativity (Mawhiba) has built its new strategy 2024-2030 on a successful and authentic experience of 25 years in serving talented and creative students. Through an experience that spanned through three previous strategic plans, Mawhiba was able to address challenges and capitalize on promising opportunities and impactful developments. Through its new vision, which reads that Mawhiba should be a leading global reference in empowering the brightest talented young minds to create sustainable impact, and through three pillars that included a sustainable learning journey driven by success, a sustainable ecosystem, and a knowledge powerhouse, Mawhiba has set its strategic goals and initiatives that are grouped in five ambitious programs. The presentation highlighted current and future initiatives and programs that Mawhiba is working on to attain its vision and goals serving giftedness and creativity.

Keynote Bio
Dr. Faisal Mashary Al Saud is a consultant at King Abdulaziz and his companions Foundation for Giftedness and creativity (Mawhiba). With his early background as an Associate Professor in Engineering and through his responsibilities in the deanship of Engineering school at King Saud University with his special interest in educational research and evaluation, he chaired the Center of Strategic Studies in Higher Education. In the period (2001-2019), he headed the establishment and chaired the National Center for Assessment in Education. He engaged in designing, shaping, and verifying several educational assessment and evaluation programs and tools and worked and lead number of Strategies and planning in higher and gifted education.

Keynote 2: Learning Resources in Talent Development

Prof. Albert Ziegler
Chair Professor of Educational Psychology and Research on Excellence
University of Erlangen-Nuremberg, Germany

Keynote Abstract

Every country is interested in identifying and supporting its talents optimally. The problem, however, is what resources are required and how they should be optimally deployed. Adopting a learning resource-oriented framework, this presentation examines how talent development in a society emerges through the interplay of individual (e.g., organismic, attentional) and environmental learning resources (e.g., social, infrastructural). Three types of core systems are identified: response, control, and support systems. Their success is measured by the extent to which they enable and realise effective learning resource management.

By applying foundational educational principles (continuity, the law of the minimum, caution, polytely, accessibility, and megatopes), this session demonstrated that strategic orchestration and monitoring of resources can foster and sustain exceptional abilities. Properly aligned with these principles, such orchestration not only promotes equitable opportunities for gifted children but also generates broader social and economic benefits for societies. Ultimately, by identifying and coordinating critical resources, policymakers and educators can cultivate conditions that enable gifted students to excel, thereby enriching both individuals and their communities.

Keynote Bio

Albert Ziegler, PhD, is Chair Professor of Educational Psychology and Research on Excellence at the University of Erlangen-Nuremberg, Germany, and the Founding Director of the Statewide Counseling and Research Center for the Gifted. He is internationally recognized as a pioneer in the field of giftedness and talent development.

His work, including the development of the Actiotope Model of Giftedness, promotes systemic and evidence-based practices that focus on contextual and learning resources. Professor Ziegler has published over 450 books, chapters, and articles. He previously served as the Secretary-General of the International Research Association for Talent Development and Excellence (IRATDE) and as the Editor-in-Chief of High Ability Studies.

He has held visiting professorships at prestigious institutions, including Columbia University, the Chinese Academy of Sciences, and the University of Vienna. Professor Ziegler's contributions have fundamentally shaped global conversation on how societies can strategically cultivate exceptional abilities.

Keynote 3: Beyond IQ: Adapted Education for Gifted Students with Unique Emotional and Learning Needs

Prof. Ching-Chih Kuo
Professor Emeritus
Department of Special Education, National Taiwan Normal University

Keynote Abstract

Gifted students are often recognized for their rapid learning, deep comprehension, mental agility, and creative thinking. From a young age, they may appear to be "little adults"; however, their cognitive precocity is often accompanied by heightened emotional sensitivity, leading them to perceive themselves as different from their peers. In this keynote, Prof. Kuo presented findings from empirical studies in Taiwan that explore the emotional and psychological profiles of gifted learners, with particular attention to overexcitabilities (OEs), perfectionism, and the dual challenges faced by twice-exceptional (2e) students. While these traits can contribute to both strengths and vulnerabilities, they may also result in emotional disintegration and adjustment difficulties. Prof. Kuo highlighted the importance of responsive educational environments and differentiated instructional strategies in nurturing gifted students' self-concept, emotional well-being, and holistic development.

Keynote Bio

Dr. Ching-Chih Kuo is a dedicated professor in the Department of Special Education at National Taiwan Normal University, contributing 48 years of her life to the field of special education since 1977. Her research expertise spans education policy, identification, twice exceptionality, brain study, and the cognitive, social, and emotional development of individuals with special needs.

Actively engaged in international exchange activities, Professor Kuo organized the ninth (2006) and seventeenth (2022) Asia-Pacific Conferences on Giftedness and hosted the Asia-Pacific Forum for Science Talented from 2015 to 2019. She is the Immediate Past President of the Asia-Pacific Federation on Giftedness (2024-2026).

She has been the K-12 EA, MOE's Committee Responsible for Identification and Placement of Gifted and Disabled Students; the Committee Board of Identification and Placement of Gifted and Disabled Students of Taipei City Government, etc. Professor Kuo retired from NTNU in February 2025, and she will keep serving as a professor emeritus.

Keynote 4: Unmasking Hidden Potential: Future Directions in Twice-Exceptional Education

Prof. Elena L. Grigorenko
Professor of Psychology
Baylor College of Medicine, University of Houston, and Yale University, USA

Keynote Abstract

Twice-exceptional (2e) learners—students who are both gifted and have disabilities—represent a unique and often overlooked population in education. Their dual exceptionalities create complex profiles that challenge traditional identification and support systems. While these students possess remarkable strengths, their talents are frequently masked by learning, behavioral, or emotional difficulties, leading to underachievement and misdiagnosis. This presentation explored emerging directions in twice-exceptional education, emphasizing the need for integrated frameworks that recognize and nurture both abilities and challenges. Key strategies include strength-based assessment, differentiated instruction, and collaborative models that unite general and special education practices. Additionally, the presentation examined the role of social-emotional support and executive function interventions in fostering resilience and engagement. Future directions call for research-driven policies, teacher training, and inclusive environments that prioritize equity and access for 2e learners. By unmasking hidden potential, educators can transform barriers into opportunities, ensuring that these students thrive academically and personally. The session concluded with practical recommendations for schools and families to create pathways for success.

Keynote Bio

Dr. Elena L. Grigorenko received her Ph.D. in general (cognitive) psychology from Moscow State University, Russia; her Ph.D. in developmental psychology and genetics from Yale University, USA; and her re-specialization in clinical (forensic) psychology from Fielding University, USA. Currently, Dr. Grigorenko is affiliated with three universities: Baylor College of Medicine, the University of Houston, and Yale University. She has published more than 600 peer-reviewed articles, book chapters, and books. Dr. Grigorenko has received multiple professional awards for her work, secured research funding from numerous federal and private sponsoring organizations in the USA and other countries, supported multiple non-profit organizations—including serving as a board member and chair—and served as editor-in-chief for professional journals. Her interests are broadly focused on the well-being of children: in all categories, of all types, in all contexts. Dr. Grigorenko has worked with children and their families in the USA as well as in Africa (Kenya, Tanzania and Zanzibar, Ghana, the Gambia, and Zambia), India, Saudi Arabia, Ukraine, and Russia.

Keynote 5: The Role of Motivation, Skill Acquisition, and Creativity in Developing Talent Towards Excellence and Innovation: A Resource-Oriented Model Based on Empirical Evidence

Prof. Heidrun Stoeger
Chair of School Research, School Development, and Evaluation
University of Regensburg, Germany

Keynote Abstract

This keynote introduces a resource-oriented model of talent development toward excellence and innovation, integrating motivational, cognitive, and creative processes from initial interest to eminent achievement.

Drawing on Bloom's three-stage framework, interest, skill acquisition, and style formation—the model reconceptualizes talent as a dynamic, systemic process shaped by individual-environmental interactions. Motivation, learning, and creativity are interdependent processes that cyclically reinforce one another throughout talent evolution. Building on the learning and educational capital framework (Ziegler & Stoeger, 2011), the model highlights the pivotal role of endogenous and exogenous resources. These ensure progression from early curiosity to mastery and, ultimately, creative achievement. STEMM research underscores that the density and alignment of resources—within individuals and institutions—determine whether talent pathways culminate in innovation or break down.

Integrating insights from expertise, motivation, and creativity research, this model provides a unifying framework for nurturing human potential. It offers practical implications for designing equitable talent-support systems that bridge the gap between talent attraction, skill cultivation, and innovation across domains.

Keynote Bio

Prof. Dr. Heidrun Stoeger is Chair of School Research, Development, and Evaluation at the University of Regensburg and an Honorary Professor at the Pontificia Universidad Católica del Perú. An international expert in talent development, mentoring, and STEMM education, she has authored over 300 publications and formerly served as Vice President of IRATDE and Editor-in-Chief of *High Ability Studies*.

Her research focuses on gifted education and learning instruction; she currently directs six major projects on STEM talent and mentoring. Additionally, she advises global governments and foundations on educational innovation and professional development.

Keynote 6: Diverse Minds, Diverse Contexts: Equity and Excellence in Asia-Pacific Gifted Education

Prof. Jae Yup Jung
Professor and Director
School of Education and GERRIC, The University of New South Wales, Australia

Keynote Abstract

Gifted education in the Asia-Pacific region unfolds within a diverse landscape of cultures, languages, traditions, and socioeconomic conditions. While academic excellence has long been the driving goal, the equally urgent challenge of equity—ensuring that all gifted learners are identified, supported, and nurtured—remains pressing. This keynote session examined how culture, gender, socioeconomic status, and policy intersect in shaping gifted education, and explores how inclusive and culturally responsive approaches can better reflect the rich diversity of the region.

The discussion was organized around four key themes. The first, Rethinking Giftedness Across Cultures, highlights how traditions such as Confucianism, Buddhism, and Indigenous worldviews provide distinctive perspectives on intelligence and talent, often challenging dominant Western paradigms. It considers how cultural values influence the recognition of giftedness and their implications for pedagogy and student development.

The second theme, Equity and Access for Disadvantaged Learners, addresses the systemic barriers faced by children from low-income, rural, multilingual, or marginalized backgrounds. These learners are often overlooked due to resource limitations or entrenched biases. Case studies of outreach initiatives, digital platforms, and community-driven programs will be presented as models for broadening opportunity without compromising excellence.

Keynote Bio

Jae Yup Jung, PhD, is a Professor in the School of Education and the Director of the Gifted Education Research, Resource and Information Centre (GERRIC) at The University of New South Wales, Australia. His research program, which incorporates various topics relating to gifted adolescents (with a particular focus on their education and career-related decisions) has been published or presented on more than 100 occasions.

His research has been recognized with awards from the American Educational Research Association, the U.S. Mensa Education and Research Foundation, the Hamdan bin Rashid Al Maktoum Foundation for Medical and Educational Sciences, and the Society for Vocational Psychology, and research grants from the Australian Research Council, the Australian Department of Foreign Affairs and Trade, and the New South Wales Department of Education.

He is the current editor of the Australasian Journal of Gifted Education, Vice President of the Asia-Pacific Federation on Giftedness, and President of the Australian Association for the Education of the Gifted and Talented.

Keynote 7: Thinking Like Einstein: Strategies for Developing Gifted Learners in Science and Beyond

Prof. Janchai Yingprayoon
Professor
Prince of Songkla University, Suratthani Campus, Suratthani, Thailand

Keynote Abstract

Creativity is an inherent capacity of the human mind and can be nurtured through intentional strategies and structured learning experiences. Insights into the nature of creativity, along with the traits demonstrated by highly creative individuals—such as Einstein—provide valuable guidance for cultivating creative potential in learners. Common characteristics of creative individuals include curiosity, independence, confidence, adventurousness, humor, persistence, idealism, energy, and perseverance. Instructional techniques such as the SCAMPER framework offer practical methods for fostering creative thinking in educational settings.

Gifted learners, in particular, benefit from learning environments that challenge their abilities and encourage creative expression. Effective strategies for cultivating creativity and talent in science education include: (1) accelerated learning and curriculum compacting, (2) inquiry-based and open-ended experimentation, (3) problem-based learning (PBL), (4) engineering design challenges, (5) the integration of technology and research tools, and (6) mentorship and independent research opportunities.

By combining an understanding of creative traits with research-informed instructional strategies, educators can design science learning experiences that support the intellectual growth, innovation, and creative development of gifted learners.

Keynote Bio

Prof. Janchai Yingprayoon holds a Ph.D. in Laser Physics from the Free University of Berlin. A prominent figure in ICASE since 1979, he served as its President from 2004–2007 and has received both Distinguished Service and Lifetime Achievement Awards.

Recognized by the King of Thailand as an Outstanding University Lecturer, he is a renowned keynote speaker and UNESCO collaborator known for his creative, humorous approach to science education. Currently the Director of the STEM Education Center at PSU Wittayanusorn Suratthani School, he has conducted innovative workshops across 28 countries and holds adjunct professorships at two Chinese universities.

Keynote 8: Supporting Gifted Learners in Diverse Contexts: OECD Findings and Country Policies

Dr. Lucie Cerna
Senior Analyst in Equity, Inclusion & Transitions and Project Leader
Directorate for Education and Skills, OECD, Paris

Keynote Abstract

Giftedness exists in every community - across all social, cultural, and economic backgrounds. Yet many high-potential students at the intersections of disadvantage, such as those affected by socio-economic barriers, gender bias, linguistic diversity, or disability, continue to be overlooked. Drawing on recent OECD evidence, this keynote examines how different definitions and identification practices shape opportunities for gifted learners worldwide.

OECD research reveals that conceptions of giftedness vary significantly across countries. Some systems emphasize academic achievement, while others broaden the lens to include creativity, problem-solving ability, or artistic expression. These definitional choices directly influence who is recognized and supported, and who may be left behind. Across the globe, education systems employ diverse strategies: early screening, specialised enrichment programmes or inclusive classroom models designed to nurture potential in all learners. While data on gifted education remain limited, ongoing efforts to improve evidence collection are helping policymakers identify where progress is being made and where inequities persist. Supporting gifted learners requires more than academic intervention; attention to their social and emotional well-being is essential for long-term flourishing. The keynote argued that equity and excellence need not be opposing goals. When education systems adopt inclusive approaches to giftedness, they strengthen outcomes for both high-ability students and the broader learning community. Participants were invited to explore international insights, exchange experiences and contribute to shaping fairer and more innovative policies that empower gifted learners in every context.

Keynote Bio

Dr. Lucie Cerna is currently a Senior Analyst in Equity, Inclusion & Transitions and a Project Leader for Education for Inclusive Societies in the Directorate for Education and Skills, OECD, Paris. The project focuses on promoting equitable and inclusive education systems that meet the needs of all learners, including gifted students, as a foundation for building inclusive societies. Lucie is also an Associate Research Fellow at the Centre for Liberal Arts and Social Sciences, Nanyang Technological University Singapore. Prior to coming to the OECD, she was a Lecturer in Politics at Merton College, University of Oxford; an Assistant Professor in Global Challenges (Political Economy) at Leiden University, the Netherlands; and an Anglo-German Postdoctoral Fellow at the University of Oxford, United Kingdom. Lucie has published widely on education, skills and migration issues. She holds a DPhil from the University of Oxford.

Keynote 9: Outlier Talents: Contributions of Non-traditional, or Culturally or Regionally Unique Domains to Our Understanding of Talent Development

Dr. Rena F. Subotnik
Research Associate
Academic Talent Development Program, University of California, Berkeley

Keynote Abstract

Creative scholars, like Nobel laureate in Medicine and Physiology, Joshua Lederberg, mused about how the presence of data outliers in his research led him to new insights and avenues for exploration. The goal of this session was to survey the development of expertise in what we will call outlier talents, those that lie outside the traditional realms admired and supported by more mainstream Western educational and cultural organizations. Exemplified by anime, artistic swimming, or magic, outlier fields provide an opportunity to challenge our understanding of the general process of talent development, as it progresses from abilities to competencies, and from competencies to expertise. The session included a brief description of four outlier talent areas—Circus Arts, Drum Corps, Ardah, and Indian Classical Dance—including their associated systems of support. This support involves mentors who carry the burden and power of identifying potential for these representative outlier talents and providing opportunities for potential to emerge fully. Dr. Subotnik placed the outlier talents in the framework of the talent development megamodel (TDMM) to allow for comparisons with each other and with the more traditional domains upon which the TDMM was based. This framing helps to showcase how the talent development process leading to expertise and beyond to transformational creativity is also applicable in these domains.

Keynote Bio

Rena F. Subotnik PhD serves as Research Associate at the Academic Talent Development Program, University of California, Berkeley, Graduate School of Education. From 2001 until June 2023, she was Senior Director of the Center for Psychology in Schools and Education at the American Psychological Association. The Center's mission was to generate public awareness, advocacy, practical applications, and cutting-edge research ideas from psychological science that enhance the achievement and well-being of talented children in schools.

She is co-author, with Paula Olszewski-Kubilius, and Frank Worrell, of the Talent Development Megamodel, appearing in publications such as Scientific American, Scientific American Mind, Annals of the New York Academy of Sciences, Frontiers in Psychology, Psychological Science in the Public Interest, and the Annual Review of Psychology, and co-editor with Paula Olszewski-Kubilius and Frank Worrell of The Psychology of High Performance: Developing Human Potential Into Domain-Specific Talent.

Keynote 10: Redesigning Learning for Agentic Minds

Prof. Sung-il Kim.
Professor of Educational Psychology
Korea University

Keynote Abstract

In the era of intelligent technologies, education must move beyond digital adaptation toward cognitive co-evolution. This keynote explored how learning environments can be redesigned once we understand how the brain learns, develops, and interacts with AI. The future world will be augmented, ubiquitous, affective, autonomous, and adaptive demanding that learners' minds evolve in tandem with these systems. The central idea is the cultivation of the Agentic Mind: the capacity to act intentionally, question assumptions, create new possibilities, and take ownership of one's learning journey.

Three core competences underpin this vision: critical questioning (asking why before accepting answers), creative problem-solving (thinking beyond established patterns), and collaborative communication (learning and building together). To nurture such minds, education must embrace error-driven learning, where mistakes are reframed as data for growth, and project-based apprenticeship, which anchors knowledge in authentic, community-connected challenges.

The keynote also envisioned future schools and universities as curiosity-driven ecosystems—spaces for experimentation rather than examination. Finally, it connected the neuroscience of curiosity, the psychology of feedback, and the art of self-regulation as the foundations of lifelong learning in the AI age. In essence, this talk invited educators to design systems where human agencies and artificial intelligence grow together toward a more creative, adaptive, and humane future.

Keynote Bio

Sung-il Kim is Professor of Educational Psychology and immediate past Director of the Brain and Motivation Research Institute (bMRI) at Korea University. He earned his Ph.D. in Cognitive Psychology from Utah State University and previously served as Assistant Professor at the University of Nebraska–Lincoln. His research examines the neural bases of interest, curiosity, and motivation; models interest-based learning; and designs engaging learning environments. He has published more than 100 research papers and seven scholarly books. His honors include the American Psychological Association's Edwin B. Newman Award for Excellence in Research, the Korean Educational Psychology Association's Award for Outstanding Contribution, Korea University's Distinguished Teaching Award (12 consecutive years), and the Distinguished Research Award. He has served as President of the Korean Educational Psychology Association, the Korean Society for Cognitive Science, and the Korean Mind, Brain, and Education Society, and as Dean of the College of Education and the Graduate School of Education at Korea University.

Keynote 11: Fostering Creativity: The Key to Future-Ready Gifted Education

Prof. Todd Lubart
Full Professor of Psychology
University Paris Cité, France

Keynote Abstract

This presentation examined the concept of creativity as a key part of giftedness. First creativity will be defined and the psychological factors that support it will be described. Methods to detect and measure creativity focusing on creative potential will be illustrated. Then, four main ways to foster creativity in educational contexts will be showcased.

These include (1) school-based activities to help develop the ingredients needed for creativity, (2) programs to develop creative thinking techniques and habits, (3) school-based project work that engages creative thinking, (4) extracurricular activities that support creative thinking. In the final part, the way that generative AI is impacting creativity and the need for educational programs to develop creativity was discussed and illustrated.

Keynote Bio

Todd Lubart obtained his PhD from Yale University. He is a full professor of psychology at University Paris Cité. Former director of an applied psychology research laboratory, coordinator of several grants and contracts, has approximately 300 scientific publications in articles, books and psychological tests. His lines of research involve the identification and development of creative potential, creativity assessments, creative giftedness, environmental support for creativity, and the impact of generative AI on creativity.

Todd Lubart serves on the editorial board of several journals concerning creativity and innovation, received the Berlyne award from the American Psychological Association, the NAGC Torrance Award, the WCGTC international creativity award and was a member of the Institut Universitaire de France. Todd Lubart is president of ISSCI (the International Society for the Study of Creativity and Innovation, issci. online). He directs the Master of Artistic Creation - Art therapy program which includes visual arts, drama, music and dance-movement specializations.

Keynote 12: From Campus to Global Impact: The Strategic Role of Research Universities in Talent Development

Sir Edward Byrne
President of King Abdullah University of Science and Technology (KAUST)
KSA

Keynote Abstract

As nations prepare for an increasingly complex and innovative-driven future, gifted education must evolve from talent identification to sustained capability building. This keynote explored the unique role of research universities in transforming gifted potential into national and global impact, with a focus on Saudi Arabia's experience under Vision 2030 and the Human Capability Development Program.

Drawing on the KAUST strategy and the KAUST Gifted Student Program, the talk illustrated how early investment in gifted talent, global academic immersion, and seamless integration with advanced research ecosystems can create an enduring pipeline of scientific leadership. It highlighted how research universities enable personalized pathways, accelerate learning through frontier research, integrate emerging technologies such as artificial intelligence, and align gifted education with national mission. The keynote argued that the true measure of gifted education lies not in individual achievement alone, but in the ability of institutions to convert exceptional talent into long-term societal value. By linking campuses to global networks and national priorities, research universities can play a decisive role in shaping future-ready talent and building resilient, knowledge-based economies.

Keynote Bio

Professor Sir Edward Byrne is a neuroscientist and clinician known for his significant contributions to academia, healthcare, and society. He served as President and Principal of King's College London (KCL) from 2014 to 2021, where he led the university's Vision 2029 strategy, strengthening its role on the national stage and chairing King's Health Partners.

Prior to KCL, Professor Byrne was President and Vice-Chancellor of Monash University in Australia from 2009 to 2014, during which time he elevated Monash's global rankings into the top 100 universities worldwide. He earned his medical degree from the University of Tasmania and trained as a neurologist in Adelaide and London. He is a Fellow of the Royal Australasian College of Physicians, the Royal Colleges of Physicians of London and Edinburgh, and the American Academy of Neurology. He is also a member of several learned academies, including the UK Academy of Medical Sciences and the Australian Academy of Science, Technology, and Engineering.

Professor Byrne has received numerous honours, including the AO (Officer of the Order of Australia) in 2006, the AC (Companion of the Order of Australia) in 2014, and a Knighthood in the Queen's Birthday Honours in 2020.

Symposiums

Symposium 1: Asia-Pacific Federation on Giftedness

Diverse Minds, Diverse Contexts: Equity and Excellence in Asia-Pacific Gifted Education

- **Kyungbin Park** (President, Asia-Pacific Federation for Giftedness & Honorary Professor at Gachon University, Director of SOI, South Korea)
- **Jae Yup Jung** (Professor, School of Education and Director of GERRIC, The University of New South Wales, Australia)
- **Letchmi Devi Ponnusamy** (Senior Lecturer in Child Psychology & Human Development, National Institute of Education, Singapore)
- **Paromita Roy** (Gifted Education Professional, India)
- **Manabu Sumida** (Professor, Faculty of Education, Ehime University, Japan)
- **Jiyoung Ryu** (Director, Gifted Education Policy Center, KAIST GIFTED, South Korea)

Symposium Abstract

Gifted education in the Asia-Pacific region unfolded within a diverse landscape where the challenge of equity remained as pressing as academic excellence. This symposium examined how culture, gender, and policy intersected to shape inclusive approaches that reflected the region's diversity. The discussion was organized around four key themes that addressed the complexities of talent development in these varied contexts.

The first theme, Rethinking Giftedness Across Cultures, highlighted how traditions like Confucianism and Indigenous worldviews provided distinctive perspectives on talent, which challenged Western paradigms and influenced pedagogy. Simultaneously, the second theme addressed systemic barriers faced by marginalized children, presenting digital platforms and community programs as models for broadening opportunity.

The session on Gifted Girls and Gender Equity examined how societal expectations and perfectionism constrained achievement, while showcasing mentoring initiatives designed to support girls. Finally, national frameworks were explored to identify gaps in teacher preparation and resource allocation. Through these perspectives, the symposium aimed to expand understandings of giftedness as contextually situated while promoting models that balanced excellence with equity.

Symposium 2: The World Council for Gifted and Talented Children (WCGTC)

Giftedness in Displacement: Global Insights on Supporting Gifted Migrant and Refugee Learners

- **Anies Al-Hroub** (President, WCGTC & Professor, American University of Beirut, Lebanon/UK)
- **Albert Ziegler** (Chair Professor, University of Erlangen-Nuremberg, Germany)
- **Frank C. Worrell** (Distinguished Professor, University of California, Berkeley, USA)
- **Ali-Odat** (Associate Professor, Qatar University, Qatar)

Symposium Abstract

Forced displacement affected tens of millions worldwide, including many talented children and adolescents whose abilities often went unnoticed. This symposium addressed the important yet often overlooked challenge of recognizing and supporting gifted individuals impacted by forced migration. It set the stage for the upcoming special issue of Gifted and Talented International on "Giftedness in Contexts of Migration and Crisis."

Drawing on recent research from West Asia, North America, and Europe, the symposium highlighted the complex realities faced by gifted migrants, refugees, and internally displaced children. Expert panelists shared insights on identifying and nurturing exceptional abilities amid disrupted education, cultural upheaval, and systemic barriers.

The session also explored issues of cultural identity, belonging, and how discrimination and trauma affected these children's academic and personal growth. By synthesizing evidence from various contexts, the symposium aimed to promote inclusive strategies that helped displaced gifted students reach their full potential and contribute meaningfully to their communities. Participants, including educators, scholars, practitioners, and policymakers, were encouraged to engage in dialogue about creating fair opportunities for gifted learners facing the dual challenges of displacement and migration.

Symposium 3: European Talent Support Network (ETSN)

Connecting Talent Support Activities in Europe: Insights from ETSN's Development and Regional Strategies

- **Csilla Fuszek** (Director, Association of Hungarian Talent Support Organisation)
- **Mojca Jurisevic** (Professor, University of Ljubljana, Slovenia)
- **Robert Kelemen** (Director, European Talent Centre Croatia)
- **Colm O'Reilly** (President of ECHA, Director of CTYI Ireland & Professor at Dublin City University, CTY Ireland)
- **Agata Hofman** (Managing Director, Creo Gedania)

Symposium Abstract

This symposium presented five complementary perspectives on the European Talent Support Network (ETSN).

The first presentation by Ms. Fuszek introduced ETSN history and milestones, from an initial vision of connecting local activities into an established international framework that integrated talent support organizations across Europe and beyond. The second presentation highlighted the creative potential of the network fostered through collaboration and innovation. There was also research conducted on this topic during 2025, which Prof. Jurisevic talked about. The third presentation by Mr. Kelemen explored networking-building strategies in Croatia, showing how national contexts could adapt international principles to strengthen talent support at the local level.

Dr. Setényi presented on a Hungarian best practice which demonstrated cooperation between Talent Points and Centres. This collaboration model illustrated how talent centers and points worked together effectively to maximize resources. Finally, Dr. O'Reilly spoke about the cooperation between ECHA and ETSN at a European level since, through shared resources, joint projects, and knowledge exchange, ETSN created a fertile ground for developing new approaches to talent identification, support, and education.

Symposium 4: European Council for High Ability (ECHA)
Working across Europe to Create Unity in Gifted Education

- **Colm O'Reilly** (President of ECHA, Director of CTYI Ireland & Professor at Dublin City University, Ireland)
- **Szilvia Fodor** (Vice President ECHA & Professor Psychology Eotvos Lorand University, Hungary)
- **Ioannis Tsorbatzoglou** (Vice President Cross Divisional Programs & Professor at Anatolia College, Greece)
- **Marie Mellett** (Chief Strategy Officer CTY Ireland & Professor at Dublin City University, Ireland)

Symposium Abstract

The European Council for High Ability (ECHA) is a European Non-Governmental Organization (NGO) that aims to advance the study and development of potential for excellence in people. The major goal of ECHA is to act as a communications network to promote the exchange of information among people interested in high ability – educators, researchers, psychologists, parents and the highly able themselves. It is the largest organization for individuals interested in giftedness in Europe and this symposium will highlight some of the ECHA initiatives that people from outside Europe can get involved in in the future.

ECHA Special Interest Groups (Ioannis Tsorbatzoglou): ECHA currently has several active Special Interest Groups in Teaching, Acceleration, Parenting and Families, Equity, Policy and Research. The groups work to create best practice in these areas for various stakeholders.

ECHA Monthly Lecture (Szilvia Fodor): Every month ECHA hosts an online monthly lecture on topics of interest in gifted education given by experts in particular fields. Topics covered to date include giftedness and wellbeing, social and emotional needs of gifted students, online learning and cognitive abilities and learning.

ECHA Training (Colm O'Reilly): ECHA training joins the disciplines psychology, pedagogy and educational science with the aim to enlarge knowledge in the area of recognizing and supporting gifted children and adolescents. Too often teachers working with gifted students do not have sufficient knowledge of their individual needs. This training can lead to a Certificate, Diploma and Masters in Gifted Education.

ECHA conferences (Marie Mellett): ECHA runs international conferences every year at various locations around Europe. Every second year there are thematic conferences on specific areas of interest including creativity, teaching and learning and inclusive education. There is also a major conference every two years that invites researchers from all over the world to discuss the latest developments in gifted education and the next conference will be held in Dublin in August 2026.

Symposium 5: Arab Council for the Gifted and Talented

The Arab Council for the Gifted and Talented's experience in measuring mental abilities and identifying gifted individuals.

- **Faiz Al-Saudi** (Vice President of the Council, Tafila Technical University, Arab Council for the Gifted and Talented, Jordan)
- **Atef Kanaan** (President, Arab Council for the Gifted and Talented, Jordan)
- **Mustafa Al-Heilat** (Professor of Educational Psychology, Al-Balqa Applied University, Hashemite Kingdom of Jordan)
- **Muawiyah Bani Hamdan** (Head of Tests and Measurements, Arab Council for the Gifted and Talented, Jordan)

Symposium Abstract

This symposium aimed to present the model adopted by the Arab Council for Gifted and Talented in assessing cognitive abilities and identifying gifted individuals—an approach developed by Dr. Bani Hamdan and Dr. Heilat. This pioneering Arab initiative was grounded in Thurstone's Primary Mental Abilities (PMA) framework, while incorporating subsequent advancements that merged certain abilities and introduced new dimensions such as mechanical aptitude, writing ability, and creative capacity.

The Arab Council for Gifted and Talented long sought to establish indigenous assessment instruments for the identification of gifted and high-achieving individuals, responding to a critical need in Jordan and across the Arab world. This initiative stood out for its originality and contextual relevance, avoiding direct translation or replication of foreign tests.

The symposium traced the historical evolution of the assessment tools adopted by the Council, including those developed by Dr. Bani Hamdan and Dr. Heilat, and their contributions to the field. It also delineated the cognitive domains measured by these instruments, reviewed research studies validating their reliability and psychometric soundness, and illustrated their application in the early identification of gifted learners. Moreover, the session highlighted their role in detecting intellectual developmental delays—specifically gaps between chronological and mental age—and outlined the subsequent interventions designed to provide enrichment programs for the gifted and remedial support for learners with cognitive delays.

Symposium 6: Organization for Economic Co-operation and Development (OECD)

Creativity assessed by PISA: Insights from the PISA test and PISA Rescoring project.

- **Natalie Foster** (Analyst, OECD)
- **Todd Lubart** (Full Professor of Psychology, University Paris Cité, France)
- **Mojca Juriševič** (Professor of Educational Psychology, University of Ljubljana, Slovenia)
- **Qatnah Alhumaidi Alshammari** (PhD Researcher, King Faisal University, KSA)

Symposium Abstract

The PISA 2022 creative thinking assessment assessed students in 64 countries and economies. Recently, the OECD published the results of a research study focused on rescoring a selected set of items (story invention, social problem solving, scientific problem solving, graphic design) from a representative sample of 300 adolescents (15-year-olds) drawn from the PISA database.

Countries participating in the rescoring study span North America, South America, Europe, the Middle East, and Asia, and the rescoring work was conducted by an international team of creativity researchers from each country. Three different scoring approaches were applied to the data: a standardized consensual rating approach; an analytical method focused on scoring separate criteria (e.g. originality, value); and mapping ideas to a comprehensive conceptual schema.

The symposium presented the results from the Rescoring project focused on what makes ideas creative across diverse country contexts and differences in creative thinking across different student groups (gender, socio-economic status), as well as some implications for education policy and practice.

The symposium featured speakers from the different research teams who shared their insights about participating in the study and analysing students' raw responses to the creative thinking test, the rescoring process, and future directions for research.

Symposium 7: The UNESCO Regional Center for Quality and Excellence in Education (UNESCO RCQE)

From Models to Impact: Quality and Excellence Frameworks to Empower Gifted Education 2050

- **Fatimah Roais** (Deputy Director, The UNESCO Regional Center for Quality and Excellence in Education (UNESCO RCQE))
- **Chokri BN Mahmoud Barhoumi** (Knowledge Management Specialist, The UNESCO Regional Center for Quality and Excellence in Education (UNESCO RCQE))
- **Ansary Ahmed** (Founding President, Asia e-University (AeU))
- **Abdul Rahman Almedaires** (Director General, The UNESCO Regional Center for Quality and Excellence in Education (UNESCO RCQE))

Symposium Abstract

This symposium presented the efforts and initiatives of the UNESCO Regional Center for Quality and Excellence in Education (UNESCO RCQE) to advance the quality and excellence of gifted education in Arab countries, aligned with the theme of APCG 2026, 'Fast Forward: Vision 2050.' It was structured around three pillars: 1. Policy and system enablement, which aligned legislation and gifted programs with equity, inclusion, and learner diversity alongside RCQE's efforts; 2. The Arab Model for Quality and Excellence in Education, which provided an operational framework of indicators with scorecards and dashboards; and 3. Digital transformation, involving blended educational solutions that leveraged analytics and responsible AI to personalize learning.

In addition, the symposium announced the launch of a scientific chair in giftedness and creativity under the supervision of UNESCO RCQE, in collaboration with the Mawhiba Foundation. The session featured concise regional case studies and ready-to-use tools—such as rubrics, impact-measurement matrices, and inclusion checklists—and addressed sustainable financing mechanisms and cross-sector partnerships. It concluded with practical recommendations and a roadmap for the short and medium term to accelerate the adoption of frameworks, ensuring accountability and improved learning outcomes for gifted students by 2050.

Expected outputs included a shared set of core indicators for gifted education programs, a concise rubric for the Arab Model for Quality and Excellence in Education, a 12-month pathway for piloting and scaling, and various partnership and funding opportunities with regional and international entities.

Symposium 8: Johns Hopkins Center for Talented Youth (CTY)

Cultivating Advanced Learners for the Global Community of Tomorrow: The CTY Approach

- **Amy Lynne Shelton** (Executive Director, Johns Hopkins Center for Talented Youth)
- **Kimberley L. Chandler** (Director of Academics and Student Life, Johns Hopkins Center for Talented Youth)

Symposium Abstract

Meeting the challenges of a global environment that was changing at a frantic pace required an authentic community of global citizens. This offered an interesting opportunity for educators of advanced learners because these students represented some of the world's promising future leaders and problem-solvers.

A panel of experts from the Johns Hopkins Center for Talented Youth discussed cultivating a diverse population of advanced learners, focusing on the ways in which CTY's strategic roadmap aimed to support students—and the field—in the context of a dynamic global community. Grounded in their six foundational pillars, they provided insights into how CTY situated itself as a collaborator in the broader educational landscape and discussed what it meant to continuously evolve their work with schools, families, communities, and partner organizations.

Next, they shared how this strategic approach translated into programs and support for students, families, and educators to ensure student access to the rigorous academics and fun peer community that fostered the life-long learner.

Finally, because effective innovation required an evidence-based approach, CTY developed a robust research agenda aligned and integrated with its broader strategic and programmatic goals. This agenda was defined by three central themes: (1) equitable and purposeful identification of advanced learners, (2) understanding and supporting the needs of advanced learners, and (3) increasing opportunities for advanced learners from every community and demographic. They highlighted key projects, their inspiration, and recent insights.

Together, they showcased how their strategic and collaborative approach aimed to shape the future of advanced learning.

Symposium 9: Hamdan bin Rashid Al Maktoum Foundation for Medical and Educational Sciences

Advancing Gifted Education through Innovation: The Hamdan Model

- **Mariam Alghawi** (Director, Hamdan bin Rashid Al Maktoum Foundation for Medical and Educational Sciences)
- **Sadiq Ismail** (Senior Researcher, Hamdan Bin Rashid Al Maktoum Foundation for Medical and Educational Sciences)
- **Ahmad Morsy** (Giftedness Identification Senior Specialist, Hamdan bin Rashid Al Maktoum Foundation for Medical and Educational Sciences)

Symposium Abstract

This symposium presented three pioneering initiatives shaping the future of gifted education in the Arab world and beyond. It began with the Hamdan Giftedness Test, a culturally grounded, psychometrically validated tool designed to identify gifted learners within Arab educational contexts. Developed in collaboration with leading national experts, it addressed the need for equitable and contextually relevant assessment practices.

The second focus was the Hamdan bin Rashid Centre for Giftedness and Innovation, which provided a national platform for talent development. The Centre offered enrichment programs, innovation labs, and mentorship initiatives that nurtured creative and scientific potential, particularly in STEM and entrepreneurial domains.

The third segment highlighted the World Giftedness Centre, an international initiative dedicated to research, policy, and collaboration in the field of gifted education. Through strategic partnerships and global outreach, the Centre promoted inclusive and evidence-based approaches to giftedness, supporting educators, researchers, and policymakers worldwide.

Together, these three initiatives demonstrated a cohesive model for identifying, nurturing, and connecting gifted learners across local and global settings. This symposium invited international dialogue on culturally responsive innovation and scalable strategies that bridged national excellence with global impact.

Symposium 10: World Giftedness Center

Mentoring Across the Stages of Talent Development: From Attraction to Eminence

- **Mariam Alghawi** (Director, Hamdan bin Rashid Al Maktoum Foundation for Medical and Educational Sciences)
- **Albert Ziegler** (Chair of Educational Psychology and Research on Excellence, Friedrich-Alexander-Universität Erlangen-Nürnberg)
- **Tai Kai Ng** (Chair Professor Hong Kong University of Science and Technology (Guangzhou))
- **Heidrun Stoeger** (Chair of School Research, School Development, and Evaluation, University of Regensburg

Symposium Abstract

Mentoring is one of the most powerful yet under-conceptualized instruments in talent development. This symposium brought together theoretical and applied perspectives that positioned mentoring as a systemic intervention supporting learners along the full trajectory from initial interest to innovation.

The opening contribution (Albert Ziegler and Tai Kai Ng) outlined why mentoring was not an auxiliary activity but a professional discipline that required theoretical grounding, domain expertise, and systemic awareness. Building on a resource-oriented stage model of STEMM talent development, the talk showed how mentoring effectiveness depended on the orchestration of educational and learning capital.

The second presentation (Heidrun Stoeger) drew on longitudinal evidence from CyberMentor, the world's largest online mentoring program for girls in STEM, illustrating how structured mentoring could sustain engagement through the early and intermediate stages of talent development.

The third presentation (Mariam Alghawi) introduced Global Talent Mentoring as an international ecosystem supporting advanced talents in the third stage—style formation and innovation. The symposium concluded with a discussion led by Abdullah Aljughaiman, focusing on the professionalization, scalability, and cultural adaptation of mentoring worldwide.

Symposium 11: Mawhiba

From Nurturing to Excellence: The Impact of Mawhiba Programs on the Cognitive and Practical Growth of Gifted Individuals

- **Hanaa Almoaibed** (Founder and CEO, Wonder Inc, Vice President of Research at the Arab Institute for Women's Leadership)
- **Yousef Algoos** (Forbes 30 under 30, Award-Winning Semiconductor Researcher, Mawhiba Alumni)
- **Mohammed Albawardi** (Physician B2B Dallah Health,
- Strategic Healthcare Partnerships Leader, Mawhiba Alumni)
- **Zahra Nasser Almisbaa** (Senior Scientist at Saudi Aramco R&D, Misk Fellow, Mawhiba Alumni)
- **Amal Abdulrahman Ahmed** (Product Manager & Digital Experience Leader, Mawhiba Alumni)

Symposium Abstract

The scientific session shed light on the real and tangible impact of Mawhiba's programs on the lives of the gifted and their scientific and professional paths. It aimed to provide a vivid and direct picture of the positive transformations that Mawhiba's programs brought about in participants' lives through their personal achievements and inspiring experiences.

The session's objectives focused on several basic axes, including discussing the long-term impact of Mawhiba's programs on former participants by tracking their academic and professional paths and their scientific and practical achievements. The session aimed to enhance scientific dialogue about developing gifted education programs and improving their effectiveness, and to inspire specialists and researchers with real success stories that highlighted the potential of the gifted when appropriate care was provided. Participating in this session was a selected elite of former students in Mawhiba's programs, who were members of the Mawhiba Alumni Association; this included a wide network of graduates from the foundation's programs who had exceeded the age of eighteen and had reached advanced stages in their education or professional careers.

These participants represented wide diversity in specializations and fields, including students at the university level in the best local and international universities, researchers in graduate studies stages, successful professionals in various sectors, entrepreneurs who founded innovative projects, and academics and researchers in prestigious scientific institutions. The session explored how Mawhiba's programs shaped scientific identity and developed core competencies like creative thinking, problem-solving, and leadership. Participants discussed overcoming academic challenges and showcased their professional achievements, including published research and innovative projects. These success stories served as a living testimony to the program's effectiveness in preparing a generation of leaders to drive social and economic development.

Symposium 12: Education & Training Evaluation Commission (ETEC) – National Center for Assessment (Qiyas)

Qiyas' Journey in Identifying and Supporting Gifted Students: An Ongoing Success Story

- **Abdullah Ali AlQataee** (Chief Executive Officer, National Center for Assessment (Qiyas), ETEC)
- **Abdullah Saleh Al-Saadawi** (Deputy CEO for Testing, National Center for Assessment (Qiyas), ETEC)
- **Maisaa Taleb Al-Ahmadi** (General Manager of Institutional Testing, National Center for Assessment (Qiyas), ETEC)
- **Elena Grigorenko** (International Expert and Advisor, National Center for Assessment (Qiyas), ETEC)

Symposium Abstract

The National Center for Assessment (Qiyas) participated in the conference through a scientific symposium entitled: 'A Leading Saudi Model in Identifying Gifted Students: Qiyas Tests and Their Role in Discovering and Empowering the Gifted'. The session highlighted Qiyas' pioneering role in designing and developing advanced measurement tools that supported the identification of giftedness across diverse groups. These tools enabled more than 600,000 students to realize their potential and pursue academic, research, and creative excellence.

The symposium addressed three themes. Theme One provided an overview of Qiyas' development journey, presenting key assessments such as the Mawhiba Test, Alif-Ya Intelligence Scale, Arab Giftedness Test, and the Academic Acceleration Test, supported by data and infographics that demonstrated national impact. Theme Two featured a scientific and practical presentation of the Alif-Ya Intelligence Scale as an innovative tool for measuring intelligence and diagnosing giftedness among children and adolescents, which included a short demo illustrating the testing process.

Theme Three showcased real-life experiences and success stories, featuring international expert Elena, the Mawhiba Foundation, Princess Nourah University, and the story of a gifted student and his parents.

Symposium 13: Thakaat

Harnessing and Developing Scientists' Ecosystems: Talents as a Competitive Advantage

- **Sami Al Hussayen** (Managing Partner, Thakaat)
- **Abdulhameed Al Abduljabar** (Professor of Mechanical Engineering, King Saud University)

Symposium Abstract

In an era where nations compete not only through resources but through ideas and innovation, building a robust scientists' ecosystem has become a strategic imperative. This seminar explored how countries can unlock the full potential of their scientific talent by designing ecosystems that attract, retain, and empower scientists—transforming talent into a long-term competitive advantage.

The session featured leading experts who will guide participants through a rich, multi-layered exploration of this topic. In the first session, Abdulhameed Al Abduljabar shared a compelling study on Arab scientists who relocated to well-established scientific ecosystems abroad, examining the enabling factors that led to their breakthroughs—including those who reached the highest levels of recognition, such as the Nobel Prize. His insights highlighted the critical gaps and opportunities in supporting talent regionally. Sami Al Hussayen will then introduce a national framework, co-developed with the other speakers, for establishing a vibrant and sustainable scientists' ecosystem in Saudi Arabia. The model addressed institutional design, funding mechanisms, global linkages, talent mobility, and long-term impact metrics.

Together, the session offered a theory-to-practice journey—from academic insights to real-world examples to a concrete national action plan. Attendees left with a deeper understanding of how countries can turn scientific talent into global leadership.

Symposium 14: University of Regensburg

Exploring Talent Development: The Role of Educational and Learning Resources

- **Albert Ziegler** (Professor, Friedrich-Alexander-Universität Erlangen-Nürnberg)
- **Heidrun Stoeger** (Professor, University of Regensburg)
- **Norah Fareed Almulhim** (Assistant Professor, King Faisal University, Saudi Arabia)
- **Lukas Ketscher** (PhD Candidate, Friedrich-Alexander-Universität Erlangen-Nürnberg)

Symposium Abstract

A systemic conception of giftedness emphasized that talent development emerged from dynamic interactions between individuals and their environments. This systemic perspective, as conceptualized in the Actiotope Model of Giftedness, rejected static notions of talent as a fixed trait and instead viewed it as the product of continuous person–environment exchanges.

Within this framework, the Educational and Learning Capital (ELC) model offered a resource-oriented approach that identified and organized the key endogenous and exogenous resources necessary for the realization of potential. Learning capital encompassed the internal resources individuals mobilized in the learning process—such as motivation, self-regulation, and domain-specific strategies—while educational capital referred to the external, environmental resources available to support development, such as mentorship, family support, and institutional opportunities.

Recent advances highlighted that the effectiveness of these resources depended on their accessibility, orchestration, and context sensitivity. Talent flourished when learning and educational capitals were activated within supportive ecosystems that enabled equitable and sustainable development—particularly in complex fields such as science, technology, engineering, mathematics, and medicine (STEMM).

This symposium situated its contributions within this systemic framework and aimed to advance theoretical and empirical insights into the role of educational and learning resources in fostering talent and excellence. Specifically, it: 1) Examined the theoretical foundations of the Educational and Learning Capital approach and its integration within the systemic theory of giftedness; 2) Discussed applications of ELC in mentoring programs across diverse talent domains; 3) Presented empirical findings on individual and environmental predictors of gifted nomination and identification through the ELC lens; and 4) Explored the interplay of personal and contextual resources that contribute to gifted students' award-winning achievements.

By bringing together theoretical, empirical, and applied perspectives, this symposium sought to illuminate how optimizing systemic constellations of educational and learning capital could unlock human potential and foster sustainable pathways toward excellence.

Symposium 15: Elmbridge University
Gifted, Twice Exceptionality and the Theory of Green

- **Susan Baum** (Chancellor, Bridges Graduate School)
- **Matthew Fugate** (Provost, Bridges Graduate School)
- **Marcy Dann** (Faculty, Bridges Graduate School)
- **Kim Vargas** (Director of admissions, recruitment, and retention, Bridges Graduate School)
- **Rose Blucher** (Director, Educational Services for Boundless Potential)

Symposium Abstract

The term twice-exceptionality (2e) is increasingly used to describe learners who possess high cognitive potential in one or more domains while simultaneously experiencing neurodevelopmental challenges. This symposium introduced a new theoretical framework—the "metaphor of green"—which explains the phenomenon that occurs when advanced abilities and disabilities interact (Baum et al., 2022). Previous research has often overlooked this critical dimension of co-occurrence when identifying the needs and appropriate services for this population, thereby limiting a holistic understanding of the student experience (Tryer, 2018).

Within this framework, exceptional potentials are conceptualized as "yellow," while co-occurring academic, social, or emotional challenges are represented as "blue." Considering these facets in isolation fails to capture their dynamic interaction; in reality, such learners are "green"—an integrated synthesis of both. Depending on contextual and environmental factors, this expression may shift along a continuum from "blue-green" to "yellow-green" (Baum et al., 2021; Reis et al., 2025).

This synthesis may lead to the intensification or inhibition of certain traits, as well as the emergence of new ones, further complicating how these learners are understood and supported (Reis et al., 2014). Addressing talent development and intellectual growth without accounting for accompanying challenges risks incomplete or ineffective support. Conversely, focusing solely on deficits without recognizing advanced abilities may lead to similarly limiting outcomes.

The symposium brought together insights drawn from research, professional practice, and lived experience to examine the implications of being "green." Discussions emphasized the importance of strength-based, talent-focused approaches across educational programming, educational therapy, parenting, and research.

Symposium 16: Arabian Gulf University (AGU)

Creative Thinking Tests and the Environment: What Really Affects Divergent Thinking Scores?

- **Ahmed M. Abdulla Alabbasi** (Vice Dean, College of Education, Administrative and Technical Sciences, Arabian Gulf University)
- **Selcuk Acar** (Professor of Educational Psychology, University of North Texas)
- **Bander Nasser Al-Otaibi** (Professor & Moderator, Arabian Gulf University)

Symposium Abstract

Research on creativity has expanded considerably since Guilford's seminal work in 1950, and assessment tools designed to measure this construct continue to receive significant scholarly attention. This seminar focused on a central aspect of creativity assessment: divergent thinking tests, with particular emphasis on the environmental factors that influence students' performance.

Expert panelists presented recent findings on home environment variables such as birth order, family size, and parents' attitudes toward creativity, and how these factors affect students' creative performance. The discussion also addressed school-related influences, including the optimal time of day and the most suitable contexts for administering creative thinking assessments.

Additional factors that significantly impact test outcomes were examined, including the role of prior experiences and memory, the effect of explicit instructions to "be creative," methods for assessing fluency and originality, and task modality (verbal versus figural)—all considered in light of the latest research evidence.

Finally, the seminar explored a contemporary issue in creativity research: the creativity gap. As recent studies suggest that students tend to express their creativity more outside of school than within it, the session examined the underlying causes of this gap and discussed strategies for fostering school environments that actively nurture and sustain students' creative potential.

Symposium 17: King Faisal Prize Laureates

Interviewing Brilliance: Lessons from King Faisal Prize Laureates

- **Rena Subotnik** (Research Associate, Academic Talent Development Program, University of California, Berkeley)
- **Nader Masmoudi** (Professor of Mathematics, New York University & King Faisal Prize Laureate in Science 2022)
- **Jackie Yi-Ru Ying** (Chief Innovation and Research Officer at King Faisal Specialist Hospital and Research Centre & King Faisal Prize Laureate in Science 2023)

Symposium Abstract

Since 1979, the King Faisal Prize has recognized 275 laureates from 43 countries, serving as a prestigious precursor to international acclaim, with 24 recipients later receiving the Nobel Prize. This session moved beyond academic accolades to examine the lived experiences, persistence, and creative catalysts that define exceptional talent.

The discussion featured Professor Nader Masmoudi (2021 Laureate in Science), renowned for his fundamental contributions to the theory of partial differential equations and fluid dynamics, and Professor Jackie Yi-Ru Ying (2023 Laureate in Science), a pioneer in nanostructured materials with transformative applications in catalysis and biomedicine. Hosted by Dr. Rena F. Subotnik, an expert in talent development, the conversation delved into how brilliance matures within specialized domains and the mechanisms through which fundamental research bridges the gap to real-world impact.

By synthesizing the perspectives of a master mathematician and a visionary nanotechnologist, the session aimed to uncover the common threads of high-level talent development. Attendees gained insight into the nurturing of advanced cognitive skills, the importance of interdisciplinary innovation, and the sustained dedication required to address the complex challenges of modern science. This intellectual exchange offered a rare opportunity to learn from individuals whose work has left a lasting imprint on mathematical physics, energy, and human health.

Symposium 18: Education & Training Evaluation Commission (ETEC) / National Center for Assessment (Qiyas)

A Panel Discussion: Academic Acceleration Tests and Their Impact on Supporting Gifted Students: A Comprehensive National Perspective

- **Faisal Mashary Al Saud** (Consultant at the King Abdulaziz & His Companions Foundation for Giftedness and Creativity (Mawhiba), KSA)
- **Norah Abdulrahman Alyabs** (Assistant Professor of Statistics, Vice Dean of the Deanship of Admission and Registration, Saudi Electronic University)
- **Nada Al-Saleh** (Vice President for Admission Affairs, Princess Nourah bint Abdulrahman University)
- **Fayez Sulaiman Maajeeny** (Vice Dean of Admission and Registration, University of Jeddah)
- **Abdullah Saleh Al-Saadawi** (Deputy CEO for Testing, National Center for Assessment)

Symposium Abstract

The panel highlighted the role of academic acceleration tests in enabling gifted students to progress through their educational pathways at a pace aligned with their abilities, while discussing the educational, national, and economic benefits of such tests.

The panel brought together a distinguished group of representatives and experts from various institutions. The session was moderated by representatives from Qiyas, who introduced the session and guided the discussion through targeted questions designed to stimulate dialogue and highlight diverse perspectives among the participants.

The discussion addressed the following themes: (1) previous experiences in utilizing academic acceleration tests and the policies supporting acceleration programs in universities, (2) the educational impact of acceleration programs on the quality of learning and student outcomes, (3) the economic value of acceleration programs and their role in maximizing human capital, and (4) challenges and future opportunities for expanding acceleration programs across Saudi universities.

Symposium 19: International STEM Education Centers

International STEM Education in Diversity

- **Janchai Yingprayoon** (Professor Prince of Songkla University, Suratthani Campus)
- **Nataphon Boonnam** (Deputy Dean for Administration and Strategy, Prince of Songkla University, Suratthani Campus)
- **Bulent Cavas** (Head of Science and Education Department, Dokuz Eylul University, Izmir)

Symposium Abstract

The presentation highlighted the pivotal role of STEM activities in stimulating learning processes and fostering creativity, specifically through the organization of the International STEM Education Contest. Initially launched by the Research Institute of Science Education at Guangxi Normal University in Nanning and Guilin, the initiative expanded to include both online and onsite formats across ASEAN countries. This competitive approach demonstrated a successful model for promoting workforce development in science and technology by engaging young learners in high-level scientific challenges.

Regarding institutional frameworks, the session examined how STEM education in Thailand transitioned from simple enrichment activities toward an integrated instructional model. The establishment of STEM Centers served as a systemic framework for embedding interdisciplinary learning directly into the core curriculum. These centers emphasized outcome-based design and real-world problem solving, utilizing academic presentations, camps, and research-based experiences to maximize the potential of gifted learners and prepare them as future innovators.

Finally, the discussion explored the impact of the acaSTEMy project, which utilized job shadowing to enhance STEM career awareness among pre-service and in-service teachers. By engaging participants in structured field observations across industrial organizations and research centers, the study found a significant improvement in professional identities and pedagogical approaches. The results suggested that increasing teacher career literacy acted as a critical bridge between the education system and the broader STEM ecosystem, allowing educators to more effectively guide gifted students toward impactful career pathways.

Symposium 20: University of Business and Technology, Jeddah, Saudi Arabia

Launching the Global Giftedness Index (GGI): A Systemic Framework for Identifying, Supporting, and Developing Giftedness Globally

- **Heidrun Stoeger** (Chair of School Research, School Development, and Evaluation, University of Regensburg)
- **Weam Tunsi** (President, University of Business and Technology)
- **Basma El-Zein** (Director General of UBT-Tech Valley, University of Business and Technology)
- **Yussra Jamjoom** (Consultant to President, University of Business and Technology)
- **Said Al-Shaikh** (Director General of Studies and Consultation Center, and Professor of Economics, University of Business and Technology)

Symposium Abstract

Across the world, giftedness is widely acknowledged, yet the ways in which it is identified, supported, and sustained remain uneven and, in many cases, fragmented. While many systems invest in gifted programs, gaps persist in equity, continuity, and access—particularly for learners who are identified later, come from disadvantaged contexts, or require alternative pathways to demonstrate their abilities.

The Global Giftedness Index (GGI) was developed in response to these realities. Conceived and authored by a multidisciplinary team at the University of Business and Technology (UBT), the GGI is the result of sustained academic, policy, and practical work aimed at understanding giftedness as a system-level responsibility rather than an individual label.

This symposium marked the official announcement and the launch of the Index. The GGI offers a holistic framework that examines how gifted education ecosystems function across four interconnected dimensions: inputs, processes, learning environments, and outcomes. Equity and inclusion are embedded across all dimensions, with particular attention given to regular and flexible identification practices that acknowledge the diverse ways giftedness can emerge over time.

Symposium 21: Arab Council for the Gifted and Talented

The Arab Council for the Gifted and Talented's Experience in Measuring Mental Abilities and Identifying Gifted Individuals

- **Atef Kanaan** (President, Arab Council for the Gifted and Talented, Jordan)
- **Zuhair Hussain Ghunaim** (Secretary General, International Union of Muslim Scouts)
- **Mustafa Al-Heilat** (Professor of Educational Psychology, Al-Balqa Applied University, Hashemite Kingdom of Jordan)
- **Faiz Al-Saudi** (Vice President of the Council, Tafila Technical University, Arab Council for the Gifted and Talented, Jordan)
- **Muawiyah Bani Hamdan** (Head of Tests and Measurements, Arab Council for the Gifted and Talented, Jordan)

Symposium Abstract

This symposium presented the model adopted by the Arab Council for Gifted and Talented in assessing cognitive abilities and identifying gifted individuals—an approach developed by Dr. Bani Hamdan and Dr. Heilat. This pioneering Arab initiative was grounded in Thurstone's Primary Mental Abilities (PMA) framework, while incorporating subsequent advancements that merged certain abilities and introduced new dimensions such as mechanical aptitude, writing ability, and creative capacity.

The Arab Council for Gifted and Talented had long sought to establish indigenous assessment instruments for the identification of gifted and high-achieving individuals, responding to a critical need in Jordan and across the Arab world. This initiative stood out for its originality and contextual relevance, as it avoided direct translation or replication of foreign tests.

The symposium traced the historical evolution of the assessment tools adopted by the Council, including those developed by Dr. Bani Hamdan and Dr. Heilat, and their contributions to the field. It also delineated the cognitive domains measured by these instruments, reviewed research studies validating their reliability and psychometric soundness, and illustrated their application in the early identification of gifted learners. Moreover, the session highlighted their role in detecting intellectual developmental delays—specifically gaps between chronological and mental age—and outlined the subsequent interventions designed to provide enrichment programs for the gifted and remedial support for learners with cognitive delays.

Symposium 22: Salem Bin Mahfouz Foundation

Non-profit in Education: How SBMF Contributes to Enhance Teachers' Role and Students' Skills

- **Mamdouh H. Alharbi** (CEO, Salem bin Mahfouz Foundation)
- **Abdulrahman Hamed Alsulami** (Director, Waref)
- **Saad Almasawdi** (Director General of Education in Jeddah (2019-2022) Zawaya)
- **Nader Al-Saggaf** (Director of Institutional Communication, Salem bin Mahfouz Foundation)

Symposium Abstract

In an era where education leads to individual sophistication and society prosperity, nonprofit sector plays a significant role to develop education elements of teachers, students, schools and educational environments. While education itself is a nonprofit initiative, a pressing need for nonprofit organizations that take care of education highly emerged.

Salem Bin Mahfouz Foundation (SBMF) is a pioneer institution that has taken the lead to serve Saudi Society in this vital field. It realizes how education can help in reaching great deal of developmental goals and targets.

Throughout around a decade and half and 3 five-yeared strategies, SBMF has partnered number of educational entities via programs to arm teachers and students (specially gifted ones) with concepts and skills and developed educational societies to be more appealing and productive.

Symposium 23: Project for Establishing a Regional Center for Giftedness and Creativity, Ministry of Education

Investing in Giftedness: Upskilling to Meet Market Needs

- **Jawaher Hamad Binyousef** (Project Manager for Establishing a Regional Center for Giftedness and Creativity, Ministry of Education)
- **Adil Alshoaibi** (Director of National Research Center for Giftedness and Creativity, King Faisal University)
- **Haya Alhomayani** (Supervisor, Administration of Attracting and Nurturing Talent, University of Jeddah)
- **Abdullah Albelaihy** (Supervisor Member of the Project for Establishing a Regional Center for Giftedness and Creativity, Ministry of Education)

Symposium Abstract

Investing in giftedness is both a strategic priority and a societal necessity, as nurturing exceptional talent contributes directly to innovation, economic growth, and cultural development. This symposium explored the multifaceted dimensions of investing in gifted individuals, emphasizing education policy and research.

It highlighted how early identification, specialized programs, and equitable opportunities can maximize the potential of gifted learners in different contexts while addressing the challenges of inclusivity and sustainability. Experts from other sectors shared their best practices and discussed practical approaches to implementation.

The symposium sought to foster dialogue on creating ecosystems that empower gifted youth to translate their abilities into impactful contributions. By framing giftedness as a vital investment rather than a privilege, the inspired actionable strategies that strengthen human capital and ensure a brighter, more competitive future for societies worldwide.

Symposium 24: Saudi Universities

Saudi Universities and Giftedness: Empowering Gifted Students in Higher Education - A Case Study

- **Fouad Abolaban** (Dean of Student Affairs, King Abdulaziz University)
- **Monagi Hassan Alkinani** (Vice President for Academic Affairs and Development, University of Jeddah)
- **Farida Larry** (Director of Academic Support and Wellness, Dar Al-Hekma University)
- **Linda F. Maloul** (Dean of the College of Humanities, Effat University)
- **Ramzia Albakri** (Vice President of Student Affairs, University of Business and Technology)

Symposium Abstract

This panel examined the multifaceted landscape of talent development within the Saudi higher education sector, exploring how universities serve as critical ecosystems for the gifted. The discussion highlighted that talent development is founded on principles recognizing the dynamic interplay between innate potential and environmental support. Panelists emphasized that talent is not static; it evolves through a continuous process integrating personal attributes, creativity, and motivation with structured institutional resources.

The session delved into diverse perspectives of giftedness that shape educational strategies across the Kingdom. Panelists discussed the importance of nurturing talent through progressive stages—ranging from enrichment and academic excellence to leadership. By sharing institutional case studies, such as the University of Jeddah's philosophy, the panel illustrated how structured pathways ensure gifted individuals attain positions of innovation in alignment with Saudi Vision 2030.

Beyond academic development, experts addressed the critical social and emotional dimensions of giftedness. They explored unique challenges, such as the need for specialized counseling and the importance of fostering a sense of belonging within a knowledge-based economy. The discussion underscored the necessity of supportive environments that nurture both intellectual ability and the psychological resilience required for sustained societal contribution.

Ultimately, the session offered a holistic view of how Saudi universities bridge the gap between potential and global competitiveness. By synthesizing perspectives on differentiated curricula and emotional support, the panelists demonstrated a collective dedication to empowering human capital and preparing the next generation of pioneers.

Pre-Conference Workshops

Morning Sessions (9 AM – 12 PM)

Workshop 1: Designing Gifted Programs: Principles and Modern Models (Arabic)

Malak Abdulaziz Alabdultif
Doctoral Researcher in Gifted Education
King Faisal University

Workshop Abstract

This workshop offered an intensive, practical guide to designing enrichment programs targeting gifted students as well as other learners, drawing on up-to-date scientific and applied expertise. It provided a concise overview of how learning occurs, the mechanisms that activate students' highest cognitive capacities, and strategies for fostering creative behavior and enhancing cognitive performance.

The workshop focused on clear, practical steps for designing classroom and school-based programs using scientific methodology. It presented a gradual framework for learning based on solving real-world problems and developing creative and critical thinking skills, along with personal, social, and learning competencies. Participants received integrated guidance that began with building and evaluating overarching frameworks to support students' development across stages of expertise and extended to designing daily learning activities and experiences.

The workshop also offered access to practical models adaptable to diverse educational contexts and provided actionable alternatives for creating learning environments that respond to individual differences, encourage knowledge exploration, and support progression across levels of mastery. This workshop was designed for professionals in education, giftedness, and talent development, and aspired to deliver inspiring, practical keys to building constructive educational programs that help shape lifelong creative learners.

Workshop 2: Developing Assessment Tools to Evaluate Gifted Programs (Arabic)

Alaa Eldin Ayoub
Full Professor of Measurement, Evaluation, and Statistics
Aswan University, Egypt & Arabian Gulf University, Bahrain

Workshop Abstract

This workshop was designed to equip participants with the scientific and practical foundations necessary to develop effective assessment tools that measure the quality and impact of gifted education programs.

As gifted education initiatives continued to expand, with diverse models and objectives, the need for accurate and reliable evaluation tools became greater than ever. Such tools were essential for identifying strengths, addressing areas for improvement, and elevating the educational and behavioral outcomes of gifted students. Participants explored a wide range of quantitative and qualitative assessment methods and gained a clear, step-by-step understanding of the evaluation design process—from defining objectives and determining evaluation domains to developing measurable performance indicators, validating tool reliability and accuracy, and analyzing collected data.

Through engaging, hands-on activities, attendees critically analyzed existing assessment tools and collaboratively designed a preliminary draft tailored for potential application in local contexts. By the end of the workshop, participants possessed the knowledge and practical skills needed to drive evidence-based improvements in gifted education programs and ensure their sustained quality and effectiveness.

Workshop 3: Enhancing Leadership Among Gifted Students: Strategies and Skills (English)

Paromita Roy
Deputy Director of Jagadis Bose National Science Talent Search
JBNSTS, Kolkata, India

Workshop Abstract

In the world we live in today, competition, cooperation, and creativity are essential components for success. Gifted individuals, by virtue of their advanced intellectual strengths and creative ability, are ideal for becoming domain leaders.

Giftedness and leadership are often intertwined, with gifted individuals often possessing traits that make them well-suited for leadership roles. Though not all gifted individuals are natural leaders, and not all leaders are gifted, there is a strong correlation between the two. The nurturing of gifted students, along with academic inputs, therefore requires both socio-emotional and leadership development.

The workshop explored different facets and strategies that contribute to socio-emotional growth and strong leadership qualities. It provided participants with a better understanding of what is required to motivate and propel gifted students toward key leadership roles in the future.

Workshop 4: Harnessing AI in Gifted Education: Enhancing Research and Program Design (English)

Sami Al Hussayen
Managing Partner at Thakaat
Saudi Arabia

Workshop Abstract
This immersive three-hour workshop was designed for educators, researchers, and program developers working in the field of gifted education, where participants explored how Artificial Intelligence (AI) can be effectively used to advance research, personalize learning, and develop data-informed enrichment programs. The session covered practical tools, real-world applications, and ethical considerations in using AI to identify gifted students, analyze learning patterns, and design responsive educational interventions. Through hands-on activities and guided demonstrations, attendees gained the skills and confidence to begin integrating AI into their practice.

The workshop allowed participants to explore AI tools for curriculum personalization and student engagement, while also demonstrating how to use AI for literature reviews, data analysis, and research synthesis. Throughout the session, attendees examined case studies and scenarios of AI-enhanced gifted programs and discussed the critical importance of ethical use, equity, and responsible innovation in the field.

Workshop 5: Parental Care for Diverse Populations of Gifted Students (Arabic)

Hamed Aziz Hamed Al-Shehri
Educator and Researcher in Gifted Education
King Faisal University, Saudi Arabia

Workshop Abstract

The workshop explored the critical role of parental involvement in nurturing and supporting gifted learners. Drawing on definitions by the American Psychological Association (APA, 2023), the session examined a practical exploration of how parenting supports gifted learners across four dimensions: academic, psychological, social, and advocacy. Special attention was given to three groups: gifted students, twice-exceptional students, and underachieving gifted students.

The workshop highlighted pressing challenges, such as the absence of local diagnostic frameworks for twice-exceptional and underachieving gifted learners, as well as insufficient teacher preparation to address their unique needs. Participants were introduced to key theoretical models, including Vygotsky's Theory (1978), the Actiotope Model (2005), and the Oasis Enrichment Model (Al-Jughaiman, 2005), which explain how environmental and social support interact with talent. Through case studies and interviews with students, parents, and teachers, the workshop provided evidence-based insights into how parental care can foster resilience, achievement, and talent development among diverse gifted populations.

Afternoon Sessions (1 PM – 4 PM)

Workshop 6: Methods of Identifying and Supporting Twice-Exceptional Students (Arabic)

Fahad Ali Almuaili
Specialist in Gifted Education
King Faisal University, Saudi Arabia

Workshop Abstract

This workshop equipped educators, specialists, and policymakers with the knowledge and tools to effectively identify and support Twice-Exceptional (2e) students, those who possess outstanding abilities alongside learning, behavioral, or developmental challenges.

Participants explored the historical development of the 2e concept, examined multiple terminologies used across education, psychology, and medicine, and reviewed leading scientific classifications and definitions. The workshop delved into the cognitive, behavioral, social, and emotional characteristics that define 2e students, alongside evidence-based identification methods and specialized assessment tools.

Participants also engaged with scientific theories explaining 2e distinctiveness, analyzed international legislative models, and reviewed best practices in education and support. Interactive sessions allowed attendees to apply concepts through real-world case studies, enhancing their ability to design effective, inclusive strategies for Twice-Exceptional learners.

Workshop 7: Enhancing Creativity in Science Curricula in an Enjoyable Way (English)

Janchai Yingprayoon
Professor
Prince of Songkla University, Suratthani Campus, Suratthani, Thailand

Workshop Abstract

This workshop presented pedagogical approaches for designing science lessons that are meaningful, engaging, and pedagogically rigorous. It emphasized methods for fostering intrinsic motivation in science learning while cultivating creativity and cognitive skills.

Because students are naturally motivated by tactile materials, play, and elements of curiosity, the session explored how such materials, when strategically integrated into instruction, can stimulate intellectual engagement, promote scientific inquiry, and support the development of higher-order thinking and problem-solving skills. The session was highly interactive and featured hands-on activities utilizing innovative, locally developed, low-cost materials to demonstrate practical classroom applications.

The materials provided in the workshop included a digital sundial, a simple balance, and a simple-powerful microscope, along with pinhole spectacles and a simple thermometer. Participants also engaged with magic tables, magic pictures, and a simple boomerang, as well as activities focused on sound in daily life, the physics of "the flying seed," and fun experiments with electrostatics.

Workshop 8: Curriculum Development in Gifted Education: Supporting the Needs of Advanced Learners (English)

Kimberley L. Chandler
Director of Academics and Student Life
Johns Hopkins Center for Talented Youth

Workshop Abstract

Designing curriculum for gifted students requires both a deep understanding of their needs and the ability to translate theory into effective practice. This workshop drew on research and real-world examples in curriculum development and program implementation to provide participants with actionable strategies for supporting exceptional learners.

Grounded in evidence-based frameworks and practical case studies, the session guided participants in examining how to identify and nurture emerging potential through thoughtful content selection, research-informed instructional design, and flexible learning experiences. Emphasis was placed on creating learning experiences that appropriately challenge and nurture advanced learners. Participants engaged in structured activities and guided reflection to consider how these concepts apply to their own educational contexts.

Workshop 9: The Hidden Code of Creativity: Co-Creation between Gifted Learners and Generative AI (Arabic)

Abdullah Al-Omari
PhD student in Gifted Education
King Faisal University, Saudi Arabia

Workshop Abstract

This workshop aimed to provide a practical and academic framework for exploring the role of generative AI in gifted education—not as a tool for producing ready-made texts or solutions, but as a creative partner that opens new horizons for critical and creative thinking. The content was built on the concept of Co-Creation, where the outputs of generative models intersect with the abilities of gifted learners to produce original ideas and more innovative solutions. Research evidence and practical applications were presented to demonstrate how educators and researchers can employ these tools with pedagogical and ethical awareness, ensuring the preservation of student authenticity and minimizing biases embedded in AI outputs.

The session focused on the role of AI in enhancing critical thinking through analytical activities that compare generative outputs with credible scientific sources, while also exploring mechanisms for supporting creativity through enrichment projects based on student-tool co-generation. Additionally, the workshop addressed the psychological and ethical dimensions of AI use, providing practical strategies to mitigate risks. Through interactive group activities, participants designed applicable educational models tailored for classrooms or gifted centers.

Workshop 10: Indicators for Enhancing Innovation in General Education Schools (Arabic)

Meshal Saad Al-Sleemi
Academic Researcher and Educational Leader
King Faisal University, Saudi Arabia

Workshop Abstract

Driven by the rapid cognitive and technological revolutions of the twenty-first century, education is undergoing a fundamental transformation that shifts the focus from traditional knowledge transmission to the cultivation of creative thinking, problem-solving, and adaptability. In alignment with Saudi Vision 2030, innovation has emerged as a strategic necessity for building a knowledge-based economy, positioning general education as the primary environment for discovering talent and nurturing human capital. This workshop aims to bridge the gap between theoretical discourse and institutional practice by establishing a clear conceptual framework for innovation indicators. By analyzing the current reality of innovation practices within schools, the session provides educational practitioners with the tools needed to move beyond unstructured, individual efforts toward a systematic approach that aligns school performance with national developmental goals.

The significance of this framework lies in its comprehensive integration of seven core domains: supportive learning environments, flexible organizational structures, transformational leadership, modernized curricula, teacher empowerment, student engagement, and tangible innovative outputs. While current findings suggest that school innovation practices presently sit at a moderate level, the application of these qualitative and quantitative indicators allows for a more precise diagnosis of institutional strengths and challenges. By adopting these indicators within school development plans and self-assessment systems, school leaders can foster a sustainable culture of innovation. Ultimately, this approach transforms innovation from a series of occasional activities into a measurable, sustainable organizational practice that ensures schools are effectively preparing learners for the complexities of the modern workforce.

Full-day Session (9 AM – 4 PM)

Workshop 11: School Enrichment Model (SEM) Professional Development Workshop (Arabic & English)

- **Hoda Husseini Bibi (**Professor of Education, Lebanese Association for Rehabilitation and Development)
- **Hasan Tahsin Hajar (**KPI Training Director, Lebanese Association for Rehabilitation and Development)
- **Riyam Badih Chaar** (Professor in Educational Leadership, Arkansas State University – Qatar)

Workshop Abstract

One of the services that educators must provide involves addressing the unique needs of gifted and talented learners. Some individuals may need counseling services, while others require special education programs; like all learners, they need support to become active and play productive roles in society. Historically, many have been misdiagnosed or deprived of the opportunity to excel to their maximum potential. Consequently, educators working with these learners require continuous Professional Development Workshops (PDW) that provide them with the most updated findings in the field of Gifted Education.

To address this need, the SEM MENA ACADEMY of TAAHEEL conducted Joseph Renzulli's Schoolwide Enrichment Model (SEM) for participants at the 19th Asia-Pacific Conference on Giftedness. During the pre-conference day, SMA TAAHEEL trainers identified the characteristics of the Enrichment Triad Model and its implementation. They defined the Comprehensive Strength Assessment that teachers can utilize and described Curriculum Compacting, highlighting its benefits while mentoring highly gifted students. Furthermore, the trainers provided educators with Enrichment Clusters and a diversity of resources, while explaining Enrichment Infusion and the importance of integrating it into the curriculum. As a result of this session, participants received training and certification to implement SEM, enabling them to provide accreditation to their schools across Arab countries.

ID8: The Effectiveness of Parents` Nomination for their Gifted Children at Primary Schools in Light of Gender Differences: A Mixed Study

Norah Aldossary, King Faisal University, Saudi Arabia
Al-Bandary Al-Hassan, King Faisal University, Saudi Arabia
Zainab Alsafar, King Faisal University, Saudi Arabia
Abdulhamid Alarfaj, King Faisal University, Saudi Arabia

Keywords: Gifted Students; Parents' Nominations; Mawhiba Scale; The National Program for Gifted Identification

The purpose of this research project was to examine the effectiveness of parents nominating their gifted children in primary schools, considering gender differences. This mixed-method study involved a quantitative component that utilized a scale to assess parental nomination efficiency, with a sample of 41 parents of gifted primary students, and a qualitative component featuring semi-structured interviews with 34 parents, both male and female. Data analysis was conducted using SPSS, applying mean and Pearson correlation coefficient for the quantitative results, while qualitative data underwent content analysis. Findings from the quantitative analysis indicated no statistically significant relationship between parents` nominations and the gender variable. However, qualitative results demonstrated various levels of parental engagement regarding their children`s nomination. The study concluded with several recommendations, particularly emphasizing the necessity of raising parental awareness about the significance of nominating gifted children.

ID11: Evolution of Creative Behavior in Writing Talent in Light of Intrinsic Factors, Social Equity and Environmental Variables

Fatema Halool, Department Research, Teachers Association, United Arab Emirates

Keywords: Creative Behavior, Environmental Variables, Intrinsic Factors, Social Equity

Talents represent potentials for developing specific abilities. Creative individuals are often ambitious, forward-looking, and shaped by their environmental experiences. They demonstrate a keen interest in science and knowledge and undoubtedly possess a high degree of openness and distinct talents, which enable them to effectively leverage the resources of their communities. However, such contexts may also impose limitations on their future achievements, as they may encounter challenges in obtaining recognition for their talents—either remaining confined to mere acknowledgment or slipping into obscurity. Given their elevated intellectual expressiveness, such individuals require specialized educational environments to deepen their understanding of written communication and to enhance their strengths across various writing styles. This paper explores two key dimensions to determine the impact of social and environmental contexts on the author's personality during the process of identifying the roles for nurturing and enrichment of writing talent through result analysis. The study further aims to elucidate the intrinsic factors, the author's value perception of their literary talent, their level of self-awareness, and the influence of environmental reinforcements—whether familial or social—on their literary output. This trajectory relates to the individual's social, cultural and environmental interactions, which represent intellectually charged experiences capable of igniting creativity. The study recommends that educational frameworks consider that individual capabilities and interests are not fixed; they can either flourish or diminish depending on the availability—or absence—of favorable conditions and supportive resources.

ID:12 Quiet Talent, Loud Barriers: The Case for Gender Sensitive Gifted Education in India

Charithra Mane, India

Keywords: Exploring the quiet brilliance of gifted girls and the hurdles they face through the eyes of their parents and teachers.

With a population of 1.46 billion as of June 2025, India's vast social landscape deeply influences the evolving definition of "giftedness," which has shifted from rigid trait-based metrics toward more contextual, domain-specific perspectives (Taber, 2016). Despite the progressive framework of the National Education Policy (NEP) 2020, gifted girls—particularly those in rural areas—frequently remain invisible within the education system. This invisibility is rarely due to a lack of raw skill; rather, it is the result of systemic disparities and deep-rooted cultural norms that prioritize traditional societal expectations over individual female potential. This research explores the lived experiences of gifted girls by synthesizing the dual perspectives of teachers, who observe students in structured environments, and parents, who shape their daily emotional and cultural worlds. Utilizing a mixed-methods approach involving surveys and open-ended responses across diverse urban and rural settings, the study investigates how giftedness is perceived in Indian homes and schools, the specific socio-emotional challenges these girls encounter, and the academic support gaps that currently exist. Furthermore, it assesses the baseline awareness of caregivers and educators regarding high-ability learners. This work argues that empowering gifted girls is not merely a matter of fairness but a prerequisite for unlocking the nation's full potential. By moving toward a 2050 vision where girls are valued for their intrinsic identities rather than just their performance metrics, this study aims to streamline the development of tailor-made training programs. These resources will equip parents and teachers with the tools necessary to identify, recognize, and properly nurture giftedness, ensuring that no girl's talent is suppressed by societal bias. Ultimately, the research serves as a critical call to action to transform the domestic and academic infrastructure into a supportive ecosystem for India's next generation of female leaders and innovators.

ID:14 Relative Environmental Contribution to Fluid Intelligence and Crystallized Intelligence in a Twins' Sample in Saudi Arabia

Abdulhamid Alarfaj, King Faisal University, Saudi Arabia
Refah Aljohar, King Faisal University, Saudi Arabia
Fahad Almuaili, King Faisal University, Saudi Arabia
Abdulrahman Alsayed, King Faisal University, Saudi Arabia

Keywords: Environment, Fluid intelligence, Crystallized Intelligence, Cognitive Abilities, Twins, Artificial Intelligence

Little is known about which environmental factors are the most influential at different stages of life, and all existing studies on the topic aiming to measure the environmental and genetic impact have been conducted in Western environments. Thus, we conducted the present study to identify the environmental factors affecting intelligence at different ages and to determine the environmental factors and the percentage of variation that these factors can explain. This study included a sample of 64 pairs of twins in Saudi Arabia, N = 129 participants (age range from 4 years to 25 years). We used the Stanford-Bennie scale, fifth edition, to measure the cognitive abilities constituting fluid crystallized intelligence. We also applied the twins' information tool to the participants' mothers. The results indicated that there is a correlation between several components of fluid and crystallized intelligence and some environmental factors. The results of a multiple regression analysis revealed that there are educational, economic and social factors regarding cognitive components at each age range, with varying interpretation rates. This study provides evidence of the influence of environmental factors on intelligence and proves that the influence of environmental factors does not look identical at every age range.

ID:17 Gifted Programs and Services in Saudi Arabia: The Perspective of Gifted Specialists

Mashael Alhibs, King Saud University, Saudi Arabia

Keywords: Gifted, Programs, Services, Perspective, Specialists

The purpose of the study was to explore the general state of gifted programs and services in Saudi Arabia and investigate the perspectives of gifted specialists related to these programs and services. I used a qualitative descriptive design with two research questions: (a) What programs and services are provided for gifted students in Saudi Arabia? (b) What are the perspectives of gifted educators related to these programs and services? A total of seventeen specialists in gifted education were interviewed. The findings indicate that a variety of programs and services are implemented for gifted students in Saudi Arabia. The Participants' satisfaction with gifted education in the country varied; they shared the challenges faced in implementing the programs and services and provided several recommendations for the development. Several recommendations have been proposed to enhance Saudi Arabia's experience in the field of gifted education.

ID:19 Mentoring programs for gifted students: Practices, perceptions, and a proposed model

Maryam Rashed Alyousef, Curtin University, Australia
Cindy Smith, Curtin University, Australia
Meg Gerry, Curtin University, Australia

Keywords: Mentoring/ Gifted/ Adolescents/ Perceptions

Appropriate education is a right of all children; however, effective support is often overlooked for gifted students. Mentoring can be an effective method of support to help gifted students harness their capabilities to achieve their goals, however, existing mentoring programs often lack research-based models and frameworks. The aim of this research is to develop a comprehensive framework to facilitate the planning and implementation of successful mentoring programs for 15-17-year-old gifted students. This presentation will describe the current practices of mentoring programs for gifted students according to current literature. Next, the preliminary data for the current study will be described and discussed. This data will help to identify key characteristics of effective mentoring for 15-17-year-old gifted students and used to develop a research-based model to develop effective programs for this population. Discussion will include next steps of the study and implications for support of gifted students overall including the holistic development and realization of gifted students full potential.

ID:20 Scientific Authorship as a Pathway to Empowerment: A Framework for Cultivating Research Skills in Gifted Learners

Sarah Alhumoud, Imam Mohammad Ibn Saud Islamic University, Saudi Arabia

Keywords: Gifted education, scientific writing, research empowerment, student agency, personalized learning, 21st Century Skills

Developing scientific thinking and communication skills is essential for gifted learners to thrive in a knowledge-driven, innovation-centered future. Yet many gifted students, particularly in K-12 settings, lack structured, accessible guidance on how to read, understand, and write scientific content. This paper presents a practical framework for introducing gifted students to research and scientific writing, grounded in the author's book, "Your First Scientific Paper", and a lecture-based course that has become a core preparatory resource for students participating in international research competitions. The framework includes five developmental stages: (1) building scientific literacy, (2) generating and refining research ideas, (3) understanding structure and logic in scientific writing, (4) applying writing to real research contexts, and (5) fostering identity and confidence as young researchers. While formal assessment is still under development, the program has received positive qualitative feedback from dozens of gifted learners, expressing increased confidence, clarity, and motivation in pursuing research. Additionally, testimonials from educators and students highlight the role of the book in demystifying academic writing and encouraging independent research. The paper outlines the course content, the design principles behind the book, and a thematic analysis of the collected feedback. It also discusses how this initiative supports Saudi Arabia's Vision 2030 goals related to talent development and innovation. The approach offers a low-barrier, high-impact model for empowering gifted learners through early exposure to research practices, and holds potential for adaptation into scalable programs across diverse educational contexts. This work contributes to the ongoing dialogue on personalized learning in gifted education and proposes an integrated approach that blends curriculum design, student agency, and foundational research skills, equipping gifted youth not only to participate in academic inquiry but to lead it.

ID:23 Methods for Detecting Gifted People Using Artificial Intelligence Techniques: A Systematic Review

Samiah Alghamdi, King Faisal University, Saudi Arabia
Abdulhamid Alarfaj, king Faisal University, Saudi Arabia

Keywords: Artificial intelligence, artificial neural networks, machine learning, machine intelligence, decision tree, data mining, talent detection, academic performance prediction, and soft skills

Reliable diagnosis is the first step to helping talented students highlight their talents and invest in them optimally. From this perspective, the researcher looked at scholars evaluating the methods of detecting talented people through artificial intelligence techniques, which is a very important topic, especially in the era of technological revolution. So, the main purpose of this review is to know the extent of the use of artificial intelligence techniques in the detection of talented people. The review was conducted according to the following inclusion criteria: studies published in the English language, studies that included the key words indicated below, as well as the studies that fall within the period from (2010-2022) through a search in two high-quality search bases, "Scopus and Eric". Then, the data were evaluated to obtain a comprehensive view and identify all studies related to the detection of talent in specific fields. Studies that assess the technical field only were excluded. The researcher selected (11) studies out of (66) studies that dealt with Artificial Intelligence techniques in the detection of talented people, with the exclusion of repetitive ones and a clear focus on all areas of talent. The quality of the studies was examined, and the researcher extracted the use of artificial intelligence in each of the following areas: detecting logical, mathematical and linguistic abilities, creativity, predicting performance and academic achievement, as well as soft skills and sports field, as well as detecting readiness, tendencies and trends and their inclusion in programs that suit their abilities and capabilities. The researcher came up with a couple of recommendations for developing methods of detecting talented people with the support of artificial intelligence techniques.

ID:33 Advancing Sustainability and STEM Competencies: Insights from a Saudi Summer Program for Gifted High School Students

Jawaher.A. Alsultan, Imam Abdulrahman bin Faisal University, Saudi Arabia

Keywords: Sustainable Development Goals (SDGs), Enrichment programs, Gifted learners, Science and Engineering Practices (SEPs)

This study investigates the effect of a STEM summer enrichment program on high school students' awareness of the Sustainable Development Goals (SDGs) and the development of their science and engineering practices (SEPs). Situated within Saudi Arabia's Vision 2030, the research explores how immersive STEM experiences may promote sustainability understanding, foster innovation, and support equitable access to high-quality learning opportunities among gifted learners. The study addresses a well-recognized gap: while STEM programs for gifted learners exist, few explicitly integrate sustainability as a core objective or assess its impact on the development of applied scientific and engineering skills. Despite growing global attention to sustainability education, the alignment between gifted education and sustainability-focused STEM practice remains underdeveloped. Employing a one-group pretest-posttest quasi-experimental design, the study is currently in the data analysis phase. Quantitative data are gathered using a Science and Engineering Practices (SEP) assessment adapted from PISA, consisting of two real-world scientific investigation scenarios that evaluate students' abilities in hypothesis generation, experimental design, data interpretation, and argumentation from evidence. A separate SDG knowledge test assesses students' understanding of sustainability concepts across core themes. Qualitative data include semi-structured interviews, student focus groups, and analysis of student-produced artifacts (e.g., research reports and presentations), offering a richer understanding of students' perceptions and learning processes. Rather than concluding effects prematurely, this paper presents the study framework and data collection approach as a foundation for future analysis. It outlines how the mixed-methods design will support a robust understanding of how gifted students engage with SEPs and sustainability themes during immersive STEM programming. Attention is also given to gender-related patterns and the contextual factors influencing STEM learning outcomes. This submission contributes to the conference theme of building inclusive and sustainable futures by presenting a model for how STEM enrichment can be designed to develop 21st-century skills.

ID:39 Stages of Talent Development in the Field of Creative Writing among Writers of Stories and Novels: The Influence of Chronological Age, Internal Factors, and Environmental Factors

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Keywords: Talent development, creative writing, internal factors, environmental factors.

The study investigated the stages of talent development in the field of creative writing among story and novel writers, to examine the influence of chronological age, internal factors, and environmental factors. We used a qualitative methodology with a phenomenological design and conducted in-depth interviews with writers and novelists in the Kingdom of Saudi Arabia. There were 21 participants (18 males/3 females) whose ages ranged from 35 to 72 years, with an average age of 53 years. After processing the qualitative data, we identified three stages of talent development with different time frames. Each stage is affected by environmental and psychological factors that contribute to developing creative writing talent and reaching excellence. Through the analysis, we estimated the timing for the beginning and end of each stage and the factors that affect them; five factors affected the first stage, and three factors affected each of the second and third stages. We also found mutual correlations between some factors, and independence among others. Based on the findings, we discuss how these factors work according to the model's assumptions, and the assumptions that support participants' success in dealing with challenges and approaching exceptional excellence. Finally, we put forward a number of recommendations.

ID:44 Global Trends in Research on Giftedness in Mathematics: A Systematic Review

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Keywords: Giftedness, Mathematics

The rapid technological and scientific advancements in the modern era have underscored the crucial role of mathematics as a foundation for progress in various fields. Mathematics is central to developing the academic abilities of gifted students, as it integrates with all scientific and applied domains. Recognizing its significance, many countries strive to enhance the skills of gifted students in mathematics to enable them to compete globally. This study aimed to analyze and evaluate the most prominent global research trends in giftedness in mathematics and to identify existing research gaps at both global and Arab levels. A systematic review methodology was adopted, gathering data from official documents, reputable websites, and relevant literature. The review included studies published in Arabic and English from 2016 to 2022, sourced from EBSCO and Almandumah databases. Inclusion criteria were based on predefined search terms in the keywords, while irrelevant studies were excluded after screening. The results indicate that research trends in giftedness in mathematics are diverse across global and Arab contexts, except for developmental studies, which remain notably scarce. International research, particularly in Western and American contexts, often addresses gifted students from various ethnic and cultural backgrounds. However, there is a substantial research gap and a severe shortage of studies in Arab contexts, especially in Saudi Arabia. This review emphasizes the need for more developmental studies in mathematics giftedness, the enhancement of educational content through expert collaboration, and the adaptation of successful global experiences to align with local cultural and social contexts.

ID:45 Towards Creative School Leadership: Exploring Leadership Competencies that Support Talent Development in Omani Schools

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Keywords: Leadership Competencies, Creative School, Public Schools, Educational Leadership, Student Talents.

This study aims to identify the core competencies that school leaders must possess to develop creative schools focused on nurturing student talents. The research is based on qualitative interviews with 25 experts and academics from Omani universities, all of whom hold doctoral degrees and specialized expertise in educational administration, creativity, and talent development, representing various academic ranks and genders. Data were analyzed using MAXQDA software to gain in-depth insights into the necessary leadership capabilities. The results indicate that effective school leaders contribute decisively to building educational environments that stimulate innovation. They do so by possessing competencies such as strategic thinking, effective communication, human and technical resource management, and the enhancement of community partnerships. The study also identified key challenges facing leaders, including resistance to change, lack of institutional support, and a shortage of specialized training programs. The findings suggest the necessity of developing advanced training programs that support leaders in enhancing their creative and leadership skills, alongside strengthening institutional support and an innovative culture within schools. Furthermore, the study recommends activating community partnerships to support talent development and highlights the need for future research to examine the impact of these competencies on improving educational quality. This study underscores the importance of school leadership as a fundamental factor in achieving the vision of creative schools, which in turn contributes to preparing generations capable of competing locally and globally, thereby supporting national development and enhancing the quality of education in Omani society.

ID:46 Creative Achievement Questionnaire Adapted to Turkish Culture: A Study on Gifted Students

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Keywords: Creative achievement, gifted, adaptation of the scale, gender

Contemporary literature continues to emphasize the intersection of creative thinking skills, achievement, and individual potential (Jauk et al., 2013). Creative achievement is generally defined as the tangible products generated by an individual (Carson et al., 2005). When viewed through a domain-specific lens, these achievements span a diverse spectrum ranging from creative writing to the culinary arts. The primary objective of this study was to adapt the "Creative Achievement Questionnaire" (CAQ) into Turkish culture and examine the creative achievement levels of gifted high school students through the variable of gender. Data were collected cross-sectionally during the 2024–2025 academic year at a specialized high school for gifted education as part of a master's thesis. The adaptation process followed a rigorous methodological framework: securing permissions, forward and backward translation, reconciliation, content validity assessment, pre-testing, and psychometric investigation. Explanatory factor analysis revealed a three-factor structure consistent with the original instrument. These factors were identified as "creativity in the social domain," "creativity in the artistic domain," and "creativity in the technical domain." Significant differences were confirmed between students in the top and bottom 27% for each factor using independent t-tests. The scale demonstrated a Cronbach's alpha of .57 and a composite reliability score of .88, suggesting that the instrument provides reliable and valid results within the Turkish context. Analysis of gender-based differences revealed that female students scored significantly higher in the "artistic domain," while male students outperformed their peers in the "technical domain." No significant gender differences were found regarding "creativity in the social domain." These findings are significant as they validate the CAQ for use in Turkey and highlight how gifted students' creative achievements diverge across specific sub-domains based on gender. This study contributes to the empirical literature on domain-specific creativity and provides a robust tool for evaluating creative achievement in gifted populations.

ID:48 The Difference of Coping Mechanisms between Gifted Female and Gifted Male Adults During September-November 2024 Crisis in Lebanon

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Keywords: coping mechanisms, female gifted adolescent, male gifted adolescent, Lebanon

This study investigated the gender-specific coping mechanisms of gifted adolescents in Lebanon during the period of crisis from September to November 2024. Utilizing a narrative inquiry methodology, the researchers engaged with eight gifted young adults—four females and four males between the ages of 17 and 24—who were displaced during this timeframe. The research aimed to identify how these individuals differed in their cognitive and emotional processing of war-related trauma, the specific coping strategies they employed, and how these insights could better equip mentors, parents, and caregivers to provide targeted support. Findings revealed distinct gender-based dimensions of stress response: gifted males frequently reacted with shock, confusion, or emotional detachment, often leading to academic disruption and disinterest. Conversely, gifted females were more likely to express emotions openly through outlets such as crying, journaling, or music; while they continued their educational pursuits, they did so with diminished productivity. In terms of coping strategies, males leaned toward logical reframing, religious reflection, or emotional suppression. In contrast, females prioritized emotional expression and community involvement to navigate the crisis. The study concludes that the experiences of gifted adolescents are highly nuanced, requiring specialized interventions to prevent long-term psychological harm. The researchers argue that creating safe, choice-based environments—where gifted youth can express feelings, maintain academic continuity, and engage in purposeful action—is essential for both genders to process trauma in ways that foster resilience rather than vulnerability. By understanding these diverse processing styles, caregivers can move beyond one-size-fits-all approaches, ensuring that the unique cognitive and emotional needs of gifted individuals are met during periods of severe instability, ultimately transforming a potentially debilitating experience into a foundation for future psychological strength and leadership.

ID:67 Where are gifted preschoolers? A follow-up study after twenty years

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Chin-Chih Kuo, National Taiwan Normal University, Taiwan

Keywords: Preschool gifted program, preschool gifted children, longitudinal study, career decision-making.

The Special Education Center at National Taiwan Normal University implemented a pioneering Preschool Gifted Enrichment Program in 2003, which served four cohorts totaling 73 students. Twenty years later, these individuals, now aged 23 to 27, are navigating higher education and the initial stages of their professional careers. This longitudinal study aims to track their talent development and evaluate the long-term impact of early gifted intervention. Employing a mixed-methods approach, the research utilizes questionnaires to assess educational experiences and interviews to explore the multifaceted factors—individual, familial, educational, and sociocultural—that have shaped their career decision-making processes over two decades. The findings reveal that nearly all participants pursued higher education at elite domestic or international universities, with a significantly higher rate of gifted service enrollment throughout their schooling compared to regular peers. Regarding satisfaction, no significant differences were found across various educational stages; instead, satisfaction was consistently driven by personal motivation, high-quality curricula, diverse learning opportunities, and positive teacher-student relationships. Career trajectories were deeply influenced by the interplay between personal characteristics and the guidance of significant others, including parents and teachers. The results suggest that career outcomes are the product of complex interactions within the broader sociocultural system rather than isolated educational interventions. By examining these life paths, the study provides critical insights into how early gifted programming correlates with long-term academic success and professional alignment. Ultimately, these findings underscore the importance of sustained, high-quality gifted services and supportive social networks in fostering the potential of high-ability learners as they transition into adulthood. This research contributes a vital longitudinal perspective to the field, highlighting that while early enrichment sets a foundation, the continuous interaction between the individual and their environment determines the final trajectory of talent development in a rapidly evolving global workforce.

ID:76 A Proposed Framework for Identifying Different Categories of Gifted Students in the Kingdom of Saudi Arabia in Light of the Experiences of the United States, Australia, and Singapore

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Albandari Alotaibi, King Faisal University, Saudi Arabia

Keywords: Proposal, Gifted Identification, Gifted

This study aimed to reveal the methodology of identifying gifted and talented students used in the Kingdom of Saudi Arabia, as well as to study the reality of identification in a group of countries such as America, Australia and Singapore, to shed light on the most prominent methods used by them in identification, as they are among the developed and prominent countries, where they were able to achieve global achievements that indicate their progress in this field. To achieve this, the researchers used the analytical descriptive approach to suit the objectives of the current study, and they worked to study the reality of the identification process in previous countries to benefit from their experiences and employ them in a proposed identification methodology that works to identify different categories of gifted students (disadvantaged, twice exceptional, low achievement, and people with different cultures). and can be implemented at the school level.

ID:87 Facilitators and Barriers to Talent Development in Science from the Perspectives of Gifted Individuals and Their Parents

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Abdulhamid Alarfaj, King Faisal University, Saudi Arabia

Keywords: Giftedness, talent development, science

The study aimed to identify the stimuli and obstacles to talent development in science; From the point of view of gifted individuals and their parents, the study followed the qualitative approach (designing the phenomenon study), and the number of participants in the study was (3) talented individuals and (3) parents. The participants were selected in an intentional manner, and data were collected using the Semi-Structure Interviews tool. After analyzing the data using objective analysis, two categories of stimuli were found; Internal stimuli included (personal characteristics, abilities and capabilities), and external stimuli included (family support and educational opportunities). As for the obstacles, two categories were reached, internal obstacles that included (the influence of personal and psychological traits, the weakness of some skills), and external obstacles that included (the influence of the family and society, and Insufficient supportive educational infrastructure).

ID:89 Driving Excellence in Education: The EFQM–Hamdan Education Model as a Framework for Transformational Impact

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Keywords: EFQM–Hamdan Education Model

Achieving excellence in education has become a global imperative, closely tied to national development agendas, knowledge economies, and international competitiveness. In response to these complex demands, the Hamdan Bin Rashid Al Maktoum Foundation for Medical and Educational Sciences, in partnership with the European Foundation for Quality Management (EFQM), launched a pioneering initiative: the EFQM–Hamdan Education Model. This paper presents an analytical exploration of the model, which serves as a robust, context-responsive framework designed to enhance the performance, innovation, and sustainability of educational institutions. The EFQM–Hamdan model integrates the principles of quality management with a visionary approach to giftedness, innovation, and academic distinction. It provides a systemic methodology for evaluating and improving institutional practices, fostering a culture of continuous development, and recognizing outstanding educational achievements across all levels. Through a review of its conceptual foundations, implementation pathways, and early outcomes, the paper evaluates how the model aligns with global excellence standards while remaining deeply rooted in regional educational aspirations. By offering a dynamic lens through which educational institutions can assess their maturity, define strategic priorities, and engage in transformative practices, the EFQM–Hamdan Education Model emerges as a catalyst for systemic reform. This presentation will be of interest to policymakers, institutional leaders, and quality assurance professionals seeking scalable, evidence-based frameworks that bridge global excellence with local impact.

ID:91 The Academic School Uherské Hradiště and the Centre for Research on Natural Science Education and Talent-Management - examples of cooperation

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Věra Olšáková, Academic School Uherské Hradiště, Czechia

Keywords: Academic School, Research Centre, practice examples, with gifted students, data analysis

The philosophy of the Academic School in Uherské Hradiště is based on an individual approach to each child, because each brain is unique and has its own ways of storing and using what it has learned. For gifted students, the most important thing is the ability to choose their own learning methods. In our article, we offer practical examples of the results of student projects that develop their personal potential and allow them to capitalize on their talent. We present the way in which, in cooperation with the Centre for Research on Natural Science Education and Talent-Management, how we support teachers from Academic School, how we conduct joint research, and also how we show future teachers from the Faculty of Science of the University of Ostrava to educational strategies that lead Academic School graduates to professional and personal success.

ID:92 A Study on the Impact of the History of Science Curriculum on the Career Development Perspectives of Mathematically and Scientifically Gifted Students

Yenhung Shen, Taiwan, Yenwei Chen, Taiwan

Keywords: History of Science Curriculum, Career Development, Mathematically Gifted Students

This study was designed to discover the effect of a history of science curriculum on the career development perspectives of mathematically gifted junior high school students. The subjects were 23 ninth-grade students, comprising 13 boys and 10 girls, who participated in the curriculum and provided feedback through focus groups and semi-structured interviews. These qualitative methods aimed to gain an in-depth understanding of students' perceptions and subsequent behavioral changes. The findings revealed six primary impacts. First, the curriculum expanded career horizons; by studying scientific milestones, students gained insight into diverse fields such as research, innovation, and policy-making, helping them establish goals aligned with their specific interests. Second, the curriculum stimulated interest and motivation, as inspiring historical narratives ignited a passion for mathematics and science that enhanced academic focus. Third, it developed critical thinking and problem-solving skills by helping students understand the evolution of knowledge, a crucial asset for tackling complex future professional challenges. Fourth, the course enhanced social responsibility; students recognized the impact of technology on public health and ethics, integrating this awareness into their future career considerations. Fifth, it fostered interdisciplinary competence by emphasizing the profound connections between science, society, history, and culture, preparing students for diverse professional paths. Finally, the curriculum helped in building role models and confidence; by learning about the groundbreaking contributions of historical figures, students gained the resilience and self-assurance needed to face their own academic challenges. In conclusion, integrating the history of scientific development into gifted education does more than impart facts; it plays a transformative role in shaping career perspectives, social ethics, and overall competencies. This holistic approach ensures that mathematically gifted students build a strong foundation for their future academic and professional endeavors, viewing science not just as a classroom subject, but as a viable, multi-faceted, and socially responsible career path.

ID95: An Analytical Survey Study of Arabic Research Dealing with the Guidance of Gifted Students from 2018-2023

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Keywords: content analysis, survey method, guidance, gifted people

The current study aimed to describe and analyze the content of Arab studies that dealt with guidance in the field of the gifted from 2018 to 2023 AD, in terms of the countries that published the most studies on gifted guidance, the most addressed research objectives, the areas of guidance, the most used methodologies, and the most targeted samples in the published studies. The descriptive analytical method was employed to suit the nature of the study. The study sample consisted of (132) Arab studies. The results showed that the Kingdom of Saudi Arabia, Egypt, and Algeria held the top positions in addressing the field of guidance for the gifted. Most of the studies aimed to describe phenomena, which constituted 40% of the total published studies, followed by the goal of skill development. Studies on determining the characteristics of standards and services were the least common among the studies. The results also indicated that the field of psychological counseling was the most covered field, at a rate of 43%, followed by academic counseling at a rate of 24%, and professional counseling was the least covered at a rate of 16%. Regarding the methodologies used in the published studies, the descriptive method was the most used at a rate of 49%, followed by the quasi-experimental method at a rate of 31%, while the survey and qualitative methods were the least used. Regarding the samples, the largest group was teenage students in the middle and secondary stages, at 20%, followed by teacher guidance at 14%, studies of counselors at 3%, and parents at 2%, being the least among the published studies. These results were utilized with some recommendations by the researchers.

ID:97 Learning Across Borders: Comparative Insights from Gifted Education Curriculum Models in Taiwan and Australia

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Keywords: gifted education, Curriculum models, Acceleration, Enrichment, Comparative study

This study adopts a literature research approach to compare the curriculum models of gifted education in Taiwan and Australia. Data were collected from scholarly works, government policy documents, and professional association reports, with Walsh (2018) synthesis of the Australian context serving as a key reference. The findings indicate that Taiwan's gifted education is grounded in a strong legal framework, including the Special Education Act and the Regulations on Gifted Education, and is implemented through institutionalized models such as self-contained gifted classes, resource rooms, and itinerant consultation. The curriculum commonly combines acceleration and enrichment, emphasizing independent projects, creativity training, and affective support. In contrast, Australia operates under a decentralized education system, where states adopt varying policies. The dominant approach emphasizes differentiation within regular classrooms, with initiatives such as New South Wales Opportunity Classes and Victoria's High Ability Program offering additional enrichment. Acceleration, including early entry, is widely accepted and supported by state guidelines, reflecting greater flexibility in provision. Despite these strengths, Australia faces challenges of fragmentation and inequity due to policy inconsistency across states, while Taiwan, despite its systematic safeguards, struggles with limited curricular flexibility and insufficient teacher training. The comparative analysis suggests that Taiwan could benefit from incorporating Australia's flexible and differentiated curriculum practices, whereas Australia might strengthen its system through more consistent national-level frameworks. Overall, the study highlights the complementary lessons each system offers, providing insights for advancing gifted education curriculum models in the Asia-Pacific region.

ID:105 The Support and Challenges in a School-based Gifted Program: A Retrospective and Reflective Study of a Graduated Mathematically Gifted Middle School Student

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Keywords: Case Study, Gifted Education, School-based gifted program

This study explores the supportive efficacy and adaptation challenges of a school-based gifted program within a junior high school in New Taipei City, employing a single-case follow-up design focused on a graduated student with gifted aptitude in mathematics and science. Through interviews with the student, teachers, and parents and subsequent thematic analysis, the research revealed that while the program facilitated deep learning and higher-order thinking, it faced two core limitations: a lack of cross-disciplinary integration and exploratory elements due to teachers designing courses strictly within their specializations, and inflexible timetabling that led to time management difficulties, reduced sleep, and staffing hurdles. To address these issues, the study proposes a three-pronged framework of specific support strategies consisting of needs assessment and goal setting through individualized learning portfolios, collaborative curriculum design led by gifted education teachers to develop more inspiring content, and an Individualized Guidance Plan (IGP) model where case managers and subject teachers dynamically adjust curriculum depth and time management based on student feedback. Findings indicate that existing school-based service models cannot fully address the diverse learning needs of academically exceptional students, emphasizing that differentiated systemic adjustments are essential to transform challenges into opportunities. Ultimately, this research provides an evidence-based foundation for educational practitioners to advance more adaptable support models that simultaneously foster academic excellence and holistic well-being. By focusing on the interplay between curriculum structure and student lifestyle, the study underscores the necessity of moving beyond rigid instructional silos toward a more synchronized, student-centered approach in gifted education. This ensures that the academic rigor of school-based programs does not come at the expense of the student's physical health or interdisciplinary curiosity, providing a scalable model for similar educational contexts.

ID:109 Gifted but Forgotten: A Retrospective Longitudinal Case Study of a Saudi Woman's Gifted Identity from School to Adulthood

Ranna Alshehri, Saudi Arabia

Keywords: Gifted women; Identity loss; Institutional support; Saudi Arabia; DMGT

Gifted education has gained increased attention worldwide, yet the long-term lived experiences of gifted individuals—particularly women in Saudi Arabia—remain underexplored. This qualitative study, grounded in Gagné's Differentiated Model of Giftedness and Talent (DMGT), employs a retrospective longitudinal single case study design to examine the educational and professional trajectory of a Saudi woman identified as gifted in middle school. The study collected data through a semi-structured interview, supplemented by documentary evidence, and applied thematic analysis using Braun and Clarke's (2006) framework. Six key themes emerged: silent giftedness, identification without empowerment, decline of institutional support in secondary school, loss of gifted identity in higher education, dormant talent in the workplace, and delayed inner maturity. These findings reveal that while intrapersonal catalysts such as resilience contributed to personal growth, the absence of sustained environmental and institutional support hindered the transformation of early aptitude into long-term talent. The study underscores the fragile nature of gifted identity in the Saudi context and highlights the importance of extending gifted education policies beyond early identification to encompass higher education and career development.

ID:112 Beyond the Intellect: Examining Research Gaps and Developmental Needs of the Exceptionally Gifted

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Keywords: Exceptional giftedness, Research gaps, Cognitive and Socio-emotional Needs; Educational support; Methodologies.

This paper critically examines current literature on exceptional giftedness, highlighting how unique cognitive and socio-emotional traits distinguish this population from both age peers and other gifted learners. It discusses insights regarding asynchronous development, heightened sensitivity, and advanced reasoning, while presenting research that demonstrates how these individuals benefit most from acceleration. Despite their high potential, the paper notes that a significant number underachieve, particularly those who are twice-exceptional. A key observation is that localized research in Asia remains primarily focused on classroom practices and curriculum design, often neglecting the unique developmental trajectories and lived experiences of the exceptionally gifted. The paper identifies four critical gaps in the field: methodological limitations, where knowledge is often restricted to small-scale case studies; an incomplete understanding of biological and cognitive processes and their interaction with the environment; insufficient exploration of socio-emotional challenges; and a lack of clarity regarding responsive, holistic educational approaches. Specifically, the paper advocates for more robust research designs to move beyond generalized gifted education. It emphasizes that the most pressing gap for educators involves providing support that addresses the entire spectrum of emotional, social, and academic needs rather than focusing solely on intellectual development. By sharing these insights and deficiencies, the paper serves a dual purpose: it helps researchers focus their efforts on producing meaningful scientific knowledge and assists practitioners in identifying improved support strategies. Ultimately, addressing these research gaps is crucial for creating effective interventions that foster better long-term outcomes for exceptionally gifted individuals. By moving toward a more integrated understanding of these learners, the field can better support their unique potential and prevent the common pitfalls of underachievement and social isolation. This synthesis provides a comprehensive roadmap for both advancing theoretical frameworks and enhancing the practical, real-world application of gifted education strategies across global contexts.

ID: 118 The Kim Effect: The Creativity Crisis and Declines in Divergent Thinking – New Evidence from Outside the American Context

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Keywords: Creativity Crisis; Kim Effect; Divergent Thinking; Torrance Tests of Creative Thinking (TTCT)

Research in the field of creativity over the past two decades has witnessed a broad debate regarding the "Creativity Crisis," a concept introduced by researcher Kyung Hee Kim in 2011. Kim analyzed the Torrance Tests of Creative Thinking (TTCT) data from a massive sample of over 274,000 American children and adolescents across four generations, from the 1970s to the early 21st century. Her results revealed a troubling trend: a significant decline in divergent thinking abilities—the core component of creativity—among modern generations compared to their predecessors. According to the University of Georgia, Kim's work "dropped a bombshell" via a 2011 Newsweek cover story. This article reported that creativity scores, which had been rising until 1990, were now in a sharp downturn. This study served as primary evidence that performance on standardized creativity assessments is experiencing a documented decline within the United States. The current study seeks to explore potential longitudinal changes in divergent thinking scores within a non-Western context. This research compares results from two administrations of the standardized Torrance Test (Circles) in elite private schools in Khartoum, Sudan, over a 13-year interval (2005 and 2018). The 2005 sample included 2,130 students (1,075 males, 1,055 females), while the 2018 sample grew to 3,922 students (1,874 males, 2,044 females), all aged between 8 and 12 years. The results showed a marked decline over the studied period across all three dimensions of the test—fluency, flexibility, and originality—as well as the overall divergent thinking index. Consistent with previous literature, female students outperformed males throughout the study. This research provides critical insights and potential explanations for the decline of creative indicators within a non-Western society, mirroring trends previously observed in the United States.

ID:135 Extending Gifted Education to Non-Metropolitan Schools: The Implementation and Impact of Taiwan's Itinerant Support System

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Keywords: gifted education, educational equity, itinerant support, gifted identification, teacher collaboration

Educational inequity caused by uneven resource distribution has long posed challenges to Taiwan's gifted education. In response, Keelung City launched a gifted itinerant support system in 2024 (School Year 113) to extend services to schools without gifted classes and improve accessibility. This initiative broadens the scope of gifted identification and placement, enables students to receive services within their home schools, and strengthens cross-school collaboration through curriculum support networks. This study adopted a multi-method research design, incorporating both policy document analysis and in-depth interviews. Findings from 2024–2025 (School Years 113–114) demonstrate a notable expansion in the scope of gifted identification. At the elementary level, the number of schools identifying students with general intellectual giftedness increased from three schools (8%) in 2023 to ten schools (26%) in 2024. At the junior high level, the identification of English gifted students expanded from one school (7%) to eleven schools (79%) by 2025, reflecting the system's considerable capacity to identify gifted potential across diverse educational contexts. Interviews with three itinerant teachers and three host school teachers further indicated that providing gifted education services within students' home schools, together with fostering interschool collaboration, has enhanced access to educational opportunities and advanced equity. Overall, the itinerant support system demonstrates its effectiveness in expanding gifted education to under-resourced schools and contributes meaningfully to the broader policy objective of ensuring equal educational opportunities.

ID:150 After-school English activities aimed at individual growth within diversity.

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Keywords: TADOKU, Extensive reading, Diversity, Twice Exceptionality, Lifelong learning, Second Language

In Japan, gifted children are currently supported within inclusive classrooms without formal identification. This study investigates the impact of an "After School English Club" at a small, unit-based high school—serving a diverse student body including those with school refusal histories, financial hardships, and developmental disabilities—on students' motivation to learn English. The research objectives focus on whether an informal, textbook-free environment can uncover unidentified giftedness and foster academic aspirations. Utilizing a "non-teaching" methodology, where teachers propose ideas and students exercise agency over their learning, the study employs a two-year longitudinal research design spanning four academic terms. Data collection instruments include participation counts, teacher observations, student creations, and reflection essays to provide a qualitative and quantitative overview of student engagement. Initial results suggest that incorporating multisensory activities, such as cooking and dining, stimulates natural conversation and social interaction more effectively than traditional sight-and-sound methods. For instance, a single cooking session attracted 10% of the total school population, while bilingual newspaper activities allowed students with varying proficiencies to engage with content aligned with their personal interests. These activities have successfully increased English exposure and bolstered student confidence, with some participants subsequently advancing to vocational schools and four-year universities. A key future challenge is expanding these diverse learning styles to include intergenerational interactions, such as holding English story readings for young children at the co-located public library. Ultimately, the study demonstrates that by removing the constraints of formal curricula and fostering a choice-based environment, educators can create a supportive ecosystem where students—including those with hidden giftedness—can thrive. This holistic approach not only improves language acquisition but also serves as a critical bridge to higher education for students from complex socio-economic backgrounds, proving that alternative enrichment programs are essential for unlocking a nation’s diverse potential.

ID:154 Mentoring Practices for Gifted Students in the Context of Science and Art Centers in Türkiye: A Qualitative Study Based on the Opinions of Field Experts

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Keywords: gifted, mentoring, Science and Art Centers, academics, Türkiye

In Türkiye, the education of gifted students is primarily facilitated through resource rooms, specialized high schools (science, fine arts, and social sciences), and Science and Art Centers (BİLSEMs). While these institutions offer enrichment, grouping, and limited acceleration, the current system often fails to fully meet the advanced and differentiated developmental needs of high-ability learners. Consequently, there is a growing demand for complementary strategies to deepen existing educational frameworks. Mentoring serves as a vital support strategy alongside traditional practices, yet research and application of mentoring within Türkiye's gifted education landscape remain notably scarce, with only five identified peer-reviewed articles on the subject. This study aims to address this gap by exploring how mentoring can be effectively integrated into BİLSEMs—the nation's most widespread after-school service for gifted children. The research focuses on capturing the perspectives of academic experts regarding the functionality and implementation of such programs. The methodology involves a qualitative approach, conducting online semi-structured interviews with 5–10 university faculty members specializing in gifted education. Data collected via these forms will undergo rigorous transcription and content analysis. The findings are expected to contribute significantly to the establishment of structured, mentoring-based support systems within Türkiye. Beyond local impact, this research aims to provide a foundation for international comparative analyses, aligning Turkish gifted education practices with global models. Ultimately, by shifting toward a more personalized mentoring approach, the study seeks to transform existing educational challenges into opportunities for holistic talent development, ensuring that the diverse needs of gifted individuals are met through evidence-based, systemic integration.

ID:157 High School Teachers' Perceptions of An Indigenized Science, Technology, and Society-Inspired Curriculum Framework for Gifted Students in the Philippines

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Keywords: high school teachers, Indigenous Knowledge Systems and Practices (IKSP), gifted students, culturally grounded Education, Science Technology and Society (STS), Philippines

This study explores the indigenization of a Science, Technology, and Society (STS)-inspired curriculum framework for gifted STEM education (Pawilen & Sumida, 2025) by examining a follow-up analysis of data gathered from 12 rural and urban high school teachers in the Philippines. Using purposive sampling, open-ended online questionnaire, and thematic analysis, the data were collected and reanalyzed to determine curriculum gaps and strategies for integrating Filipino culture into STEM lessons for the gifted. The results highlight the need of incorporating indigenous knowledge to enhance gifted students' cultural understanding, appreciation, and learning engagement. For instance, in Earth & Space Science, lessons may integrate Western scientific concepts with indigenous cosmology to promote conceptual understanding while fostering cultural appreciation. Based on these findings, refinement of the STS-inspired curriculum framework is proposed to align Indigenous Knowledge Systems and Practices (IKSP) with STEM content standards across Earth and Space Science, Mathematics, Biology, Chemistry, and Physics. The framework aims to develop gifted students' cognitive, creative, socio-emotional, and ethical skills through differentiated instruction, STS-inspired inquiry, indigenized pedagogy, and resilience-building activities. It also encourages gifted students to apply scientific knowledge and technological innovations through a holistic approach integrating Western and indigenous perspectives, while addressing community needs. Through this holistic approach, partnerships with indigenous communities will be fostered to provide guided immersion and experiential learning of IKSP and practical indigenous resilience-building. Gifted students may also be encouraged to engage in project-based collaborations with indigenous communities to co-design relevant solutions. This study suggests that an indigenized STS-inspired curriculum would provide meaningful opportunities for gifted students to learn STEM and their culture in an integrated and practical manner.

ID:164 On Relationship between Ballet Dancing and EEG Brainwaves: Preliminary Experiment and Analysis

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Keywords: EEG, Ballet, Dance

The goal of this paper is to collect and arrange materials for formulating the relationship between ballet dancing and EEG (Electroencephalography) brainwaves, such that the result can be further interpreted in terms of how ballet dancing affects the performers' state of mind. In our experiment, standard ballet movements, for example, plié and relevé, are performed by ballet students at "Dance Centre School of Performing Arts." The students' EEG brainwaves data are measured by Emotiv's "EPOC X - 14 Channel Wireless EEG Headset." Raw measured brainwaves are then spectrally analyzed using Short-Time Fourier Transform (STFT) such that brainwaves at specific time durations can be divided into several frequency components. These components, namely, delta, theta, alpha, beta, and gamma, can be used to further interpret the dancers' state of mind during dancing. From the result, we find that performing some ballet movements, e.g., relevé, can stimulate brainwaves in the gamma range, which is the one with highest frequency. This type of waves is associated with peak concentration, heightened focus, information processing, memory, and consciousness. This suggests active, complex cognitive states in ballet students.

ID:166 Tamkeen Enrichment Program - The Non-Profit Sector's Experience in Nurturing and Empowering Gifted Students through Implementing the Al-Waha Enrichment Model

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Keywords: gifted education, Tamkeen enrichment program, Al-Waha Model, non-profit sector, Al-Ihsan Social Services Association, Saudi Arabia

The Tamkeen Enrichment Program represents a strategic investment in Saudi Arabia's human capital, designed to accelerate the development of gifted intermediate students beyond traditional school hours. Aligned with the Human Capability Development Program of Saudi Vision 2030, the initiative utilizes the Al-Waha (Oasis) Model developed by Prof. Abdullah Aljughaiman. To date, over 100 students have completed nine consecutive in-person courses, totaling 72 training hours each, focusing on advanced scientific themes such as food, energy, electronic chips, and natural resources. The program employs sophisticated pedagogical strategies, including Self-Regulated Learning (SRL), Creative Problem Solving (CPS), Future Creative Problem Solving (FPSP), and the Independent Investigation Method (IIM). These activities are led by expert trainers selected based on six core attributes: enthusiasm, caring, flexibility, scientific competence, humility, and commitment, following 120 hours of professional development. Distinguished participants advance to an intensive 21-day residential summer camp centered on English language proficiency, STEAM-based projects, and fostering disciplined, productive behaviors. Scientific monitoring and feedback from parents and specialists confirm significant positive outcomes, including increased creative capacity, higher motivation, reduced introversion, and strengthened self-confidence. Students have demonstrated improved public speaking skills, the establishment of home libraries, and sustained academic excellence. By integrating the roles of family, the public sector, and non-profit organizations, Tamkeen serves as a pioneering national model for gifted education. Its success in fostering holistic growth—encompassing cognitive, social, and personal dimensions—provides a scalable framework for achieving the Kingdom's strategic objectives. Ultimately, the program acts as a vital gateway for nurturing the next generation of distinguished leaders, ensuring that gifted learners are equipped with the 21st-century competencies required to thrive in a globalized economy and contribute meaningfully to their communities.

ID:182 A Proposed Model and Framework for Developing a Curriculum for the Gifted in the Philippines

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Keywords: Gifted education, Curriculum Framework, Philippines

The implementation of the K to 12 Education provided an opportunity for the advancement of gifted education in the Philippines especially in public schools. This paper identifies different existing programs for gifted education in the country, and discusses the issues and challenges experienced by teachers and administrators in implementing the curriculum for the gifted in public schools. It presents a proposed curriculum development model that builds on a curriculum process followed by the Department of Education and based on accepted principles and theories of curriculum development. This paper also presents a proposed curriculum framework to guide teachers in designing curricula for gifted education. The proposed curriculum development model and curriculum framework could serve as a guide in the development of a curriculum for gifted students in all public schools across the country.

ID:183 Construction and Standardization of a Family Upbringing Styles Scale for Gifted Students in the Sultanate of Oman Based on Parental Perception

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Keywords: Gifted Students, Family Upbringing Styles, Exploratory Factor Analysis (EFA), Validity, Reliability.

This research aims to construct and standardize a Family Upbringing Styles Scale for gifted students in Oman based on parental perception, verifying its psychometric properties. The scale includes 48 items across four dimensions: Democratic, Overprotection, Encouragement, and Preference. Utilizing a descriptive-correlational design and Exploratory Factor Analysis (EFA), the tool was administered to a sample of 490 parents, with data analyzed via SPSS. Descriptive results confirmed sample diversity across Omani governorates, age groups, and gender. Normality tests (skewness and kurtosis) indicated data regularity within acceptable limits for regression analysis, confirming sample adequacy for EFA. Factor analysis results demonstrated stability, with 29 items reaching required loadings. The "Preference" dimension explained 17.092% of the total variance, followed by "Overprotection" (9.738%), "Encouragement" (7.200%), and "Democratic" (4.333%). Factor loadings for all items ranged between 0.412 and 0.707. Internal validity was confirmed using Pearson correlation coefficients between items and dimension scores, with values ranging from 0.438 to 0.612 ($p < 0.001$). Cronbach's Alpha coefficients showed acceptable reliability: Preference (0.743), Encouragement (0.722), Overprotection (0.702), and Democratic (0.653). The scale's total reliability was 0.658, indicating it can be utilized with acceptable confidence. The researcher concludes that this scale is a reliable instrument for identifying supportive and non-supportive family environments for gifted students. This study contributes to developing standardized tools for studying familial factors in talent development, impacting educational policies and counseling programs within the Arab context. By providing a validated measure, it allows for more targeted interventions to support gifted individuals through family-centered approaches.

ID:188 The Main Principles for Gifted Special Schools.

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Keywords: gifted education, school transferability, educational principles, qualitative case study, gifted schools.

This study explores the transferability of a gifted school model from the United States by examining the Saudi context through a case study of an American gifted school. Using a two-stage qualitative design, data were collected through fieldwork, coded into categories, and developed into themes to identify key educational components. The results indicate six core principles: Educational Setting, Leadership and Personnel, Identification Process. School Program, Counseling, and Curriculum. These principles revealed the structural, operational, and pedagogical aspects that define the functioning of gifted school, including student identification, staff roles, program design, and support services. These findings suggest that these principles can provide a framework for adapting and establishing gifted schools in Saudi Arabia and other cultural contexts. This research contributes to the field of gifted education by offering context-sensitive principles that inform school development, policy, and practice.

ID:192 Al-Ihsan Social Services Association Program: "Tamkeen Enrichment": An Applied Translation of the Oasis Enrichment Model in Gifted Care — The Role of the Non-Profit Sector in Providing Educational and Developmental Support for Gifted and Outstanding Students in Buraidah

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Keywords: Enrichment, Gifted Education, Oasis Model, Non-Profit Sector, Al-Ihsan Social Services Association, Saudi Arabia.

The "Tamkeen Enrichment" program represents an ambitious investment aimed at accelerating the development of gifted individuals through after-school care to shape well-rounded personalities at an early stage. Utilizing scientific methodologies, the program builds distinguished human capital and strengthens the integration of roles between families, the community, and the public and non-profit sectors. By enrolling talented middle school students, the program implements Professor Abdullah bin Mohammed Al-Jughaiman's Oasis Model, while integrating the values and skills of the Human Capability Development Program under Saudi Vision 2030. To date, over 100 students (aged 13–16) have been nurtured across nine consecutive intensive courses, each consisting of 72 training hours. Participants cultivate scientific expertise by engaging with deep content themes—such as Food, Energy, Electronic Chips, and Natural Resources—using the four levels of the Oasis methodology: self-regulated learning, creative problem solving, future problem solving, and independent research. This methodology builds diverse learning, thinking, personal, and social skills under the guidance of experts trained for over 120 hours and selected for six essential traits: enthusiasm, passion, flexibility, scientific mastery, intellectual humility, and discipline. Outstanding students transition to a 21-day full-time summer camp focusing on English language support, STEAM-based projects, and reinforcing positive behaviors like discipline and productivity. This applied tracking experience establishes the program as a pioneering national model that is scalable in similar educational environments and serves as a gateway to human development targets in Saudi Arabia. Program outcomes include visible excellence praised by specialists and parents, alongside recorded results such as increased creative capacity, motivation, and self-confidence, while addressing social withdrawal and enhancing public speaking skills. Furthermore, the program fosters a passion for reading and the establishment of home libraries, ensuring the sustainability of gifted performance within the broader educational and social community.

ID:204 The Role of School Principals in Gifted Care Programs within General Education Schools in Al-Ahsa Governorate

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Keywords: School Principal, Gifted Care Programs, Abstract

This study aims to identify the role of the school principal in the gifted care programs in public education schools in Al-Ahsa Governorate. The researcher used the descriptive analytical approach, by developing a questionnaire consisting of 31 statements which were distributed electronically to the study sample The (spss) program was used for statistical operations. The results of the study showed an increase in the role of the school principal in the gifted care programs in the fields of school administration, planning, student activities and the school environment and indicated that there were statically significant differences in the role of the school principal in the gifted care programs because of the sex variable and to the female. The absence of individual differences of statically significance in the role of the school principal in the gifted care programs because of the variable of the rest of the personal variables. According to this study the researcher presented a set of recommendations, as: providing programs and training courses on how to work and cooperate with colleagues in providing gifted care programs, and working on developing an implementable plan and strategies through which learning policies related to gifted students can be achieved and all capabilities that contribute to increasing The ability of the educational institution to achieve success and reach the required goals.

ID:210 The Main Principles for Gifted Special Schools.

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Keywords: AI-enhanced technology, creativity assessment; gifted students; scoping review; talent development

Creativity has been touted as one of the critical 21st century skills that can empower learners to successfully navigate the continuously evolving expectations in schools and workplaces. For this reason, it is essential for educators and policy makers to identify the most effective tool to assess creativity not only in typically developing students but also those with exceptional abilities in various performance domains. Even with the important role that creative abilities play in fostering optimal talent development, the literature on commonly used creativity assessment tools for gifted and talented learners remains scant. Against this backdrop, this review maps current scholarly literature regarding the use of creativity assessment tools in the gifted populations. Having identified 147 papers after screening titles and abstracts from an initial pool of 3,013 articles retrieved from five databases, our findings reveal that the most commonly used instruments used or assessment include the Torrance Tests of Creative Thinking (TTCT, Torrance, 1966; 2007), the Test of Creative Thinking-Drawing Production (TCT-DP, Urban & Jellen, 1989; 1996), the Aurora Battery - Arabic (Aljughaiman & Ayoub, 2012; Chart, Grigorenko, & Sternberg, 2008), and the Alternate Uses Tasks (Guilford, 1967; Johns et al., 2000; Wallach & Kogan, 1965). It was also evident that the most typically used methods for assessing creativity involved specific cognitive performance measures (n = 136 studies, 68.69%), self-report scales (n = 33 studies, 16.7%) and teacher-rating or expert-rating scales (n = 21 studies, 10.6%). Most of these assessments were conducted with elementary school students. Our findings indicate that AI-enhanced creativity assessment is an emerging research frontier likely to receive growing attention. Its advantages include automated scoring, reduced human-resource demands, and minimized bias across raters. Practical implications of the main findings are elaborated.

ID:216 Management of Gifted Programs and Care in the Kingdom of Saudi Arabia and the World (An Analytical Survey Study)

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Keywords: Gifted Programs, Gifted Care, Gifted Program Management.

This study examines gifted programs and care in Saudi Arabia and globally through a review of 37 research papers and projects published between 2015 and 2024. Given the vast amount of literature on identifying and supporting the gifted, this research specifically filtered for studies focusing on the management of these programs. The study aimed to identify research objectives, methodologies, tools, and the most common sample categories. The researcher utilized a descriptive-analytical approach (content analysis). Findings revealed that the most prevalent research objectives included identification methods for the gifted, the reality of program implementation, program development, implementation obstacles, and reviews of program goals. In terms of research fields, the highest percentage of studies focused on the competencies of program personnel, followed by theories of giftedness, program design standards, the needs and interests of gifted students, and enrichment programs. The localization of gifted programs ranked lowest. Regarding methodology, the descriptive-analytical approach was the most widely used, while questionnaires emerged as the most frequent data collection tool. Public school principals were the most common target sample across the reviewed studies. Based on these results, the study provides a set of recommendations for decision-makers at the Ministry of Education and relevant institutions to improve the management and implementation of gifted care programs in Saudi Arabia.

ID:221 Interactive Visualization of Gifted Individuals Across Various Fields

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Keywords: Talent mapping; Interactive visualization; Talent identification

This study introduces a concept for a dynamic, interactive map designed to locate and display talented individuals across various fields. The map integrates geospatial data with essential attributes, such as age, education level, specialization (scientific, literary, technological), and significant achievements. To enhance clarity and user engagement, visual icons are employed—for instance, a light bulb represents science and a book symbolizes literature. Talent tiers are categorized into advanced, intermediate, and basic, allowing for a more detailed depiction. Interactive functions enable users to explore individual profiles and filter results by field or region, while clustering techniques preserve privacy by preventing the disclosure of precise locations. The map can be implemented with tools such as Google My Maps for simplicity and Power BI for more sophisticated visualizations, thus facilitating talent discovery, supporting data-driven decision-making, and advancing talent mapping methodologies.

ID:230 Beyond Mathematical Proficiency: Exploring Creative Thinking Among High-Achieving Students in PISA 2022

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Keywords: mathematics high achievers, creative thinking, international comparison

This study investigates the academic performance, creative thinking skills, and educational environments of mathematically high-achieving 15-year-old students to derive policy implications for competency-based education. In most countries, age 15 marks the completion of compulsory education, and the cognitive skills developed at this stage—particularly mathematical and creative thinking—shape students' subsequent academic and career trajectories, as well as their future social participation. This study utilized student questionnaire data from PISA 2022, focusing on students who achieved Level 6 (669 points or higher) in mathematical proficiency. These students, classified as the high-achieving group, demonstrate advanced reasoning and creative problem-solving abilities in complex situations and can be regarded as potentially gifted individuals capable of exerting significant influence in society. The study examined four countries—Korea, Singapore, Canada, and Finland—which consistently rank high in mathematics performance but display distinct differences in their learning cultures and educational environments. Findings reveal that across all four countries, a high proportion of mathematically high-achieving students also performed at Level 5 or 6 in creative thinking. Although perceptions of affective characteristics and educational environments varied among students, these factors were not statistically associated with achievement levels. By exploring how creative thinking competencies are manifested among mathematically gifted students, this study offers policy implications for fostering key competencies in talent development, particularly in future societies where innovative capacities are increasingly emphasized.

ID:231 From Giftedness to Talent: Examining Diverse Developmental Pathways Using Ten-Year Longitudinal Data

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Keywords: giftedness, DMGT, longitudinal study, talent development

This study applies Gagné's Differentiated Model of Giftedness and Talent (DMGT) to the Korean Education Longitudinal Study 2013 (KELS 2013), a ten-year national dataset, to investigate diverse pathways through which giftedness is transformed into talent. While DMGT provides a comprehensive framework, prior research has largely focused on early-identified gifted students. Less attention has been given to students who were not identified as gifted in elementary school but later demonstrated talent—so-called "late bloomers." Using Waves 1 to 10 (2013–2022) of KELS data, which originally included approximately 7,500 students with several thousand valid cases remaining after applying longitudinal and inclusion criteria, this study addresses five aims: (1) to validate the structural assumptions of DMGT; (2) to classify four developmental pathways by crossing early giftedness (top 10% in academic or creative indicators) with later talent outcomes (STEM achievement and college entrance); (3) to explore the characteristics and developmental trajectories of late bloomers; (4) to compare the influence of environmental catalysts (family background, parental support, gifted education, private tutoring) and intrapersonal catalysts (motivation, self-regulation, grit) across pathways; and (5) to examine the differential effects of gifted education participation. Analytical strategies include latent growth curve modeling, growth mixture modeling, multi-group structural equation modeling, and machine learning-based predictive modeling. Preliminary analyses reveal heterogeneous developmental patterns: while some students with early giftedness fail to sustain achievement, others without early gifted indicators show significant upward trajectories in high school and beyond. These findings highlight both the predictive validity and limitations of early gifted identification systems, particularly in Korea's highly competitive educational environment characterized by extensive private tutoring. By integrating DMGT with national longitudinal data, this study contributes theoretically by extending the model to multiple developmental routes—including late-blooming talent—and practically by offering evidence for more flexible identification systems and targeted educational interventions.

ID: 233 Cognitive Profiles of Gifted Children and the Paradox of Private Tutoring: Differential Effects in an Asian Educational Context

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Keywords: gifted education, cognitive profiles, private tutoring, moderating effect

This study explores how the effectiveness of private tutoring varies according to the cognitive profiles of gifted children within Asia's competitive educational context, using data from the 13th wave (2020) of the Panel Study on Korean Children (PSKC). First, cluster analysis was conducted on the M-Fit Multiple Intelligence Test scores of 1,260 children to identify four distinct profiles—'High-IQ', 'High-Verbal', 'High-Spatial', and 'Average-Intelligence'. Subsequently, hierarchical regression analysis was performed on a final sample of 582 children to analyze their direct effects on academic achievement and the moderating effects of private tutoring expenditure. The results indicate that the High-IQ (β=.502), High-Verbal (β=.423), and High-Spatial (β=.372) profiles showed significantly higher academic achievement compared to the Average-Intelligence group (all $p<.001$). However, the benefits of tutoring were not uniform. A significant negative moderating effect was found in the interaction terms for 'High-IQ × Private Tutoring' (β=-.282, p=.004) and 'High-Verbal × Private Tutoring' (β=-.188, p=.042). This suggests a "paradox of private tutoring," where the marginal utility of tutoring diminishes more rapidly for cognitively advanced groups. These findings imply that support for gifted children should shift from merely increasing study volume or relying on standardized private tutoring to providing qualitatively distinct experiences, such as highly challenging tasks, enrichment, acceleration, and opportunities for choice and reflection. This research provides an empirical basis for gifted education practice and policy, urging a reconsideration of the reliance on private tutoring and advocating for tailored interventions based on cognitive profiles.

ID:254 Using Exploring Centers as Tools for Identification

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Keywords: giftedness, DMGT, longitudinal study, talent development

Traditional assessment methods often suffer from mismeasurements that can significantly hinder child development. To counteract this, a multi-process, multi-instrument approach is essential for accurately predicting a child's developmental path. In Thailand, the "Exploring Center" model has evolved over three decades to address these gaps. While the first version focused on igniting learning behaviors, the second version—implemented exclusively by the Center for the Gifted/Talented for over 25 years—prioritizes identifying latent abilities and investigating obstacles to potential. This holistic identification process evaluates eight core domains: language arts, mathematics, body movement/kinesthetics, sciences, arts, music, mechanics/electronics, and psycho-social ability. Developed and refined by national experts through support from the Office of the National Commission and Srinakharinwirot University, these instruments are rigorously tested for validity, reliability, and instructional practicality. The identification framework consists of two key stages. First, Keen Observation in a Stimulating Environment allows children to explore diverse stimuli freely while instructors record natural learning behaviors across all domains. Second, Targeted Activities and Testing involve structured assessments tailored to specific ability areas, providing deeper insights into strengths and growth opportunities. Following these stages, a multidisciplinary team of testers and observers synthesizes the data before sharing comprehensive feedback with parents and educators. This collaborative approach often leads to transformative outcomes, as it provides a clear roadmap for effective, individualized support. By moving beyond simple paper-and-pencil tests toward a synchronized evaluation of performance and behavior, the Exploring Center model ensures that giftedness is not just measured but understood within the context of a child's entire developmental ecosystem. This evidence-based foundation allows for more precise interventions that foster long-term success and holistic well-being, bridging the gap between raw potential and actualized talent in Thai youth.

ID:265 Predictive Factors for Giftedness Among Refugee Students: A Focus on Academic Achievement, Gender, and School Context

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Keywords: gifted education, refugee students, HOPE scale, predictive modeling, educational equity.

This study examined the predictive factors influencing the identification of giftedness among Syrian refugee students, with a focus on academic achievement, gender, and school context. Using a secondary dataset of 13,598 students assessed with the Arabic version of the HOPE Teacher Rating Scale, logistic regression and random forest classifiers were employed to examine the role of GPA, school location (in-camp vs. out-of-camp), school stage (elementary, middle, secondary), and gender in predicting gifted identification. Results revealed that GPA was a highly significant predictor, with students achieving higher GPAs over ten times more likely to be identified as gifted compared to peers with lower GPAs. The school location also exerted a modest effect, with in-camp students being less likely to be identified as gifted, reflecting structural inequities in educational provision. Middle school students demonstrated a significantly lower likelihood of identification compared to secondary students, while no significant differences emerged by gender. Predictive modeling demonstrated that HOPE-based models achieved near-perfect accuracy, whereas demographic-only models performed only marginally better than chance. These findings underscore the need to employ culturally validated, behaviorally anchored tools to ensure equitable gifted identification in refugee contexts, highlighting the policy imperative to reduce reliance on academic metrics alone.

ID:268 Revering and cultivating excellence: WGC-Contributions and offerings

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Keywords: Gifted education, excellence, talent, awards, scholarly, giftedness

The World Giftedness Center (WGC) continuously strives to promote excellence and disseminate the culture of excellence and best practice experiences in giftedness. The purpose of this presentation is to feature the contributions of the WGC and their added value to the international community of gifted education. The WGC's model focuses on providing support and encouragement to trigger a worldwide effort to revere and cultivate the development of excellence for all individuals to further and nurture their potential. The value of this presentation comes from its focus to highlight how the WGC is continuously very keen to develop its offerings based on current trends and the needs of the global community of giftedness. This presentation will shed light on the main multifarious contributions and services offered to the world of giftedness. It will showcase how the WGC's goals and commitments are reflected in the quality services and support offered. The WGC's offerings revolve around four main areas: scholarly activities, educational resources, gifted education awards, and mentoring. The audience will be introduced to those four areas with some examples and data from previously executed projects, while more attention will be given to the scholarly activity due to its added value and importance to the field. Exemplary results from the special issue about gifted education in ten Arab countries will be briefly shared and discussed. All in all, the presentation will be reflective and interactive in nature, and at the end of this session, it is expected that the audience will be familiar with the unique model of the WGC and its impact and contributions to the field of gifted education.

ID3: The Effectiveness of Flexible Thinking and its Relationship to Learning English Language among University Gifted Students

Norah Aldossary, King Faisal University

Keywords: Flexible Thinking, English, Bilingualism, Gifted, University

The purpose of this study is to clarify the effectiveness of flexible thinking and its relationship to learning English language (LEL) for university-gifted students. The mixed approach with sequential explanatory design was adopted in this study, through the flexible thinking scale as a tool for collecting quantitative data on a sample of (300) gifted students, then the semi-structured interviews were used as a tool for collecting qualitative data on a purposive sample of (10) gifted students. The quantitative data was processed by using for the Statistical Analysis Program (SPSS.24), to measure frequencies, means and correlation coefficients (Pearson's correlation). While conducted qualitative data was analyzed using thematic analysis, which represented four major themes: reflections of (LEL), justifications for (LEL), reflections of students' awareness of the concept of flexible thinking and the positive relationship between (LEL) and flexible thinking, and finally the potential difficulties of not being proficient in the (EL) at the university levels. However, the results of the quantitative analysis showed that there was a statistically significant correlation between the level of flexible thinking as a whole, and the level of (LEL) for gifted students, as well as at the level of all dimensions of flexible thinking; except for the dimension of openness to ideas; which showed that there were no statistically significant differences in the relationship. The results of the qualitative analysis confirmed and explained the quantitative results, as they emphasized the impact of (LEL) effectiveness of flexible thinking and many aspects of the personality of gifted learners at university levels.

ID:10 Relationship between Self-Directed Learning, Learning Styles and Academic Achievement among Undergraduate Nursing Students: A Correlation Study

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Keywords: Self-directed learning, Learning styles, Academic achievement, Nursing education, Saudi nursing students

This study aimed to examine the relationship between self-directed learning (SDL), learning styles (LS), and academic achievement among undergraduate nursing students at King Saud bin Abdulaziz University for Health Sciences, Al-Ahsa, Saudi Arabia. As nursing education becomes increasingly complex, nurturing SDL skills and recognizing LS are crucial to help students adapt. While this is important for all learners, it is particularly significant for gifted nursing students, who demonstrate advanced problem-solving abilities, high motivation, and potential for leadership in healthcare. By identifying how SDL and LS correlate with academic success, this study highlights how targeted strategies can support not only average learners but also gifted and high-achieving nursing students, ensuring that their talents are fully cultivated to meet the demands of future healthcare systems. Results revealed statistically significant correlations between SDL, LS, and academic achievement, suggesting that integrating these factors into nursing curricula enhances educational outcomes. These findings contribute to the broader discourse on gifted education, as they emphasize the need to design tailored educational pathways that maximize the potential of gifted nursing students.

ID:13 Total Giftedness Development Model: A Model of Educational Experiences for Gifted Students

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Keywords: personal skills, intellectual skills, giftedness, development model, gifted learners, work carriers.

This study aims to evaluate the effectiveness of the Total Giftedness Development Model (TGDM) in fostering comprehensive personal and intellectual growth among gifted learners, thereby preparing them for successful careers. The TGDM (Batterjee, 2010) encompasses nine core components—Giftedness Development Portfolio, General Enrichment Program, Skills Development Program, Directed Activities Program, Specialty Enrichment Program, Directed Projects Program, Academic Acceleration Program, Mentorship Program, and Support Program—that are designed to promote diversification and differentiation aligned with individual cognitive capabilities. The model was implemented in a school setting over an 18-year period, employing four case studies to illustrate its impact and efficacy. This research is grounded in prior educational theories emphasizing personalized learning for gifted students and builds upon existing models by offering a comprehensive, differentiated framework tailored to varied giftedness profiles (Batterjee, 2010). Data collection involved longitudinal observation, student performance assessments, and interviews, providing a robust basis for evaluating outcomes. Findings indicate significant gains in both personal and academic skills, with implications for enhancing gifted education practices at both local and international levels. The results support TGDM's potential as an effective holistic model for nurturing gifted learners toward successful work careers. This research contributes valuable insights into designing differentiated programs and extends the global discourse on giftedness development.

ID:15 The Effect of Differentiated Instruction Strategy on Developing Creative Thinking Skills and Attitudes towards Mathematics among Gifted Students of the Elementary Stage

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Keywords: Differentiated instruction strategy, creative thinking, attitude toward mathematics, gifted female students

This study aimed to reveal the effect of differentiated instruction strategy on developing creative thinking skills and attitudes towards mathematics among gifted students of the elementary stage. To achieve this, the study adopted an experimental methodology. The study instruments were: a creative thinking scale and an attitude towards mathematics scale. The study population consisted of gifted female students in the elementary stage in Najran City. The study sample consisted of a simple random sample of 60 female students, and they were divided into two groups: a control group (30) and an experimental group (30). The results revealed that there is an effect of using the differentiated instruction strategy in developing creative thinking skills and attitudes towards mathematics among gifted students of the elementary stage. The results indicated statistically significant differences at the 0.05 significance level between the mean scores of the experimental and control groups in the post-test of the creative thinking scale and the attitude towards mathematics scale among gifted students, in favor of the experimental group. Eta-squared values and Black modified gain ratio indicated a significant effect of using the differentiated instruction strategy in developing creative thinking and attitudes towards mathematics among gifted female elementary students. In light of these results, the study recommended the following: raising awareness among mathematics teachers regarding the importance and effectiveness of using differentiated instruction in mathematics teaching to develop creative thinking skills and attitudes toward mathematics among gifted female students; conducting training workshops for mathematics teachers on how to utilize differentiated instruction in mathematics teaching, given the study's positive results on the effectiveness of differentiated instruction in developing creative thinking skills and attitudes toward mathematics.

ID:24 The Effectiveness of a STEM-Based Enrichment Program in Developing Leadership Skills of Gifted Kindergarten Children

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Keywords: gifted children, leadership skills, STEM program, kindergarten

The study aims to verify the effectiveness of an enrichment program based on the STEM methodology in developing leadership skills for gifted children in the kindergarten stage. The study followed the quasi-experimental approach, and the study tools were (a list of behavioral characteristics to detect the gifted) (Al-Jaghiman and Abdel Majeed, 2008) And (a measure of leadership skills for gifted children) (Al-Suwayi, 2023), and an enrichment program based on the (STEM) methodology (Al-Suwayi, 2023). The study sample consisted of (88) 6-year-old male and female children, and the results of the study showed that there were statistically significant differences. Between the two groups: the control and the experimental group, in favor of the experimental group, in skills: (perseverance - taking responsibility - decision making - problem solving), and the presence of statistically significant differences between the two measurements: pre- and post-test, in favor of the post-test measurement in skills: (perseverance - taking responsibility - taking responsibility). Decision - problem solving, and the results showed that there were no statistically significant differences between the two measurements: the dimensional and the subsequent ones in the skills: (perseverance - taking responsibility - decision making - problem solving). The study came out with a set of recommendations, the most prominent of which is the focus on integrating leadership skills into the curriculum provided to children with disabilities. Talent in kindergarten and early childhood and benefiting from the enrichment program based on the STEM methodology in developing leadership skills, and disseminating it to kindergartens and early childhood throughout the Kingdom.

ID:36 AI-STEAM: A Novel Framework for Personalized and Dynamic Education at the Intersection of Science and Entrepreneurship

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Keywords: AI-STEAM, personalized learning, dynamic education, LLMs system, Medvation GO Kit

This study introduces AI-STEAM, an innovative educational framework developed by the Medvation team to deliver personalized and dynamic AI-STEAM learning experiences for talented youth aged 9 to 18. Centered around patented education kit called Medvation GO, the framework combines interactive AI tools, LLM-powered tutors, and hands-on modules covering 18 core technical and soft skill areas, including programming, robotics, AI, IoT, and entrepreneurship. AI-STEAM emphasizes project-based learning through real-world challenges in domains such as education, healthcare, space, and environmental sustainability. A large-scale pilot involving over 1,000 students from international schools in Saudi Arabia evaluated five strategic engagement dimensions: autonomy, curiosity, collaboration, relevance, and real-world application. Behavioral observation and survey results showed that more than 98% of participants reported increased motivation, critical thinking, and enthusiasm for STEM and entrepreneurship. These findings demonstrate the effectiveness of AI-STEAM in bridging scientific knowledge with entrepreneurial innovation, while ensuring accessibility for diverse learners through adaptive and inclusive learning design. This research offers a scalable, AI-enhanced model for advancing gifted education and fostering essential 21st-century competencies.

ID:42 Teachers' Practices of Interdisciplinary Teaching for Gifted Students

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Keywords: Challenges; Explanatory sequential design; Interdisciplinary teaching; Teachers of the gifted

The study aimed to identify the reality of using interdisciplinary teaching methods in the classroom by teachers of gifted students by measuring the implementation of such methods. It also attempts to discover the challenges they face in doing that. To achieve the study's objectives, the researchers used a mixed-method approach involving the sequential explanatory design, where quantitative data were collected first and then, based on the results, qualitative data were collected. The quantitative sample comprised 66 male and female teachers of gifted students in schools using the interdisciplinary teaching method. The qualitative sample consisted of 4 teachers participating in the quantitative part. The researchers designed a tool to measure how well teachers of the gifted implement the interdisciplinary teaching method. They also conducted semi-structured interviews. The study's findings were as follows: the level of teachers' implementation of the method ranked "Medium", while effective environmental dimensions, fields' integration, and the appropriate method of interdisciplinary teaching ranked "Medium". The results also unveiled the factors that contributed to the achievement of such a level of interdisciplinary teaching, including topics such as knowledge, methods of implementation, evaluation, planning, and meeting the needs of students, along with several related subtopics. As for the challenges these teachers encountered throughout the implementation process, the findings unveiled a set of difficulties related to challenges of time, resources, and lesson preparation.

ID: 47 Early Childhood Gifted Education: Structured Review Based on Bibliometric Analysis and TCCM

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Keywords: Gifted education, early education, bibliometric analysis, TCCM.

Research on the impact of early childhood intervention for gifted children has evolved significantly, yet comprehensive data regarding key influencers, institutional performance, and developmental trends remains fragmented. This study addresses these gaps by employing bibliometric analysis techniques, R software, and VOSviewer to map the landscape of intellectually gifted education in early childhood. Using the TCCM framework (Paul & Rosado-Serrano, 2019) and science mapping based on information graph theory (Donthu et al., 2021), the research identifies the United States, the Netherlands, and Turkey as the top three countries for publication volume. Thematic map analysis reveals that keywords such as "preschool education," "gifted education," "attitudes," and "design-based research" represent mature, deeply explored topics. Conversely, while interest in "impact-focused" research is declining, emerging trends highlight "fine motor skills," "individual differences," and "preschool children" as burgeoning areas of focus. Cluster analysis (Chuang et al., 2011) further categorizes the literature into three primary domains: educational programs, academic performance, and general giftedness. By performing a rigorous performance analysis, this study identifies the key actors shaping the field and offers a holistic perspective on current and future directions. Notably, it highlights significant voids in the literature, particularly the absence of discussions regarding machine learning and artificial intelligence in early childhood gifted contexts. The findings provide a data-driven roadmap for researchers and institutions, facilitating the creation of cost-effective agendas and identifying declining versus high-growth topics. Ultimately, this research serves as a vital bridge between historical foundations and modern innovations, ensuring that future scholarly efforts are directed toward the most meaningful gaps in early talent development. By establishing a clear framework of the current scientific volume, the study enables practitioners and policymakers to better understand the global trajectory of gifted education, fostering international collaboration and more precise, evidence-based support for the youngest high-ability learners.

ID:51 Integration of CLIL Teaching Model and Bilingual Elements in Inquiry-Based Learning for Gifted Students

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Keywords: inquiry-based practice, Differentiated Instruction, CLIL teaching model

This study explored how to achieve competency-oriented teaching objectives through CLIL (Content and Language Integrated Learning) (Coyle, 2010) integrated with bilingual inquiry-based learning for gifted students. Thirty-eighth-grade mathematics and science gifted students from Taipei participated in a three-hour curriculum based on "Elements and Compounds." Instructional design employed a learner-centered "Blue Bird" framework (Kuo C.P.,2023), transforming teachers from performers to instructional producers. Students conducted hands-on electrolysis experiments to differentiate compounds from elements, incorporating scientific history through stories of Priestley's mercury oxide decomposition (Priestley,1774) and Davy's potassium carbonate electrolysis (Davy, 1807). Teachers guided exploration through continuous questioning, listening, and feedback, enhancing higher-order thinking. Molecular models facilitated structural understanding. The curriculum integrated CLIL's 4C's principles (Content, Communication, Cognition, Culture), emphasizing "Communication" through three levels: Language of, Language for, and Language through, systematically increasing English usage opportunities. Differentiated instruction (Kuo C.C., 2013) through bilingual questioning and multiple inquiry formats (information integration, reading comprehension, micro-inquiry) encouraged active learning and peer collaboration. Research instruments included lesson plans, evaluation checklists, student feedback questionnaires, and worksheets. Qualitative analysis revealed that students effectively used English in writing and discussions, demonstrating reflective thinking and conceptual integration. Students presented ideas on magnetic whiteboards for inter-group comparison and clarification. In conclusion, our research used high content comprehension and strong endorsement of diverse learning methods, including inquiry-based practice, bilingual instruction, model manipulation, experiments, and video assistance. The teaching methods effectively enhanced learning interest while reducing resistance. The results confirmed that bilingual inquiry-based teaching significantly cultivated cooperation, sharing, and problem-solving abilities, substantially improving learning motivation and academic performance in gifted students.

ID:54 The Psychological Adjustment Experience of Canadian Gifted Students in Participating Accelerated Education

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Keywords: gifted students, accelerated education, psychological adaptation, gifted counseling, school counselor

This study investigates the psychological adaptation of twelve gifted students, aged 15–16, enrolled in the University Transition Program (UTP), an accelerated collaboration between the Vancouver Board of Education and the University of British Columbia. Utilizing the Enhanced Critical Incident Technique (ECIT) through systematic observations and in-depth interviews, the research identified 15 beneficial and 9 obstructing factors categorized into four primary areas: inner processes, family factors, school environment, and social resources. Findings revealed that while highly motivated students successfully employed self-adjusting learning strategies and monitored their own progress, time management remained their most significant challenge when facing the pressure of skipping grades. Furthermore, while UTP's small scale offered personalized care and time efficiency, the condensed timeline occasionally hindered opportunities for diversified exploration. Family background and broader cultural or socio-economic environments also significantly impacted academic persistence and career planning, proving that gifted learners remain deeply connected to societal shifts. Based on these results, the study recommends that school counselors enhance their understanding of gifted traits to support healthy adjustment, and students should be assisted in identifying their unique strengths. Additionally, parents must be supported through specialized groups to foster a healthy educational concept, and accelerated curriculum planning must address the specific needs created by shortened timeframes through diverse learning opportunities. Finally, the social environment must provide suitable placements tailored to these learners' needs. Ultimately, this research offers a scalable, culturally adaptable strategy for cultivating positive 21st-century psychological adjustment by integrating the student's inner processes with family, school, and societal systems. By addressing both facilitating and hindering factors, the study provides an empirical foundation for policies that ensure gifted students do not just succeed academically but thrive emotionally and socially within accelerated frameworks. This holistic approach is essential for transforming high potential into long-term professional and personal success.

ID:57 Bridging Research and Practice: Differentiation for Gifted Learners in Future-Focused Curriculum Design

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Helen Baber, Bright and Beyond, Australia

Keywords: Differentiation, Curriculum implementation, Secondary education, Teacher expertise, government

In the Australian education context, many classroom teachers face the challenge of addressing the needs of gifted learners without formal training in gifted education. To support teachers in nurturing the talent of gifted learners during curriculum implementation, this presentation showcases work undertaken for the New South Wales (NSW) Government to embed established differentiation strategies for gifted learners within mandatory curriculum frameworks for the middle years of schooling (typically ages 12- 16 years). The project spans multiple disciplines, including English, Mathematics, History, Geography, the Arts, Languages, and Health and Physical Education. Grounded in the foundational models of Carol Tomlinson and June Maker, the project aligns differentiation of content, process, product, and learning environment with explicit curriculum content and outcomes. The resulting practical resources offer an innovative exemplar of how gifted education strategies can be operationalised within mandated curriculum frameworks. These resources not only advance opportunities for gifted learners but also build teacher capacity to implement differentiated instruction with clarity and confidence. As we look toward 2050, this initiative demonstrates a replicable model for embedding gifted education into mainstream curriculum design—ensuring gifted learners are not an afterthought, but a central consideration. The session will walk participants through the design principles, showcase the published resources, and invite collaborative reflection on how curriculum development can drive systemic change for gifted education globally.

ID:63 The Comparative Study on the Use of AI in Scientific Inquiry Learning between Gifted and Non-Gifted Students

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Keywords: scientific Inquiry; artificial intelligence (AI); gifted students

This study investigated how gifted and non-gifted students employed artificial 112ntelli-gence (AI) in inquiry-based science learning. A total of 484 students (197 gifted and 287 non-gifted; 226 males, 233 females) completed a validated AI-assisted scientific inquiry learning (AASILQ) and the AI Literacy Questionnaire (AILQ). Factor analysis identified three core constructs from AASILQ and four core constructs from AILQ. The reliability of the two questionnaires' indices demonstrated strong internal consistency across fac-tors. Both questionnaires were used to explore differences across student groups based on gender, giftedness, and academic specialization. The result revealed significant differences by educational placement (gifted vs. non-gifted) and gender. Gifted students demonstrated lower AI-assisted scientific inquiry learning, but higher AI literacy and perceived safe use of AI, while female students expressed greater concern about privacy issues. The findings from this study contribute to the understanding of gifted education with AI-assisted science learning and offer insights to readers.

ID:75 Designing an Adaptive Environment Based On Artificial Intelligence Applications To Develop The Gifted Stud ents' Digital Skills: A Proposed Perception In Light Of Reality And Needs (poster)

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Keywords: Adaptive environment; Artificial intelligence application; Digital skills; Proposed perception; gifted

The study aimed to design a proposed perception for an adaptive environment based on artificial intelligence to develop digital skills in gifted students through using such skills at the intermediate level in the Ihsa governorate. It also aims to identify the most important necessities teachers need to develop these skills in the gifted. To achieve the objectives of the study, the researchers adopted the mixed approach (the concurrent design), where the quantitative (the survey descriptive) and the qualitative (A multi-case study) were applied. The qualitative sample comprised (4) teachers, two males and two females, who teach digital skills to the gifted at the intermediate level and scale up the level of learners. (Velarde, 2019) indicated that the revolution had created a new age of education in which the term "Artificial Intelligence" and its applications were the foremost components of the age. (Chen, 2020) confirmed that artificial intelligence was a fertile field that included inventions that mimic the human mind. Cognitive capabilities, learning, adaptation capability, and decision-making characterize it. Using artificial education in the educational field is important for modern cognitive development, particularly developing the basic skills for building a cognitive community. The countries that rely on cognitive economy vie for using it to achieve a positive impact in all fields of human life in the long run. The study results unveiled that the necessaries (Technical, material, developmental, enrichment, guidance, and moral) were needed for digital technology teachers to develop digital skills in the gifted. Afterward, the researchers put down their proposed perception, which included: the idea, philosophy, significance, objectives, and steps of application and evaluation. They concluded the study with a set of recommendations.

ID:77 The Reality of Gifted Class Teachers' Use of Differentiated Instruction Strategies and the Challenges They Face

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Keywords: Differentiated Instruction, Gifted Teachers, Challenges of Differentiated Instruction, Gifted Classes

The study aimed to identify the reality of gifted teachers' use of differentiated instruction methods and the challenges they face. To achieve the objectives of this study, which was conducted in the city of Al-Ahsa, Saudi Arabia, a qualitative approach was adopted, represented by a multiple case study. The researchers used a semi-structured interview method to collect data from a sample of four teachers of gifted students, selected through convenience sampling. The study found that, despite the teachers' good understanding of the concept of differentiated instruction for gifted students, the practical application was below the expected level. There was also a noticeable disparity in how this approach was implemented among the study participants. Additionally, the study revealed several challenges faced by teachers in applying differentiated instruction methods for gifted students, which fell into general categories: environmental, material, and cognitive challenges. Finally, the study provided several recommendations, the most prominent of which is the importance of providing gifted teachers with intensive training courses on how to correctly implement differentiated instruction and utilize its various methods. It also recommended designing an adaptive environment that helps gifted students learn independently according to the principles of differentiated instruction.

ID: 79 Empowering Parents to Nurture Gifted Children: An Exploratory Study on Parent Training in Gifted Education

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Chung Po Wong, The Hong Kong Academy for Gifted Education, Hong Kong
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Keywords: Gifted education, parenting competency, parenting stress, parent-child relationships, parenting style, parent training, gifted children development

Parents are critical environmental influences in gifted education, shaping the cognitive and socio-emotional development of gifted children (Papadopoulos, 2021). This study explores gifted education parent training by assessing a training program developed by a gifted education institution in Hong Kong, aiming to enhance parenting competence and reduce stress by promoting an authoritative style, an approach linked to positive gifted children development outcomes (Yazdani & Daryei, 2016). The program also sought to strengthen parent-child relationships and improve gifted children's well-being. Using a mixed methods design, we collected quantitative data through pretest (n=24) and posttest (n=23) survey, and qualitative feedback via a focus group discussion (n=9) with participating parents. Paired-sample t-tests (n=21) revealed significant improvements in parenting competence and reductions in parenting stress. Parenting competence negatively correlated with parenting stress and positively associated with the authoritative parenting style and parent-child relationships. Moreover, parent-child relationships were positively linked to the authoritative parenting style. The authoritative and authoritarian parenting styles were positively correlated, while both are negatively correlated with the permissive parenting style. Focus group discussion findings detailed with these results, as the participating parents reported transitioning from an authoritarian to an authoritative parenting style, achieving higher levels of parenting competence. This shift helped reduce parenting stress and improve parent-child relationships. Furthermore, parent training benefited gifted children by enhancing their well-being, including better quality of sleep, greater level of happiness, and increased sense of security. These findings highlight the benefits of parent training in gifted education, particularly in fostering parenting competence and reducing stress. They also reveal how parental factors interact to influence the development of gifted children and the importance of distinguishing authoritarian and authoritative parenting styles, especially for Chinese parents. This research contributes valuable evidence to gifted education by clarifying the theoretical relationships between parental factors and informing the pedagogical design of parent training programs.

ID:83 Applying Unconventional Analogies in Instructional Activities to Foster Creative Thinking

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Keywords: Analogy, Creative Thinking, Figurativity, Fluency, Originality

This study explores how the figurativity of four-term analogies ($A : B = C : D$) affects creativity, specifically focusing on fluency and originality among 190 college students in Taiwan. The research, conducted with 190 college students in Taiwan, used a new instrument with three types of analogies in the form of sentence completion: IQ-test (low figurativity; e.g., pineapple : fruit = _____ : _____ because _____.), traditional metaphorical (medium figurativity; e.g., communication : bridge = _____ : _____ because _____.), and novel metaphorical (high figurativity; e.g., selfishness : warehouse = _____ : _____ because _____.). The research employed a dual-part methodology, utilizing these sentence-completion analogy items alongside the New Test of Creative Thinking to measure divergent outcomes. The findings revealed a significant inverse relationship between figurativity and fluency; as the abstractness of the analogy increased, the total number of valid responses decreased. Specifically, the IQ-test type yielded the highest fluency due to its definite, logical relations, whereas high-figurativity novel metaphors produced the lowest. Conversely, a direct positive relationship was found between figurativity and originality. While novel metaphorical analogies were more difficult to solve, they yielded significantly higher originality scores through unexpected and novel connections. These results suggest that figurativity and literality exist on a continuum rather than as mutually exclusive categories, with higher figurativity acting as a catalyst for more creative outcomes once the cognitive hurdle is overcome. This carries significant educational implications, proposing that four-term analogies can serve as instructional scaffolding to foster creative thinking. By progressively increasing figurativity—starting with literal IQ-style relations and advancing toward challenging metaphorical concepts—educators can systematically promote higher-level divergent thinking. Ultimately, the research concludes that analogy acts as a critical cognitive bridge, successfully synthesizing analytical reasoning with creative innovation by transforming difficult relational mapping into original thought.

ID:84 “Phone Gone, Me Still There”: The Impact of an Artistic Giftedness Program on Junior High School Students’ Digital Literacy and Self-Awareness

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Keywords: Gifted Education, Artistic Giftedness Program, Digital Literacy, Internet Use Habits, Self-Awareness, AI Literacy

This study evaluated the effectiveness of "Phone Gone, Me Still There," a gifted education program designed to improve internet usage habits among junior high school students. Integrating creative drama with artificial intelligence (AI) applications, the action research project aimed to cultivate digital self-awareness and self-regulation among sixteen artistically gifted students. Effectiveness was assessed through pre- and post-tests using the Internet Usage Habits Scale, supplemented by qualitative reflection analysis. Quantitative findings revealed significant improvements in digital discipline. Post-test scores showed a notable reduction in "restlessness when unable to access the internet" and the tendency to "spend increasingly more time online," suggesting successful behavioral adjustment. Qualitative data reinforced these shifts; while students initially expected simple "proper usage" instruction, post-course feedback demonstrated a deeper awareness of internet risks, prioritized health and academics, and an enthusiastic engagement with AI-driven creative expression. The researcher, reflecting on the transition from the analog era to the AI age, contrasted their experiences with "Alpha Generation" students who have been digitally immersed since birth. The study argues against the strict prohibition of smartphones, advocating instead for supportive pedagogy that fosters internal self-discipline. This approach was validated by classroom observations, where students demonstrated genuine reflection and behavioral change. These cases highlight that technology itself is not the core issue, but rather the quality of guidance provided. In conclusion, the study proves that merging arts education with AI literacy effectively enhances gifted students' reflective abilities and self-regulation. These results provide a robust framework for future gifted curricula, aligning with global initiatives to prepare students for the complex digital challenges of 2050. By fostering positive digital attitudes rather than restriction, the program successfully transformed participants into more mindful digital citizens.

ID:99 Building Effective Distance Learning for Gifted Elementary School Students: The Role of Self-Directed Learning Ability

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Keywords: Self-Directed Learning, Distance Learning, Gifted Student, COVID-19

The study aimed to explore the self-directed learning ability and distance learning satisfaction of gifted students in elementary schools during the COVID-19 pandemic, while examining differences in background variables, the relationship between self-directed learning ability and distance learning satisfaction, and the predictive power of self-directed learning ability on distance learning satisfaction. Participants were 390 gifted students in grades 3–5 from northern Taiwan. They completed the Self-Directed Learning Ability Test (Kim & Lee, 2018) and the Investigating Distance Learning Satisfaction of Gifted Elementary School Students adapted from Park and Jung (2020). Data were analyzed using descriptive statistics, independent sample t-test, one-way ANOVA, Pearson's product-moment correlation and Stepwise multiple regression. The findings showed that students' self-directed learning ability was above average, while their distance learning satisfaction ranged between "neutral" and "agree." Among the factors of self-directed learning ability, "time management" received the lowest score and "seeking help" the highest. In terms of distance learning satisfaction, "distance learning platform" received the lowest score, whereas "teachers' instruction" received the highest. There were no statistically significant differences in self-directed learning ability or distance learning satisfaction between gender, grade and prior distance learning experience. A moderate positive correlation was found between overall self-directed learning ability and distance learning satisfaction, while the correlations among their respective factors ranged from low to moderate. The regression analysis indicated that both "cognitive thinking, metacognition" and "seeking help" were significant predictors of distance learning satisfaction, with "cognitive thinking, metacognition" as the strongest predictor. These findings underline the role of metacognitive skills, time management, and interaction in improving gifted students' distance learning. Student feedback indicated that interactive opportunities, interesting content and timely answers to questions were central to their learning. This research contributes to gifted education by offering practical guidance for more effective distance learning.

ID:106 Design & Expert Validation of a Standards Aligned Interactive Differentiation Toolkit for Gifted Learners in Mixed Ability Classrooms

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Keywords: Educational Technology; Gifted Education; In-Class Differentiation; Personalized Learning; Learning Analytics; Mixed-Ability Classrooms

Most gifted learners are educated in regular, mixed-ability classrooms, making in-class differentiation—rather than pull-out programs—the decisive lever for appropriate challenge. Yet teachers report persistent barriers (planning overload, live monitoring, and limited digital scaffolds) that depress the quality and consistency of differentiated practice. This design-and-development (DDR) paper documents the creation and expert validation of the Interactive Differentiation Toolkit (IDT): a web-based educational technology that curates a tiered activity bank (mapped to Bloom/Webb/MI), provides a rule-based recommender for next-best tasks by readiness/interest/time, and streams learning-analytics events to a teacher dashboard to flag under-challenge in real time. Methodologically, we follow DDR phases (Analysis -> Design -> Development -> Expert Validation -> Refinement) and establish content validity through a Delphi Round 1 with ten experts. We report item- and scale-level Content Validity Indices (I-CVI, S-CVI/Ave) in line with the AERA/APA/NCME Standards for Educational and Psychological Testing, complemented by thematic coding of qualitative comments to guide iteration. Results indicate strong content validity (e.g., I-CVI >= .80 for most items) and high expert agreement on feasibility and classroom utility under high teacher workload. The IDT's standards-aligned architecture is central to its contribution and scalability: interoperability via 1EdTech LTI 1.3/Advantage (secure launch, deep linking) and Caliper Analytics 1.2 (event telemetry), optional roster synchronization through OneRoster 1.2; accessibility meeting W3C WCAG 2.2 AA and informed by UDL 3.0 checkpoints; 21st-century competencies embedded using ISTE (2022) Standards; and data governance adhering to IEEE P7004 for child/student data and the Kingdom of Saudi Arabia's PDPL/NDMO requirements. A four-week pilot is planned to quantify teacher preparation time, gifted learners' under-challenge rate, and usability (SUS). By coupling validated content and global standards with a teacher-centered workflow, the IDT offers implementation-ready blueprint to operationalize differentiation inside mixed-ability classrooms without increasing teacher burden, directly advancing Personalized Learning and 21st-Century Skills.

ID:111 How L1 skills shape L2 anxiety: The mediating influence of language aptitude and achievement

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Keywords: L2 achievement, L2 aptitude, L2 language anxiety, structural equation modeling

A growing body of research demonstrates that early first language (L1) skills are foundational for later second language (L2) learning outcomes, but little is known about how these skills shape affective factors such as L2 anxiety. Of particular interest to the giftedness field is the mediating role of language aptitude, a construct closely tied to cognitive strengths that may channel the long-term influence of L1 into L2 learning. In this longitudinal study, we tracked 65 students who were assessed on L1 achievement annually from Grade 1 to Grade 5, then followed through high school while completing multiple L2 courses. Structural equation modelling was applied to test pathways linking L1 skills to L2 anxiety through both aptitude and achievement. Results revealed that the effect of L1 skills on L2 anxiety was fully mediated, with language aptitude emerging as a critical pathway. L1 achievement strongly predicted language aptitude, which in turn contributed to higher L2 achievement and lower L2 anxiety. This suggests that aptitude serves as a cognitive bridge: early mastery of L1 skills enhances aptitude, which fosters academic success and protects learners from debilitating anxiety. By contrast, the direct effect of L1 achievement on L2 anxiety was negligible. These findings highlight aptitude not only as a key mediator of linguistic development, but also as a mechanism by which gifted learners may channel their abilities into resilient, low-anxiety language learning trajectories. This contributes to both language acquisition theory and understanding of giftedness in bilingual contexts.

ID:117 Exploring the Transformation of Gifted Potential through the DMGT Framework: Educational Implications of an Intercultural Dance Curriculum

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Keywords: Differentiated Model of Giftedness and Talent, Talent Development, Laban Movement Analysis, Intercultural Dance Education

Applying Gagné's Differentiated Model of Giftedness and Talent (DMGT), this study investigates how an intercultural dance curriculum facilitates the transformation of innate aptitudes into systematically developed talent. The DMGT framework distinguishes between giftedness (aptitudes) and talent (developed performance), emphasizing the critical role of intrapersonal catalysts—such as motivation and perseverance—and environmental catalysts, including curriculum design and teacher guidance. The participants, seventh-grade dance-gifted students in Keelung City, Taiwan, engaged with a curriculum centered on Akram Khan's intercultural adaptation of *Giselle*, integrated with Laban Movement Analysis (LMA) components. Through group choreography, peer evaluation, and focus group discussions, students were guided to translate complex cultural meanings and emotional layers into personalized body language. Data analyzed through thematic hermeneutic analysis revealed that students successfully advanced from reproduction to creation, converting abstract concepts like class conflict into distinctive movement vocabularies. Findings indicate that intercultural texts activated intrapersonal catalysts like curiosity, while teacher questioning acted as a supportive environmental catalyst, creating "echoes of understanding" that refined movement and self-transformation. The results illustrate how such curricula stimulate the creative risk-taking and perseverance essential for actualizing talent characterized by creativity and interpretive competence. Ultimately, the study highlights that arts education serves a broader purpose than technical skill acquisition; it fosters personal agency and cultural empathy, multidimensional competencies vital for 21st-century talent development. By providing a supportive instructional context, educators can effectively activate the internal and external catalysts necessary to transform raw potential into sophisticated, socially responsible performance. This holistic approach ensures that giftedness is not merely identified but is systematically nurtured into refined talent that reflects a deep understanding of diverse cultural contexts and personal expression. This research provides a scalable model for practitioners to integrate cross-disciplinary texts with technical training, ensuring a balanced development of both artistic skill and emotional intelligence within gifted populations.

ID:120 The Path of the Blue Whale: Local Culture Translation and Creative Teaching Practice—An Interdisciplinary Curriculum Design Case Based on The Nanfeng City Washing Canal Chronicles

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Keywords: place-based education; board game design; creative pedagogy; cultural translation; COCO model; local identity; interdisciplinary curriculum; sustainable community development

Recent advances in creative pedagogy have highlighted the value of integrating place-based cultural learning with innovative curriculum design. This study presents a teaching case based on The Nanfeng City Washing Canal Chronicles, a board game–centered curriculum implemented in Zhunan, Taiwan. The project aimed to strengthen students' local cultural identity while cultivating global perspectives through creative tasks, field investigations, and cross-linguistic translation. Guided by the COCO model for gifted education, the eight-session curriculum also incorporated digital storytelling through podcast production, enabling multimodal cultural translation of the Port Washing Festival's historical and ritual context. Participants were 14 elementary students enrolled in a general intellectual gifted program. Data sources included classroom observations, student artifacts, semi-structured interviews, and creativity assessments. Quantitative evaluation employed the Torrance Tests of Creative Thinking (TTCT) and rubric-based scoring of fluency, originality, and elaboration. Qualitative analysis of interview transcripts and reflection journals provided complementary insights. Findings indicated significant gains in creativity (average TTCT improvement of 12.5%) and enriched cultural narratives in student interviews. Students reconstructed the cultural meaning of their hometown through game-based learning and storytelling, while teachers benefited from co-planning and interdisciplinary collaboration. Beyond classroom outcomes, the project fostered ethnic integration, localized pedagogy, and awareness of sustainable community development. Although limited by a small sample size, this case contributes to international discussions on how place-based and board game–based pedagogies can support gifted education and global citizenship learning. The study underscores the potential of cultural translation as a bridge between traditional heritage and contemporary creative education.

ID:122 Self-regulated learning, satisfaction with distance learning, and learning outcomes among female gifted high school students

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Keywords: Self-regulated learning, outcome, satisfaction, gifted students, high school, distance learning

This study investigates the relationships between self-regulated learning (SRL), satisfaction with distance learning, and perceived learning outcomes among 311 female gifted high school students in Saudi Arabia. Despite extensive research on SRL in higher education, its specific role among K-12 gifted distance learners—and how it interacts with student satisfaction to influence academic success—remains underexamined. This research addresses that gap by integrating these three variables into a unified framework to provide new insights into the dynamics of gifted education. The methodology utilized a four-part questionnaire developed from validated instruments, collecting data on students' demographics, SRL strategies, perceived learning outcomes, and satisfaction levels. Structural equation modeling (SEM) was employed to analyze both direct and indirect effects within this complex relationship. The findings revealed that SRL has a direct and significant impact on both student satisfaction and perceived learning outcomes. Notably, the analysis also uncovered an indirect effect: SRL enhances learning outcomes through the mediating role of student satisfaction. This suggests that while self-regulation is a primary driver of academic success, the quality of the learning experience—and the positive emotions associated with it—is essential for maximizing potential. These results emphasize that fostering SRL strategies is particularly impactful during high school, a stage where these skills are still developing. For educators and policymakers, the study underscores the dual necessity of promoting self-regulation skills and designing satisfying, high-quality distance learning environments. By addressing both the cognitive-behavioral aspects of SRL and the affective domain of satisfaction, practitioners can better support the unique needs of gifted female students. Ultimately, this research contributes to the literature by providing a scalable model for understanding how internal student characteristics and external learning conditions intersect to define academic excellence in a digital age, ensuring that gifted learners thrive in non-traditional educational settings.

ID:127 How High Achievers Experience STEM Classrooms: A Study of Situations Perceived in Learning Environments

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Keywords: DIAMONDS, Education, High-Achiever, Situation Perception, STEM

Talent development in STEM is a multifaceted process influenced by various distal and proximal factors. While distal influences are well-documented, the systematic measurement of proximal, situational influences remains a challenge due to the lack of a uniform taxonomy. To address this, the DIAMONDS approach (Rauthmann et al., 2014) classifies everyday situations into eight dimensions: Duty, Intellect, Adversity, Mating, Positivity, Negativity, Deception, and Sociality. This study utilizes the DIAMONDS framework to investigate two primary research questions: how students perceive STEM lessons (RQ1) and whether high-achievers differ from their peers in these perceptions (RQ2). The sample consists of over 1,000 eighth-grade students from German secondary schools specializing in STEM. Using the S8-1 scale adapted for STEM education, students self-reported their perceptions on a 7-point Likert scale. Achievement levels were determined using STEM grades from report cards, alongside socio-demographic data. Findings indicate that STEM lessons are predominantly associated with the dimensions of Duty and Intellect (RQ1). Regarding RQ2, high-achievers exhibit a significantly more favorable perception of STEM lessons (Positivity) compared to their classmates. Conversely, lower mean values were recorded for the dimensions of Negativity and Deception. Notably, a discernible correlation emerged between specific DIAMONDS dimensions and long-term intentions to pursue STEM fields. These results underscore the relevance of the DIAMONDS approach in capturing the psychological climate of the classroom. The study concludes by discussing the status quo of talent development, the practical implications of situational perception, and the methodological limitations of the research. Ultimately, understanding these proximal dimensions provides a foundation for subsequent research and helps educators tailor STEM environments to better support high-achievers and foster long-term interest in the field. This research bridges the gap between theoretical frameworks and the lived experiences of students in specialized educational settings.

ID:134 Differentiated Instruction and Classroom Quality in Gifted and Non-Gifted Classes of Private and Public Schools in Saudi Arabia

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Keywords: differentiated instruction, classroom quality, gifted students, private schools

This study explored students' perceptions of classroom quality in gifted and non-gifted education settings in Saudi Arabia. The researcher used the Zone of Proximal Development theory and Expectancy Value Theory to frame the study. The research was conducted with sixteen teachers and 811 students; 395 were in the gifted programs, while 416 were in the non-gifted. The teachers completed a Differentiated Instruction (DI) survey, while the students completed the Students' Perceptions of Classroom Quality (SPOCQ) survey. Statistical analysis revealed that students' perceptions of classroom quality differed by program and classroom type but not school type. It was also found that the teacher's professional development predicted students' perceptions. Differentiated instruction did not predict students' perceptions of classroom quality. It is concluded that the results would inform the gifted education field and help educators and policymakers understand differentiated instruction and classroom quality.

ID:136 Revitalizing Local Culture through Gifted Education: Mobile Theater as a Medium for Creativity and Collaboration

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Keywords: cultural identity, creativity, mobile theater

This study examines how integrating creativity training with mobile theater focused on the Keelung Mid-summer Ghost Festival effectively supports gifted junior high students in Keelung City, Taiwan, who are often isolated by geographical constraints. Established in 2024 to centralize resources, the Keelung Resource Center for the Gifted and Talented implemented a 28-hour summer program in 2025 where 22 students utilized Mandala Charts and creative thinking strategies to transform cultural values—such as compassion, ethnic integration, filial piety, and social harmony—into performance art. The instructional framework followed a four-stage process of preparation, internalization, rehearsal, and public performance, requiring students to collaborate across schools to write scripts, design props, and plan mobile routes. Despite initial challenges including a lack of historical knowledge, stage inexperience, and interpersonal friction, teachers successfully facilitated growth through role rotation, improvisational exercises, and consultations with cultural practitioners. Post-course parent interviews and classroom observations confirmed that the program significantly boosted student confidence, expressive potential, and cultural identity, leading to continued self-directed learning even after the program concluded. Ultimately, the research demonstrates that bringing together gifted peers for community-based arts education not only fulfills their need for collaborative competition but also fosters the social interaction and cultural empathy essential for 21st-century talent development. By providing a platform for students from diverse backgrounds to unite, the initiative bridged the gap between intellectual potential and social responsibility, proving that cultural themes serve as powerful catalysts for personal growth. The program's success underscores the importance of regional resource centers in creating equitable opportunities for high-achieving learners in marginalized areas. Through this mobile theater model, educators can effectively engage gifted students in meaningful, data-driven agendas that emphasize both artistic excellence and community engagement, ensuring that their unique talents are nurtured within a supportive, culturally rich educational landscape.

ID:148 AI Educational Support Models in Asia-Pacific: Applications for Gifted Education

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Keywords: AI in Education, Personalized Learning, Educational Support Models, Equity in Education

This study examines AI-based educational support models in six Asia-Pacific countries—Singapore, China, Australia, New Zealand, Taiwan, and Korea—through the lenses of equity, inclusion, and sustainability in gifted education. Drawing on a literature-based comparative analysis, the study highlights how AI contributes to fairer identification, culturally responsive inclusion, and sustainable learning support for gifted students. The findings reveal that national approaches vary according to educational systems, cultural contexts, and policy priorities, highlighting the need for context-appropriate rather than uniform applications. AI holds promise to transform gifted education into a more equitable, inclusive, and sustainable system, yet challenges such as algorithmic bias, privacy, and long-term effectiveness remain. The study concludes that AI's potential lies in collaborative, hybrid models that complement rather than replace human educators.

ID:151 The Influence of Latent Profiles of Maternal Parenting styles and Teacher-Student Relationships on Gifted Students' Academic Achievement: The Mediating Role of Academic Self-Regulation

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Keywords: maternal parenting styles, teacher-student relationships, academic achievement, academic self-regulation

This study examines how maternal parenting styles and teacher-student relationships collectively influence the academic achievement of 255 Chinese gifted students, aged 8–11. Giftedness was defined by scoring the top 10% of the Test of Nonverbal Intelligence (TONI-2) and receiving above-average teacher ratings in motivation and creativity. Using Latent Profile Analysis, the research identified three distinct environmental configurations: the Dual-Balanced Profile (75.3%), featuring average levels of warmth and support; the Authoritarian-Distant Profile (15.7%), characterized by high maternal control and low warmth coupled with medium-high conflict and avoidance in teacher relationships; and the Balanced-Adversarial Profile (9.0%), marked by average parenting but highly avoidant and conflictual teacher-student dynamics. The findings revealed significant differences in math achievement and academic self-regulation (ps<0.001). Specifically, students in the Dual-Balanced and Authoritarian-Distant profiles scored significantly higher than those in the Balanced-Adversarial profile (ps<0.01). Path analysis further demonstrated that academic self-regulation, specifically intrinsic motivation, serves as a crucial mediator. Both the Dual-Balanced and Authoritarian-Distant profiles were positively associated with math achievement via higher intrinsic motivation compared to the Balanced-Adversarial group (95%CI=[1.22, 5.51]; 95%CI=[1.15, 5.07]). These results provide empirical support for ecological systems theory, highlighting that even under authoritarian parenting, gifted children may thrive if the home-school microsystems avoid the highly adversarial teacher-student extremes. By identifying supportive environmental configurations, this research offers a scientific basis for optimizing educational interventions. It underscores the necessity of strengthening home-school collaboration to foster intrinsic motivation and self-regulation. Ultimately, the study suggests that conflict-heavy teacher-student relationships are particularly detrimental to achievement, emphasizing that precise, data-driven strategies must address both the home and school environments to ensure gifted learners reach their full potential.

ID:152 Equity in Gifted Education through Tailored Mentoring: Evidence from Elementary and Secondary Teachers in Korea

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Keywords: Underprivileged gifted students, tailored mentoring, teacher perception, needs assessment, school-level comparison

This study analyzes differences in perceptions between elementary and secondary school teachers regarding tailored mentoring programs for gifted students from underprivileged backgrounds in Korea. The purpose is to provide differentiated guidelines for designing mentoring programs that reflect the characteristics of each school level. A total of 302 teachers participated in the study, including 217 elementary teachers and 85 secondary teachers with long-term experience in gifted education programs. Teachers evaluated the importance and performance levels of eight types of mentoring programs. The data were analyzed using independent-sample t-tests, Borich's needs assessment, and the Locus for Focus model to derive priorities for improvement. The analysis revealed that elementary teachers emphasized emotional support and experiential activities (e.g., psychosocial counseling, career exploration, cultural immersion), whereas secondary teachers highlighted the need for expert mentoring and teacher-designed STEAM classes, focusing on external expertise and creative-convergence learning. Both groups, however, identified teacher-designed STEAM classes as the top priority for improvement. These results suggest that mentoring programs must be designed and operated by considering developmental characteristics and educational contexts specific to each school level.

ID:153 An Action Research on Integrating the Design Thinking Inquiry Method into Independent Research Courses in Gifted Education

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Keywords: design thinking, inquiry learning, creative thinking, gifted education, independent research, action research

This study investigates the feasibility and effectiveness of integrating a design thinking–oriented inquiry approach into independent research courses for gifted elementary school students and examines its impact on their creativity and research competence. Employing an action research design, the study was conducted with fifteen students from a gifted itinerant class in Kinmen County over a ten-week program comprising twenty sessions. The curriculum was structured around the stages of design thinking—empathize, define, ideate, prototype, test, and reflect—interwoven with the spirit of independent inquiry, thereby guiding students to identify authentic problems, propose innovative solutions, and undertake systematic validation. Data collection relied primarily on qualitative sources, including student works, classroom observations, worksheets, feedback forms, interviews, and teacher reflection logs, complemented by quantitative evidence from the Torrance Tests of Creative Thinking (figural form), learning response questionnaires, and pre- and post-test performance. Analytical procedures encompassed descriptive statistics, t-tests, and qualitative coding. Findings revealed significant gains in fluency, flexibility, originality, and elaboration, alongside enhanced research autonomy, collaborative communication, and innovative problem-solving. Students demonstrated the capacity to iteratively refine their work and generate concrete, complete outcomes. Moreover, the action research process provided the teacher with critical insights into curriculum design and instructional strategies. In sum, the study substantiates the pedagogical value of a design thinking–oriented inquiry approach in gifted education, reinforcing the practical significance of creativity-centered instruction and offering empirical reference for the design of future curricula and the cultivation of students' core competencies.

ID:173 Unpacking Bundled Accommodations: Literacy Outcomes for Gifted Secondary Learners

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Keywords: test accommodations; literacy; gifted; twice-exceptionality; secondary education

In today's equity-driven educational landscape, accommodation is essential but often remains limited to students with disabilities, leaving gifted and twice-exceptional learners underrepresented in research despite rising global demand (OECD, 2013). This study addresses this gap by examining whether 516 accommodated gifted Grade 10 students in Ontario, Canada, out of a sample of 3,177, were more likely to meet standards on the 2015 literacy test. Introducing a strand-level analysis to bridge item- and test-level approaches (Dembitzer & Kettler, 2023), the research utilized adjusted odds ratios (Diamond et al., 2007) to compare outcomes across five strands: identifying explicit ideas, making inferences, connecting texts, organizing ideas, and language conventions. Results identified 28 accommodation bundles with differential effects, while 10 bundles showed consistent effects across all strands and overall performance. Specifically, five distinct bundles yielded positive outcomes, whereas five others were linked to negative ones. Notably, three bundles were consistently beneficial across every strand: (1) extended time, (2) computer use with extended time, and (3) setting with extended time. Conversely, complex bundles—such as text-to-speech software combined with setting and extended time, or audio versions with computer use—were consistently linked to negative outcomes. Findings suggest that strand-level analysis provides critical insights invisible at the overall performance level, as frequently used accommodations like "setting" and "computer use" can produce varied results depending on their specific combination. Ultimately, this study highlights that bundles with positive results in one strand did not produce negative effects in others, reinforcing the importance of precise, strand-specific accommodation policies to support inclusive assessment for gifted students with twice-exceptionalities. By demonstrating that specific bundles either consistently help or hinder performance, the research offers a data-driven framework for optimizing literacy support in secondary education.

ID:177 Teachers' Perceptions of Effective Instructional Strategies for Nurturing Bilingual (Chinese-English) Literacy in Gifted Hong Kong Secondary Students: A Scoping Review (Poster Presentation)

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Keywords: Bilingual literacy, Chinese-English, Cross-linguistic transfer, Gifted education, Hong Kong, Instructional strategies, Metalinguistic awareness, Scoping review, Secondary education, Teacher perceptions

Hong Kong's biliterate–trilingual policy positions bilingual (Chinese–English) literacy as central to educational success, yet research tailored to gifted secondary students remains limited. This work-in-progress scoping review (2015–2025) synthesizes teachers perceived effective strategies for cultivating bilingual literacy among gifted learners in Hong Kong, aiming to establish a research agenda for 2050. Searching databases such as ERIC, Taylor & Francis Online, and ResearchGate, the review includes studies focused on Hong Kong secondary teachers' perceptions of instructional approaches for high-ability students. Preliminary thematic coding suggests that teachers emphasize four key strategies: (1) exposure to varied, complex texts in both languages; (2) explicit vocabulary instruction supporting cross-linguistic transfer; (3) the integration of language and literature to deepen critical reading; and (4) leveraging native-language skills to scaffold second-language development. Initial observations also highlight critical evidence gaps, particularly a scarcity of studies focused specifically on gifted bilinguals, a lack of longitudinal data, and uneven resource variability across different school language streams. These early findings suggest that the reliance on academic databases may overlook relevant grey literature. If these patterns are confirmed, implications include the development of personalized learning pathways, targeted professional training in metalinguistic strategy use, and policy support for flexible grouping and enriched curricula. Looking toward 2050, the review proposes a future-ready agenda encompassing longitudinal mixed-methods studies, inclusion of twice-exceptional learners, and evaluation of technology-enabled tools like adaptive reading platforms and corpus-based vocabulary learning. By centering teacher perceptions within Hong Kong's unique language ecology, this study provides actionable directions for gifted education. Ultimately, the research emphasizes that fostering 21st-century bilingual competencies requires a shift from general instruction to specialized, evidence-based practices that address the specific linguistic aptitudes of high-ability learners. This holistic framework ensures that gifted students are not only biliterate but possess the multidimensional communication skills necessary for a globalized workforce.

ID:178 Cultivating Scientific Thinking in Gifted Children Using a Model-Building Method ——A Case Study of the Teaching Design for "Molecular Tools for Recombinant DNA Technology"

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Keywords: Gifted Education; Gifted Children; Model-Building; Senior High School Biology

As an important reserve of innovative talents in China, gifted children exhibit characteristics such as active thinking, unique creativity, and a strong thirst for knowledge. Their learning methods differ from those of their peers, necessitating teaching strategies tailored to their developmental needs. Model-building serves as a highly effective teaching method that can cultivate students' hands-on skills and teamwork, further develop their scientific thinking, and enhance learning interest. This study, using the lesson "Molecular Tools for Recombinant DNA Technology" from Chapter 3 of the PEP Elective Course 3 (Genetic Engineering), implemented teaching activities for 60 gifted children around the age of 13. Through the model-building method, students were guided through hands-on operations, cooperative inquiry, and scientific thinking training. Results showed significant improvement in students' learning interest, scientific thinking, and practical skills, demonstrating remarkable teaching effectiveness. The study indicates that biology instruction for gifted children should focus on their learning characteristics and employ developmentally appropriate teaching methods to fully realize their potential. This research provides a reference for teachers on how to adapt instruction to individual aptitudes and enhance teaching outcomes in biology for gifted learners.

ID:179 Self-Regulated Learning of Gifted Junior High Student with Programming

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Keywords: Self-Regulated Learning, Gifted Students, Programming, metacognitive, teaching strategies

This study examines how a gifted junior high school student applied a self-regulated learning (SRL) model over a two-week period, progressing from no prior knowledge of Arduino programming to developing a range of functioning projects. Recent curriculum reforms in Taiwan emphasize student-centered learning and the cultivation of lifelong learners, making SRL a key framework in gifted education. Because gifted students typically possess strong metacognitive abilities, rapid learning, and high motivation, they provide an excellent case for observing SRL in practice. Using a qualitative single-case design, this study collected the student's daily learning journals and project outcomes over two weeks. The analysis focused on circuit design, programming use, functional outcomes, learning strategies, product design, and motivation and attitudes. During the study period, the student demonstrated steady and strategic engagement, completing several working projects, including an LED light cycle, a traffic-light simulator, a temperature sensor, a dimmer, a night light, and an external activity-sensing lamp. SRL not only offered opportunities for autonomy and hands-on outcomes but also revealed the emotional pressures arising from the student's perfectionism and sensitivity. Findings indicate that teachers, acting as guides, should provide timely feedback and resources to strengthen students' self-directed learning and growth. It is therefore recommended that SRL be integrated with diverse learning methods, implemented in shorter phases that encourage critical thinking, and accompanied by appropriate guidance when students express needs. These strategies can help gifted students sustain motivation, refine problem-solving skills, and fully realize the benefits and transfer effects of SRL in technology-based learning contexts.

ID: 181 Employing Machine Learning Algorithms to Detect and Analyze Gifted Students' Traits to Enhance Individualized Learning Programs

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Keywords: Machine Learning Algorithms, Gifted Students, Individualized Learning.

The study aimed to explore the employment of machine learning algorithms in detecting and analyzing the traits of gifted students to enhance individualized learning programs. It also examined differences in participant responses based on demographic variables from the perspective of teachers of the gifted in Saudi Arabia. To achieve these objectives, the researchers formulated questions and hypotheses using a descriptive-analytical approach. A 30-item questionnaire was designed and distributed to a sample of 71 teachers of gifted students across various schools in the Kingdom of Saudi Arabia. The results indicated that the participants believe in the significant importance and benefits of using machine learning in education, while emphasizing the need to qualify educational staff in this field. They also highly believe in the benefits of utilizing machine learning algorithms to identify gifted students, highlighting their role in analyzing student traits to improve individualized learning programs—specifically by providing personalized educational resources, such as exercises or projects, tailored to each student's level. Hypothesis testing showed no statistically significant differences ($p > 0.05$) in participant responses regarding the study's themes attributable to demographic variables (academic qualification, gender, or years of experience). Additionally, the research presented a proposed integrated theoretical model that combines the discovery of gifted individuals through multi-source data analysis with a hybrid educational recommendation system for personalized learning. The study emphasized the need to develop an institutional framework linking educational sciences and machine learning. It further recommended additional theoretical studies to test these models, alongside teacher training and the encouragement of partnerships between educational institutions and technology companies, opening new horizons for research in educational artificial intelligence.

ID:196 Making the Invisible Visible in Differentiation in Japanese Schools

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Keywords: differentiation, teachers, Japanese schools, a new framework for gifted education and talent development

Internationally, the education of pupils with gifts and talents has become an important focus of policy, research and practice. In recent years, support for such pupils in schools has increasingly focused on differentiation within regular classrooms as the prevailing paradigm. Differentiation is characterized by the provision of high-quality learning opportunities tailored to each pupil's readiness, without necessarily requiring formal identification as a "gifted pupil". In Japan, the public education system neither formally identifies pupils as gifted or talented, nor provides specialized programs. Nevertheless, Japan has a strong tradition of pupil-cent red, high-quality education. This study investigated the extent to which primary and lower secondary school teachers in Japan implement various forms of differentiated support in their classrooms. A two-stage sampling process was employed using an online survey. In the first stage, the survey was distributed to 210,291 individuals, of whom 15,222 were identified as education-related workers. In the second stage, it was sent to 745 primary and 543 lower secondary school teachers drawn from this group. Valid responses were obtained from 499 and 377 teachers, corresponding to response rates of 67% and 69% respectively. The findings indicate that many Japanese teachers prepare challenging tasks or integrate the ideas of pupils demonstrating advanced understanding into their lessons. By contrast, practices such as developing individualized learning plans or collaborating with out-of-school specialists were found to be far less common. Based on these findings, this study proposes a new framework of gifted education and talent development that seeks to integrate classrooms, schools, and society in a seamless manner.

ID:197 The Impact of Creative Classroom Environment Intervention on Creativity Development in Gifted and Non-gifted Students: A Network Analysis

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Keywords: gifted students, creative classroom environment, network analysis, educational intervention

This study utilizes network analysis to examine the differential mechanisms through which a creative classroom environment influences creativity among 253 seventh-grade students (67 gifted) in Chinese regular mathematics classrooms. Employing a quasi-experimental design, the research evaluated an 8-week teacher training intervention based on the Indicator System for Constructing a Creative Classroom Environment. Data were collected via the Creative Classroom Environment Questionnaire and the Alternative Uses Test, assessing environmental perceptions and creative performance (fluency, flexibility, originality) before and after training. Network models were constructed using the EBICglasso method in R. Pre-test results revealed a significant gap: while non-gifted students showed positive associations between classroom engagement, relationships, and flexibility, gifted students exhibited no significant connections between environment and creativity variables, suggesting their developmental needs were not met in standardized settings. However, post-test analysis demonstrated that after the intervention, significant connections emerged for gifted students among classroom engagement, relationships, and fluency, indicating the optimized environment effectively supported their growth. Meanwhile, the non-gifted network became further enriched with new connections between engagement and originality, and teacher leadership and fluency. These findings provide micro-level empirical evidence that while typical classrooms often fail to engage the creative potential of gifted learners, a systematically constructed creative environment facilitated by targeted teacher training can bridge these developmental gaps. The study concludes that enhancing teachers' ability to recognize and respond to the unique cognitive characteristics of gifted students within inclusive settings is vital. By implementing differentiated instructional strategies that cater to deeper creative needs, educators can foster significant development in both gifted and non-gifted populations, ensuring that inclusive education provides equitable pathways for diverse cognitive abilities to flourish. This research underscores the transformative power of environmental optimization in actualizing the creative performance of high-ability students.

ID:205 Integrating Technology for Differentiated Instruction in Gifted Classrooms: Teachers' Practices and Implementation Challenges

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Keywords: Differentiated instruction; Teachers of gifted students; Qualitative stage; Quantitative stage; Technology, Abstract

This study utilizes an interpretative sequential mixed-method approach to identify the extent to which teachers of gifted students utilize technology as a tool for differentiation and to specify the primary challenges encountered during implementation. The research focused on female teachers in the Abha region during the second semester of the academic year 1443-1444 A.H. The quantitative stage included 95 randomly selected teachers, representing 84.9% of the total population, while the qualitative stage involved in-depth interviews with 5 teachers to provide nuanced insights. Data was analyzed using SPSS version 25, based on a questionnaire rooted in Tomlinson's philosophy of differentiated instruction. Quantitative results revealed that the degree of technology use across three key domains—learning content, learning outcomes, and learning processes—ranked "high," with mean scores of 3.85, 3.76, and 3.56, respectively. These findings indicate that teachers are actively leveraging digital tools to tailor instruction. The study found that integrating technology to support differentiation significantly consolidates gifted learning by meeting diverse student needs, enhancing self-learning, augmenting motivation, and developing creative thinking. Conversely, challenges facing teachers ranked "medium," with a total weighted mean of 3.21. The qualitative data identified the foremost obstacles as a lack of propitious competencies for advanced technology integration, digital advertisements that distract gifted learners, and the absence of a consistently supportive school environment. To improve education quality, the study recommends systematically eliminating these barriers to empower teachers. Ultimately, while teachers demonstrate a strong commitment to technological differentiation, their effectiveness remains tethered to institutional support and specialized professional training. Addressing these "medium" level challenges is essential for transitioning from basic use to sophisticated, seamless curricular integration that fully realizes the potential of gifted learners in a digital landscape, ensuring that technology serves as a bridge rather than a barrier to academic excellence.

ID:206 Personalized Learning Strategies A Comparative Study Between Gifted and Non-Gifted Students.

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Keywords: personalized learning, self- regulated learning, gifted students

The aim of this research is to investigate personalized learning strategies that are used by gifted and non-gifted students. To achieve the objectives of the research a self-regulated learning strategies proposed by Purdie were applied. A questionnaire was used to collect the required data. The research sample consisted of (110) gifted students from Mawahib Classroom Program and (110) non gifted students chosen from Jeddah Schools at Jeddah city. The results of analyzed data concluded the personalized learning strategies for gifted students come respectively as follows (rehearsing and memorizing, keeping records and monitoring, goal setting and planning, and seeking social assistance). The results also revealed that there are significant statistical differences between gifted and non-gifted students in favor of gifted students in (goal setting and planning, keeping records and monitoring). The results showed also there is no statistical difference between gifted and non-gifted students in (rehearsing and memorizing and seeking social assistance strategies). In the light of the mentioned findings, number of recommendations were introduced such as determine and examine barriers to developing a gifted program at the high school level, and compare barriers experienced in other districts that managed to implement such a program. Also, Regulate, through a quantitative study, perceptions of students, teachers, and the community regarding the implementation of a gifted program at the high school level.

ID:232 The PI Class: Combining AI Automated Assessment with Arts-Integrated Pedagogy to Foster Creativity and Reduce Educational Inequity

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Keywords: AI-based automated assessment, arts-integrated content, creativity education

This study explores how the 'PI (Personal Intelligence) Class' can address persistent challenges in public education by examining its implementation with Korean elementary school students. The research designed and implemented an audiovisual arts-integrated learning system equipped with an AI-based automated assessment function to foster student engagement, self-expression, and growth while ensuring equitable access to high-quality education. The PI Class redefined existing theories to better reflect real classroom contexts. Torrance's (1990) framework of creativity was reconstructed into five key dimensions: fluency, originality, elaboration, symbolism and expansion of meaning, and openness of thought. Gardner's (1983) theory of multiple intelligences was also refined; bodily-kinesthetic intelligence was assessed through fine artistic expression and tool use, while musical intelligence was evaluated by aural interpretive capacity, such as recognizing sound cues. Furthermore, the system incorporated principles of AI-enhanced instructional design to achieve a balanced integration of cognitive and affective dimensions. In a 2025 pilot program, students participated in lessons guided by the virtual character 'PI'. They produced creative drawings and writings, which were automatically evaluated by AI using redefined rubrics. A distinctive feature is the personalized feedback report—the 'Mirror Window'—which provides tailored, emotionally resonant insights and actionable growth guidance for learners, caregivers, and teachers. Case examples demonstrated the practical feasibility of this system in authentic school settings. The results indicate that the PI Class maintains instructional quality and learning effectiveness even in teacher-absent contexts. AI-based feedback functioned as a meaningful tool, enabling equitable access to creativity-focused education regardless of regional environment. The integration of AI automated assessment with arts-integrated pedagogy supplements traditional approaches by ensuring objectivity and consistency. In conclusion, the PI Class demonstrates its potential as an innovative, scalable model that reduces educational inequities and strengthens learner agencies in public schooling.

ID:244 The extent of the use of artificial intelligence applications in implementing enrichment programs for gifted students according to the visions of their teachers.

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Keywords: Use, artificial intelligence, enrichment programs, gifted students, teachers.

The current study aimed to identify the extent of using artificial intelligence applications in implementing enrichment programs for gifted students according to the visions of their teachers in light of the academic qualification variable. To achieve the goal of the study, the descriptive survey approach was used for its suitability for the purposes of the study. A questionnaire was prepared as a study tool consisting of (17) paragraphs, and its validity and reliability were confirmed. It was distributed to a purposive sample of (32) teachers working at the Joint Talent Academy affiliated with the Sabah Al-Ahmad Center for Giftedness and Creativity in the State of Kuwait due to the small sample size. The results showed that the extent of using artificial intelligence applications in implementing enrichment programs for gifted students according to the visions of their teachers was high in all paragraphs except for two paragraphs that were average. The study also indicated no statistically significant differences between the average responses of teachers regarding the extent to which artificial intelligence applications were used in implementing enrichment programs for gifted students, according to their teachers' perceptions, attributable to the variable of academic qualification. Based on the study results, and accordingly, the researcher made several recommendations, most notably: Continuing to encourage and motivate teachers in gifted schools to use artificial intelligence applications in implementing enrichment programs.

ID:250 Designing Meaningful STEM Activities

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Keywords: STEM, Activities, Designing

Twenty-first-century learning focuses on developing higher-order thinking skills and integrating science into daily life. Consequently, teachers play a fundamental role in designing learning activities that encourage students to improve problem-solving, creativity, collaboration, and critical thinking. STEM education is an integrative approach based on the idea of educating students in four specific disciplines: Science, Technology, Engineering, and Mathematics. It features product-based activities and practice-oriented foundations, merging these various disciplines into a new educational curriculum—using the acronym STEM. This approach is essential for fostering student interest and curiosity while building a conceptual foundation in Science, Technology, Engineering, and Mathematics. This paper explores the characteristics of activities designed with a STEM orientation and examines what STEM lessons look like in practice. Furthermore, the paper presents the design of educational activities across five workshops developed based on the STEM approach in response to twenty-first-century learning requirements. These workshops targeted sixth-grade female students at the First Primary School in Malham, under the Riyadh Education Directorate. The implementation period for these workshops took place during the second and third semesters of the 1444 AH academic year.

ID:259 Cultivating Critical Thinking in Gifted Learners Through Socratic Dialogue with Large Language Models

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Keywords: gifted education, critical thinking, Socratic dialogue, Large Language Models, AI tutoring, conceptual framework

This study investigates the potential of Large Language Models (LLMs) to function as Socratic tutors that enhance critical thinking among gifted learners. Rooted in the tradition of dialogic inquiry, the research explores how conversational AI can be designed to stimulate reasoning through open-ended questioning rather than direct instruction. The study addresses the growing need for adaptive, intellectually challenging learning environments that match the cognitive pace and curiosity of gifted students. The proposed model envisions LLMs serving as adaptive dialogue partners that engage learners in structured questioning sequences aligned with the Socratic method. Rather than providing direct answers, the AI would prompt students to analyze assumptions, evaluate evidence, and articulate their reasoning. The paper outlines a theoretical design for implementing this approach within enrichment modules in philosophy, ethics, and advanced humanities. It also suggests an evaluative framework using pre- and post-intervention measures of critical thinking (e.g., Cornell Critical Thinking Test) and qualitative indicators such as metacognitive awareness, argument complexity, and learner autonomy. Anticipated outcomes include increased fluency of reasoning, greater depth of justification, and heightened curiosity among gifted learners. Potential challenges, such as overreliance on AI, maintaining epistemic rigor, and ensuring ethical and culturally sensitive dialogue, are also discussed. The study argues that reframing LLMs as dialogic partners, rather than repositories of information, can expand the pedagogical toolkit available to educators of gifted students. By articulating a research-informed framework for Socratic AI tutoring, this paper contributes to ongoing discourse on how artificial intelligence can enrich gifted education. It offers a vision for developing intellectually stimulating, inquiry-driven learning experiences that align with the goals of 21st-century gifted pedagogy and the broader "Vision 2050" agenda for talent development.

ID:260 Active Learning Approaches in Physics Education for Students of Grades 8–10

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Keywords: Gifted education, Personalized learning, Active learning

This study explores the impact of an active learning model in physics education designed specifically for gifted learners in grades 8–10. Recognizing that conventional classroom teaching often fails to meet the creative needs of highly able students, our model aimed to develop a learning framework that integrates inquiry, experimentation, and reflective thinking into physics instruction. A cohort of 60 high-performing students was selected from different schools and engaged in an enrichment program that emphasized learning by doing. Using the Active Learning Model, learners participated in structured modules covering magnetism, optics and basic quantum ideas. Learning experiences is mainly through guided experiments. Each student is given apparatus like magnet, prism, lens glass slab etc. Assessments were employed to evaluate conceptual understanding and scientific reasoning. The results indicate significant gains in students' conceptual clarity, critical thinking, and engagement with physics compared to peers in traditional classes. Learners demonstrated improved ability to connect abstract principles with real-life contexts and to design and interpret experiments independently. Teacher observations and student feedback further confirmed that the combination of personalized pacing and inquiry-driven tasks fostered deeper motivation and sustained curiosity. These findings suggest that active learning strategies can transform the way gifted learners experience physics by promoting autonomy and authentic scientific inquiry. The study contributes to gifted education by offering a scalable, contextual approach.

ID:264 The Effectiveness of Project-Based Learning in Developing Practical Thinking among Gifted Students

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Keywords: Project-Based Learning, Practical Thinking, Gifted Students.

This research investigates the effectiveness of Project-Based Learning (PBL) in enhancing the practical thinking skills of gifted female students. It seeks to identify statistically significant differences in practical thinking variables between an experimental group and a control group using a quasi-experimental pretest-posttest design. The sample comprised 30 gifted female students from the first year of preparatory school in Al-Ahsa Governorate, equally divided into an experimental group (PBL instruction) and a control group (traditional method). Research instruments included a researcher-developed practical thinking skills questionnaire and an intensive PBL training program. This program strategically focused on cultivating advanced cognitive skills, including complex problem-solving, sound decision-making, critical thinking, and the practical application of knowledge. The results revealed statistically significant differences at the 0.05 level in favor of the experimental group in posttest measurements, confirming the positive impact of PBL on developing practical thinking skills. Qualitative findings indicated tangible improvements in student behavior, including elevated individual responsibility, enhanced teamwork capacity, and increased innovation in educational situations. These improvements are attributed to the nature of PBL, which empowers learners to transform theoretical knowledge into real-world applications, reinforcing the connection between learning and daily life. The study concludes that adopting PBL is one of the most effective pedagogical approaches for preparing gifted learners for 21st-century demands. PBL integrates self-directed and collaborative learning, bridges the gap between thinking and action, and significantly contributes to higher-order thinking skills. The research recommends integrating PBL strategies into gifted education programs, providing comprehensive teacher training on implementation, and incorporating PBL into curricula as a principal tool for nurturing practical and creative thinking within modern learning environments.

ID:270 Motivational Perspectives in the Teaching of Students with Exceptional Intelligence in Kosovo and North Macedonia

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Keywords: teaching, students with extraordinary intelligence, talents, Kosovo and North Macedonia

This study examines the implementation of motivational perspectives in the identification and development of students with exceptional intelligence, gifts, and talents within the Kosovo and North Macedonian pre-university education systems. Although international frameworks like the Salamanca Statement and national policies emphasize inclusive education and differentiated instruction, the findings reveal a significant discrepancy between policy expectations and actual school practices. Grounded in theories such as Gardner's multiple intelligences, the research considers the socio-educational contexts of Kosovo and North Macedonia, which face structural and systemic challenges. Employing a mixed-methods design, data was collected from teachers, coordinators, and parents across both regions. The sample included structured interviews with 10 teachers and 3 school coordinators, plus surveys administered to 20 parents in Kosovo, with an identical sample size and procedure repeated in North Macedonia. Findings indicate that early identification of gifted learners remains limited, inconsistent, and dependent on subjective teacher judgments. Most teachers report insufficient professional training, with only a minority having attended formal sessions on gifted education. Furthermore, the study highlights a weak school–family partnership: parents feel their insights are ignored, while teachers often view parental assessments as exaggerated. Analysis reveals that exceptional students frequently remain underserved due to traditional teaching practices, limited curricular flexibility, and a lack of systematic identification mechanisms. Socioeconomic factors also influence recognition, as students from advantaged backgrounds are identified more frequently and earlier. The results underscore an urgent need to strengthen teacher capacity, establish structured school–family collaboration, and develop clear tools for nurturing gifted students. This study contributes to the limited research on gifted education in Kosovo and North Macedonia, calling for comprehensive policy interventions to ensure that learners with exceptional potential are supported within an inclusive and equitable framework.

ID:275 Designing Learning Environments for Gifted Students: Architectural Considerations, Technology Integration, and Inclusive Futures

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Keywords: Gifted education, Learning environments, Architectural design, Inclusive design, Educational technology, Higher education, Future-oriented design.

Gifted learners require environments that reflect the complexity of their cognitive, emotional, and social profiles. Yet, most educational spaces remain bound to traditional models that restrict creativity and exclude diversity. Addressing this gap, the present work investigates how learning environments can be reimagined to better support gifted students and prepare them for the demands of an innovation-driven future. Based on an integrative synthesis of 85 recent studies and five representative case studies, this paper develops an interdisciplinary framework that connects architectural design, inclusivity, and technology. This dual approach allows theoretical perspectives to be considered alongside practical experiences, generating a grounded understanding of what makes educational spaces effective for gifted learners. Rather than treating architecture, inclusivity, and technology as separate domains, the analysis highlights their interdependence in shaping supportive and future-oriented environments. The outcomes of this synthesis include a set of adaptable design guidelines and an interdisciplinary framework that together provide both conceptual clarity and practical direction. These contributions move beyond abstract recommendations by offering structured insights that can inform educational institutions, architects, and policymakers. Ultimately, the work advances the view that purposefully designed environments can function as catalysts for equity, creativity, and resilience, aligning with global ambitions to prepare gifted learners for meaningful participation in the workforce of 2050.

ID: 277 An Educational Framework for Empowering Gifted Students through Creative and Critical Thinking and Differentiated Learning

Abdullah Ali Saeed Al-Nujaimi

Keywords: Gifted Education, Differentiated Learning, 21st-Century Skills, Educational Framework.

This paper aimed to present an educational framework dedicated to developing the capabilities of gifted students within Saudi school environments. This was achieved by integrating a set of advanced methodologies including creative thinking, critical thinking, visual education, differentiated learning, and project-based learning. The paper came as a response to growing challenges facing gifted education, most notably the continued reliance on traditional teaching methods that did not account for the characteristics of mental superiority, weak investment in higher-order thinking skills, and the need for new educational practices aligned with 21st-century requirements. Developing methods for teaching the gifted was an urgent necessity to keep pace with technical and cognitive developments. This development included integrating artificial intelligence techniques into learning, analysis, and evaluation, as well as employing augmented and virtual reality technologies to create experimental learning environments that enhanced creative and applied thinking. It also encompassed updating creative and critical thinking skills to align with 21st-century skills, implementing digital visual education, and transitioning from differentiated learning to personalized learning based on real data reflecting student abilities and progress. Transforming classroom projects into community initiatives contributed to strengthening real-world connections and developing social innovation among gifted students. The framework proposed in this paper relied on a comprehensive analysis of a specialized training package in gifted teaching methods, transforming its elements into an applied model executable within classrooms. The model consisted of five main pillars: creative thinking, critical thinking, visual education, project-based learning, and differentiated learning. The paper also presented a practical six-week implementation plan that combined creative thinking exercises, the development of analysis and evaluation skills, the completion of a group project, and the application of visual education tools and differentiated activities. The expected results indicated a tangible improvement in student performance, including a 40% increase in creative abilities, a 30% improvement in critical thinking skills, and a 50% rise in project quality, in addition to enhancing self-motivation and teamwork. The paper recommended adopting a unified national framework, establishing a digital training academy for teachers of the gifted, activating professional learning communities, and adopting modern assessment tools to measure thinking processes and cognitive growth trajectories.

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ID: 279 Measuring the Effectiveness of Physics Teachers' Use of Artificial Intelligence Tools in Teaching Gifted Students in Medina Region Schools

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Keywords: Artificial Intelligence; Physics Teaching; Gifted Students; Academic Achievement; Educational Technology.

This research aims to measure the effectiveness of physics teachers' utilization of Artificial Intelligence (AI) tools in teaching gifted students within schools in the Medina region. The study employs a mixed-method approach, combining a descriptive-analytical method with a quasi-experimental design. The descriptive phase analyzes the teachers' level of AI usage and examines personal, institutional, and challenging factors affecting this integration, using a five-axis questionnaire administered to a sample of 20 teachers. The experimental phase aims to measure the impact of AI employment on the academic achievement of gifted students through a Physics Achievement Test (PAT) applied to two equivalent groups: a control group and an experimental group, each consisting of 20 eleventh-grade students. Results indicate that the level of AI tool usage among physics teachers is moderate and falls below the hypothesized high level, reflecting a need for specialized training in this field. On the experimental side, achievement test results show a significant superiority of the experimental group—which received AI-based instruction—with scores ranging between 9–10, compared to the control group, whose scores ranged between 6–8. This superiority reflects the impact of digital technologies in enhancing conceptual understanding of physics among gifted students, reducing distraction, and raising the general level of mastery. The study concludes that integrating AI requires broader development in competencies, training, and institutional support. It recommends developing advanced training programs for teachers, enhancing digital infrastructure, and activating AI tools within the curricula to support physics learning through innovative, interactive methods.

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ID:283 From Data to Action: An AI-Assisted Predictive Model of Factors Influencing Gifted Student Achievements on a Digital Platform

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Keywords: Predictive Modeling, Artificial Intelligence (AI), Gifted Education, Personalized Learning

The Mawhiba MetaMinds (M3) platform, under the King Abdulaziz and His Companions Foundation for Giftedness and Creativity, represents a significant shift toward personalized learning in global talent development. This study utilizes achievement data from 130 affiliates within the M3 Leadership program to develop an AI-assisted predictive framework aimed at optimizing student outcomes in digital environments. By leveraging a comprehensive dataset of activity logs, enrollment details, and completion rates through December 2025, the research identifies the mechanical and behavioral variables that most accurately forecast academic success. Utilizing multiple linear regression and AI-driven pattern extraction, the model achieved a high validation rate with an $R^2 = 0.88$, effectively explaining 88% of the variance in student achievements. The findings highlight that personalized success is heavily influenced by specific engagement metrics. Key predictive factors include the use of official university emails ($r=0.78$), early enrollment ($r=-0.61$), and the completion of foundational "learn how to learn" pathways ($r=0.67$). With a total of 4,761 educational hours completed, the data suggests that students who begin with metacognitive training are significantly more likely to succeed in complex leadership tracks. This AI-assisted model provides the Mawhiba team with actionable insights to refine affiliate selection, reduce dropout rates, and enhance the overall efficiency of talent development. By identifying these specific success triggers, the program can move beyond generalized instruction toward a tailored, predictive care model. Ultimately, this research positions personalized learning as a data-driven science, ensuring that high-achieving individuals receive the specific scaffolding required to thrive. Such frameworks are essential for evolving gifted education into a systematic, evidence-based discipline that maximizes human potential in a technology-intensive era. By focusing on the unique trajectories of each affiliate, M3 ensures that talent development remains both scalable and deeply individual.

ID6: Learn without Labels: How Homeschooling can unlock strength-based potential in 2e Child

Purva Badhe, India
Chaitanya Badhe, India

Keywords: Homeschooling, Child-led pedagogy, twice exceptional(2e), Individualized Learning, Multi-sensory Learning, Educational Flexibility

In this paper, parents to a twice exceptional (2e) child, narrate their insightful and transformative path of homeschooling as an adaptive educational choice. Twice exceptional (2e) children are the ones who show both giftedness in one or more areas and have one or more learning, developmental, emotional, or physical disabilities. Dissatisfied by the boundaries experienced in traditional schools to acclimate dual exceptionalities of their son's exceptional auditory comprehension and superior retention co-occurring with substantial visual processing challenges they opted a home learning educational strategy after careful consideration by research as well as their professional expertise. As a mother with over a decade in higher education and specialized training in gifted and special education, and a father with a background in medicine and sports science, they leveraged their expertise to craft a child-led, interdisciplinary and tailored learning program integrating targeted pedagogies and multi-sensory tools to meet their son's complex needs. This set up not only ensured academic excellence and emotional regulation but also resulted in surprising improvements in the child's physical coordination and visual comprehension which seemed impossible to achieve as per his early intervention medical care givers. Through this narrative, they emphasize the potential of homeschooling to meet the varied needs of 2e learners by nurturing their emotional wellbeing, respecting their sensory variances, and upholding customized learning paths. They propose that home learning proposes an empathetic and future-facing model. This is specifically crucial as society is being more inclusive and accepting neurodiversity positively. The purpose of sharing these acumens, experiences, challenges, and discoveries is not only to make meaningful contribution in ongoing discussions on reforms of gifted education reform but also to and to motivate parents who are struggling to find alternatives to the conventional schooling system to target both the vulnerabilities and exceptional potential of 2e children.

ID9: Prevalence of Twice Exceptional Students: Systematic Review

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Keywords: twice exceptionality, prevalence, giftedness, disability, systematic review

The study of twice-exceptional learners is receiving increasing attention from researchers in the fields of giftedness and disability globally (see Foley-Nicpon et al., 2013). Despite the importance of identifying and supporting this group to enable them to benefit from their talents, studies on the prevalence of this population among students have not received sufficient attention in international or local research. Accurate estimates of the prevalence of twice exceptionalities are crucial for developing educational policies that support this group. Therefore, the aim of this study was to conduct a systematic review. Consequently, a thorough systematic review was conducted across ERIC, ProQuest Education Journals, Google Scholar, EBSCO, Web of Science and Scopus. The initial search of the databases yielded 230 studies, of which 65 were identified after scanning and reading the titles. In the final stage, 23 studies were accepted based on the inclusion and exclusion criteria. Based on the analysis of these studies, it can be concluded that there is no consensus on the prevalence rates of twice exceptionalities. In particular, the range of these rates varies depending on the population under consideration. Firstly: The percentage of twice-exceptional students in the general student population ranges from 20% to 5. Furthermore, the percentage of twice exceptionalities in the gifted student population is between 10% and 15%. Finally, the percentage of students with twice exceptionalities in the student population with disabilities is around 7%. The prevalence of this group is hard to estimate due to the factors discussed in this study. These include: The lack of agreed definitions of giftedness and twice exceptional; and the lack of adequate screening tools for identifying this group. In conclusion, this study recommended conducting future research to determine the most effective approaches for identifying this population, as this will impact the accuracy of prevalence estimates.

ID:16 Developmental Factors Influencing Outstanding Performance in Twice-Exceptional Elite Esports Players

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Keywords: Twice-Exceptional, Talent Development, Esports Players, developmental factors, elite performance.

The present study explores the internal and environmental factors that influence high-level performance in twice-exceptional elite Esports players. Twice-exceptional individuals in Esports represent a unique group whose talents develop under distinct conditions. The study explores how these players refine their talents and achieve elite levels of performance to better understand the factors that contribute to their exceptional success. A qualitative case study design will be employed to guide data collection and analysis. Data will be collected through in-depth interviews and achievement portfolios from 3 elite twice-exceptional players who have been recognized for their success at local, regional, and international levels. The results will show key stages in their development and the factors that support each stage. The discussion will highlight how internal and environmental factors interact during each stage and how these talents can be supported and sustained. It will also help identify the players' needs based on their current stage of development.

ID:29 Gifted and Autism: Saudi Teachers' Experiences Supporting Twice-Exceptional Learners

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Saleh Abaalkhayl, Saleh, Abaalkhayl, Imam Mohammad Ibn Saud Islamic University (IMSIU), Saudi Arabia

Keywords: Twice-Exceptional; Gifted Education; Autism Spectrum Disorder; Teacher Experiences

This study explores the lived experiences, perceptions, and challenges of teachers working directly with twice-exceptional students with autism, exploring their perspectives on educating this unique population in Saudi Arabia. Twice-exceptional learners present a complex educational profile, combining giftedness with characteristics of the autism spectrum disorder, creating distinctive pedagogical demands that require a specialized understanding and adaptive teaching strategies. Using a qualitative research design, in-depth semi-structured interviews and focus group discussions will be conducted with ten special education teachers who have experience working with twice-exceptional autistic students. Data collection will focus on four research questions: teachers' perceptions of giftedness in students with autism, specific strategies and support employed to address dual exceptionalities, challenges faced in identification and support processes, and the influence of school contexts including resources, training, and policy frameworks on teacher effectiveness. Thematic analysis will be employed to identify patterns and themes within the data, ensuring rigorous analysis of participants' experiences and perspectives. The anticipated results will provide comprehensive insights into how educators conceptualize and navigate the intersection of giftedness and autism in their students, revealing both effective practices and systemic barriers that impact educational outcomes. These findings will contribute significant understanding to the field of twice-exceptional education by documenting authentic teacher experiences and identifying factors that facilitate or hinder effective support for this underserved population. This research contributes to twice-exceptional education literature by providing empirical evidence about teacher preparedness, professional development needs, and systemic support required for those learners. The study's implications extend to teacher training programs, educational policy development, and school-based intervention strategies, offering practical guidance for improving educational experiences and outcomes for students who embody both giftedness and autism. By amplifying teacher voices and experiences, this research will inform evidence-based practices that better serve the unique educational needs of twice-exceptional students.

ID:30 Exploring Environmental Influences on the Special Interests of Autistic Adolescents: From Their Own Perspectives

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Keywords: Autism, Special Interests, Self-Determination Theory, Autonomy, Competence, Relatedness, Adolescents, Saudi Arabia

Special interests hold significant meaning in the lives of autistic individuals, often shaping their identity and development. Diverse and uniquely personal, these interests define how autistic adolescents understand themselves. Guided by Self-Determination Theory, this study explores how daily environments—home, school, and community—affect the ability to nurture these interests. The core principles of autonomy, competence, and relatedness are examined as critical factors influencing whether adolescents experience support or suppression in their passions. Unlike traditional approaches focusing solely on the individual, this research emphasizes environmental influences. The study argues that when autistic adolescents have the freedom to independently pursue interests (autonomy), believe in their capability to engage effectively (competence), and experience meaningful connections with supportive others (relatedness), they are more likely to find intrinsic motivation and lasting fulfillment. Data collection involves detailed, semi-structured interviews with five autistic adolescents from specialized programs in Riyadh, Saudi Arabia. Participants were selected based on their willingness to share experiences, and none have an intellectual disability. To ensure comfort, interviews accommodated preferred communication methods, including face-to-face, online, or written formats. A deductive approach rooted in Self-Determination Theory is used for analysis, systematically organizing content around the three psychological needs. The findings aim to deepen understanding of how daily environments impact the ability of autistic adolescents to explore special interests. By highlighting conditions that nurture intrinsic motivation, the research seeks to guide policymakers and educators in developing responsive community-based practices. Ultimately, these insights aim to create inclusive programs that support autistic adolescents in building autonomy, enhancing competence, and fostering meaningful relationships through their special interests. By focusing on these environmental supports, the study contributes to a more holistic understanding of well-being for autistic youth, ensuring their unique passions are recognized as strengths rather than mere clinical symptoms.

ID:53 Identification and nurturing students with twice-exceptionality

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Keywords: Identification, nurturing, twice-exceptionality, talent development

According to Taiwan's Special Education Act (2019), for students to be considered with twice-exceptionality (2e), they must meet the identification standards for both giftedness and disability. However, some talented students with disability may not be able to reach the standard for giftedness because disabilities easily hinder their strengths, and their unequal internal abilities pull down the full-scale scores of individualized intelligence tests. Therefore, the equity gap of educational opportunities exists. Luckily, to strengthen the discovery and guidance of students with hidden potential, article 46 of the amended Special Education Act (2023) states: "Schools up to and including the senior high level shall improve identification and guidance services and if required may adjust assessment items, tools, and procedures to provide assistance for twice-exceptional students and students from outer islands, remote areas, or needs based on economic, cultural, or ethnic status." An effective support system would eliminate opportunity gaps and achieve equality in learning opportunities. According to the amended law, the author was authorized by the K-12 Ministry of Education to strengthen the discovery and nurturing of 2e students. In this presentation, the author will introduce strategies to reach the goal. They include: 1. developing the identification and placement model for 2e students to increase the prevalence rate; 2. providing training and professional development opportunities for special education teachers and related services personnel to support the learning needs of 2e students; 3. financially support the enrichment program implemented by schools from K-12 MOE; 4. developing a support system for 2e students and function effectively. Now, the number of 2e students has increased from 369 (2022) to 649 (2024) nationwide. There were more than 200 enrichment programs for 2e students each year, and the feedback from parents and students is very positive; the teachers can see the students demonstrate their talents significantly.

ID:60 Understanding Twice-Exceptional Students: Services and Well-Being Across Home and School Contexts

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Keywords: gifted education, inclusion, twice exceptionality, well-being, services, Egypt

Twice exceptional (2e) students who display both giftedness and learning difficulties often face challenges in being fully understood and supported in school and at home. This study explores the academic performance and well-being of 2e students by examining the perspectives of students, parents, and teachers across home and school contexts. Using a mixed-methods design, data were collected from eight students in Grades 4–10, ten parents, and six teachers through surveys distributed to all participants and follow-up interviews with a subset. The study is guided by three central dimensions: (1) identification, how 2e students are recognized and the challenges of dual identification, (2) services and accommodations, the types and effectiveness of supports provided, and (3) well-being—students' social-emotional experiences, including self-esteem, stress, and peer relations. By integrating survey results and interview data across home and school contexts, the study will create comprehensive profiles of 2e learners, highlighting both alignments and gaps in perceptions. Data was analyzed to identify patterns related to identification, services, and accommodations, and social-emotional well-being. The results indicate both strengths and challenges in how 2e students are recognized, supported, and understood, with notable gaps between home and school perspectives. The goal is to raise awareness of the complexities of twice-exceptionality and to inform more responsive practices and policies that ensure these students thrive academically and emotionally. These findings suggest the need for more consistent identification practices, targeted instructional strategies, and stronger collaboration between families and schools. This research contributes to raising awareness of twice-exceptionality and offers implications for gifted education, inclusive teaching practices, and policy development to ensure that 2e learners thrive academically and emotionally.

ID:72 Psychosocial Issues Among Gifted Students in the Context of Family Separation: A Case Study Informed by a Therapeutic Counseling Intervention

Muneera Alshammary, King Faisal University, Saudi Arabia

Keywords: Psychosocial issues, family separation, gifted students, case study.

This study aimed to explore the psychological and social issues facing gifted students. To achieve the study's objectives, the researcher used a qualitative case study of a fifth-grade student in Al-Ahsa Governorate, Saudi Arabia. She developed a therapeutic counseling program to reduce social isolation and enhance social and psychological adaptation and integration with peers. The researcher used structured interviews supported by observation and social isolation and social integration scales. She developed a counseling program consisting of eight individual sessions aimed at building emotional security, enhancing communication skills, artistic expression, and restructuring negative thoughts, in collaboration with psychology specialists. The results showed a gradual improvement in the student's social integration, a decrease in feelings of isolation, and an increase in self-awareness and self-confidence, although some challenges related to confidence and communication persisted. The results also confirmed the effectiveness of the arts, especially drawing, as a tool for psychological expression and emotional release, which contributed to supporting the recovery process. The importance of involving the family and taking into account the cultural context in designing counseling interventions was highlighted. The study recommends integrating psychosocial support programs into the care of gifted students, developing guidance models that take into account the cultural and social specificities of educational environments in the Arab world, and emphasizing the importance of using the arts as an effective therapeutic approach.

ID:74 Parental Experiences and Challenges in Raising Twice Exceptional Children with ADHD: A Qualitative Study

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Keywords: Twice exceptionality, ADHD, giftedness, parental experiences, qualitative research

Twice-exceptional children exhibit both high cognitive ability and developmental challenges. Parents play a crucial role in identifying atypical behavior early, ensuring timely support through professional services and home practices. To develop effective strategies, a comprehensive understanding of parental experiences is imperative; however, research on the needs of these parents remains limited. This study explores the lived experiences and challenges of parents raising twice-exceptional children with an ADHD diagnosis. A qualitative approach was adopted, featuring seven Turkish mothers from middle- to upper-socioeconomic backgrounds. Data collection included one focus group and four individual interviews, which were analyzed using content and descriptive analysis. Parents reported that raising a gifted child with ADHD results in a complex emotional experience characterized by simultaneous pride and pressure. They noted that their children demonstrate distinctive developmental pathways requiring individualized parenting and enhanced sensitivity to specific cognitive and socio-emotional needs. Mothers reported that while they support their children's abilities, they struggle to manage ADHD symptoms. The findings highlighted systemic challenges, including inadequate institutional support, insufficient teacher training, and limited access to enrichment programs. Consequently, parents frequently experience isolation and a heightened sense of responsibility. Discussions revealed that daily routines are significantly influenced by the child's condition both before and after diagnosis. Furthermore, the impact extends beyond the child to affect family dynamics, spousal relationships, and the difficulty of balancing the needs of siblings. Finally, parents acknowledged observable progress alongside ongoing challenges requiring continued attention. These findings improve our understanding of the specific needs of parents of twice-exceptional children. The results emphasize the importance of structured parental education programs, improved family-school collaboration, and wider community support systems to ensure these families receive the holistic care necessary for their children to thrive.

ID:82 Coexistence of Challenges and Potentials: Exploring Talent Development in Twice-Exceptional Students

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Keywords: Twice-exceptional (2e) students, Autism spectrum

This study presents a case analysis of Hsieh, a sixth-grade twice-exceptional (2e) student at an elementary school in New Taipei City and explores how the 'Identification and Intervention Program for Twice-Exceptional Students' utilizes a diversified curriculum design to support the development of his strengths in language arts and visual arts. The primary aim of this study was to integrate the student's interests and strengths, particularly in the context of autism, with professional instruction to enhance his language expression and artistic creativity. The program consisted of two major components: (1) the Chinese Crosstalk (Xiangsheng) Course, which included training in tongue twisters, solo crosstalk, and dialogue crosstalk to foster verbal expression; and (2) the Comic Art Course, which built upon the student's long-term interest in comics to further develop drawing techniques and compile a personal portfolio. This study adopts action research in combination with qualitative observation. Evidence is gathered from classroom performance, students' creative outputs, and records of project presentations to illustrate their development in both language and artistic domains. Data sources include systematic classroom observations, students' works, performance recordings, teacher feedback, and students' self-reflections. A qualitative comparative analysis is conducted to evaluate differences between students' early-stage and later-stage works within the program. The counseling process employed a sequential, scaffolded approach: it began with a needs assessment and goal-setting phase, proceeded with foundational skills training, advanced into higher-level skills development, and culminated in a summative presentation of outcomes. The findings reveal that the students exhibit substantial progress in vocabulary application, linguistic expression, and comic production. This case offers insights for schools in the guidance of twice-exceptional students, highlighting the effectiveness of diversified curricula in uncovering and nurturing students' strengths and potential.

ID: 98 Exploring the School Adjustment and Counseling Experiences of Gifted Students: A Case Study of an Elementary School in Taipei

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Keywords: gifted student, three-tiered counseling model, school adjustment, creative display.

This study aimed to explore the school adjustment and transformation processes of gifted students in a Taipei elementary school. This study focused on a fifth-grade gifted student with autistic traits. Data were collected through the WISER three-tiered counseling model (including developmental and interventional counseling) and teacher interviews to explore the student's school adjustment and transformation process. L, a student who passed the general intelligence gifted identification in Taipei Elementary School in second grade, transferred to the researcher's school and began receiving gifted education in third grade. His autistic traits often made it difficult for the classroom teacher to manage the class. He received a special education identification in fourth grade, but, possibly due to double masking, failed the special needs student identification. However, because L often displayed apathy, conflict, and uncooperativeness in class and at home, and lacked empathy, his inability to understand and infer others' feelings and mental states, a purposive sampling strategy was adopted to select L as the research subject. This study conducted eight individual-centered orientation counseling sessions to explore L's empathy development and changes over the course of the counseling process. The findings reveal L's growth from third to fifth grade, encompassing his academic performance, adjustment to school, giftedness traits, creative display, interpersonal relationships, and the school's administrative support. In psychotherapy, individual-centered therapy helps clients enhance their self-awareness and improve their life satisfaction. Individual-centered therapy requires therapists to approach clients with a non-directive attitude, unconditional positive regard, a non-defensive attitude, genuine empathy, and respect. By helping clients explore their thoughts and feelings, the approach fosters self-awareness and ultimately leads to change. This study found that developmental counseling can immediately stabilize the client's emotions and improve their interpersonal relationships, while interventionist counseling, through post-counseling discussions with the client, can enhance their thinking and problem-solving skills.

ID:100 Navigating Twice Exceptionalities: Exploring the School Adaptation of Gifted Elementary Students with Attention-Deficit/Hyperactivity Disorder

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Keywords: attention-deficit/hyperactivity disorder, gifted student, school adaptation, twice-exceptional student

This study explores the school adaptation of two 12-year-old twice-exceptional students exhibiting both giftedness and ADHD traits. Adopting a qualitative case study approach, the research utilized interviews with students, parents, and teachers across general education and gifted programs, supplemented by classroom observations and document analysis. Findings indicate that school adaptation is shaped by three interrelated dimensions. Firstly, academic adaptation, is influenced by individual traits, family support, and curriculum design. Both students achieved strong outcomes in general classrooms primarily due to family support; however, ADHD traits—such as distractibility and low frustration tolerance—led to uneven performance. General education teachers employed flexible seating and differentiated homework, while gifted program teachers focused on curriculum modifications and individualized learning adjustments. The second dimension, peer adaptation, is shaped by student traits and classroom management. Although both students assumed leadership roles, their verbal aggression, competitiveness, and self-centered behavior frequently caused conflicts. General education teachers mitigated tensions through structured groupings and peer feedback, whereas gifted program teachers used randomized group rotations to foster social flexibility. The third-dimension concerns teacher–student relationships, emphasizing the necessity of flexibility and empathy. Conflicts in general education often stemmed from mismatched expectations, particularly when access to gifted programs was used punitively. In gifted programs, conflicts arose when intense coursework focus clashed with classroom rules. Empathetic responses and balanced boundaries proved essential for maintaining constructive relationships. In conclusion, this study demonstrates that twice-exceptional adaptation is a complex interplay of personal traits, family support, and teacher practices. While unique abilities present both strengths and challenges, effective curriculum adjustments and targeted social skills training are crucial. The findings underscore the need for teacher sensitivity and cooperative learning strategies to support both academic and social development. Future research should consider larger samples or mixed-method approaches to validate these qualitative insights and refine support models.

ID:102 Integrating AI and SEL in Affective Counseling Strategies for Twice-Exceptional Students

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Keywords: Twice-exceptional students, artificial intelligence, social-emotional learning, affective counseling, Integrating AI and SEL in Affective Counseling Strategies for Twice-Exceptional Students

Twice-exceptional (2e) students, who simultaneously demonstrate giftedness and disabilities, often encounter significant challenges in their social-emotional development. They may struggle with peer interaction, experience difficulties in emotional regulation, and face confusion in constructing a positive self-concept. Although schools provide counseling, special education, and general education services, current practices often lack sufficient immediacy, personalization, and continuity. Therefore, exploring innovative approaches to strengthen support for this population has become a crucial issue. With the rapid advancement of artificial intelligence (AI), combining technological tools with the theoretical foundation of social-emotional learning (SEL) offers new possibilities to enhance the affective development, learning adaptation, and overall well-being of 2e students. This study adopts an action research design focusing on a middle school 2e student. Three AI-assisted intervention strategies were implemented to supplement existing supportive services. The first strategy, AI Chat Diary, enabled the student to practice daily self-expression, recognize emotional states, and gradually build self-awareness. The second, an Emotion Signal System, integrated physiological data with real-time AI feedback, encouraging the student to monitor stress levels and strengthen self-management skills. The third, VR Social Simulation, created interactive scenarios in which the student could rehearse communication strategies, develop empathy, and improve interpersonal competence. Through continuous collection and analysis of AI-based data, teachers were able to identify patterns in emotional responses and behavioral tendencies. These insights facilitated the design of differentiated SEL curricula and counseling strategies tailored to the student's needs. Ultimately, this study demonstrates that integrating AI with SEL can provide individualized, immediate, and sustainable support, thereby improving the educational adaptation and emotional well-being of twice-exceptional students.

ID:110 Talent Development and School Supports for Gifted Students with Autism Spectrum Disorder (ASD)

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Keywords: Learning Needs, Talent Development, School Supports, Twice-exceptionality, ASD

This study investigated school-based support systems for talent development among gifted students with twice-exceptionality (2e) and autism spectrum disorder (ASD). Through semi-structured interviews with 15 participants across diverse regions and educational levels in Taiwan, the research examined learning experiences and institutional roles in nurturing talent, grounded in Susan Baum's Talent-Centered Model (TCM). Data was analyzed using Colaizzi's seven-step phenomenological method, identifying three overarching themes: (1) learning needs; (2) talent development; and (3) school-based support systems. These themes captured the complex interplay between students' strengths, challenges, and interests within differentiated educational services. Findings revealed that participants exhibited multifaceted, conflicting learning needs requiring both enrichment and remediation. Students expressed a desire to stimulate individualized curricula aligned with their advanced cognitive abilities. Regarding talent development, 2e-ASD students demonstrated notable strengths in domains tied to personal interests, flourishing when provided with specialized learning opportunities. The school environment significantly impacted academic and socio-emotional development. Quality teacher-student interactions and supportive peer networks played critical roles. Psychological support was essential for coping with academic pressures, particularly for those with high self-expectations. Furthermore, interventions like social skills training and structured group activities reduced isolation and enhanced peer relationships. Striking a balance between specialized services and a sense of normalcy was found to be crucial for maintaining self-esteem. The study concludes that implementing Individualized Education Plans (IEPs), modifying curricula, offering appropriate challenges, and fostering inclusive environments better address the needs of 2e-ASD students. These findings provide empirical evidence for a multidimensional framework of school-based interventions, helping 2e learners overcome barriers and realize their potential despite the challenges of dual exceptionality. By focusing on strengths while addressing deficits, schools can create a more equitable path for these unique learners to thrive both academically and personally.

ID:113 Enhancing Twice-exceptional Learners' Motivation Through Personalised Learning

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Keywords: Gifted underachievement, twice-exceptionality, motivation, personalised learning

This case study explores factors behind gifted underachievement by examining twice-exceptional students underachieving in the classroom. Following interviews with stakeholders and discussions with an underachieving twice-exceptional student, a six-week intervention program was prepared to address a perceived lack of motivation and misbehavior consistently challenging teachers' authority. Targeting the student's self-identified passion for science, experiments were scheduled and conducted outside the classroom while also acting as an incentive to meet specific targets within regular lessons during the six-week period. The results of teacher observations and reflections with the student indicated a significant increase in motivation and concentration levels when the student was able to focus on areas of personal interest within the curriculum. These findings suggest that twice-exceptional learners may require tailored learning experiences and access to like-minded peers or mentors in order to sustain their motivation levels, and that what teachers may perceive as negative behaviour among twice-exceptional students often stems from a lack of challenge in regular lessons. This research contributes support to gifted education practice by highlighting causes of underachievement in twice-exceptional learners and strategies to enhance their motivation.

ID: 114 E-Learning Technologies for Gifted Students with Visual Impairments

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Keywords: Learning Technologies, E-learning, Gifted Students, Visually Impaired.

This research aims to identify the most significant e-learning technologies for gifted students with visual impairments and to uncover the primary challenges they face when engaging with these technologies. Additionally, the study explores the perceptions of gifted visually impaired students regarding e-learning at their institute. The researcher adopted a qualitative multi-case study approach as the most appropriate method for achieving the study's objectives. The research sample consisted of three gifted students with visual impairments from the Al-Noor Institute in Al-Ahsa Governorate, along with the institute's student counselor. Data was collected through interviews and the analysis of student achievement portfolios. The thematic data analysis revealed eight major themes addressing the research questions. These included the most critical e-learning technology measures, the purpose of using these technologies, and the positive impacts of e-learning integration. Furthermore, the findings highlight prominent challenges faced by these students, categorized into: challenges related to the students themselves, challenges related to the school environment and its facilities, and technical challenges. Regarding students' perceptions of e-learning, the results focused on the electronic competence of the institute's teachers and the students' future aspirations for enhanced e-learning support at the institute.

ID:119 Balancing Achievement and Well-Being: An ACT Lens on Perfectionism in Chinese Gifted Learners

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Keywords: Acceptance and Commitment Therapy; perfectionism; Chinese gifted learners; psychological flexibility; filial piety; school counseling

Research over the past decade has significantly clarified how perfectionism among Chinese gifted learners is uniquely shaped by the intersection of culture and schooling. Across Mainland China, Hong Kong, Taiwan, and Singapore, evidence supports a multidimensional view of this trait: high personal standards can foster persistence and achievement when paired with autonomy support and a growth mindset. However, evaluative concerns and socially prescribed perfectionism—often intensified by filial expectations, concerns about "face," and high-stakes assessment—are consistently linked to anxiety, depression, burnout, and reduced creativity. Culturally specific indicators, such as filial piety and fear of losing face, improve the prediction of well-being and academic functioning, particularly as pandemic-related disruptions have amplified these concerns. This presentation synthesizes recent evidence and proposes a culturally responsive framework for support, highlighting Acceptance and Commitment Therapy (ACT) as a values-based, transdiagnostic approach. Within ACT, perfectionism is conceptualized as cognitive fusion with rigid performance rules and experiential avoidance of shame. Interventions therefore target culturally attuned values clarification, integrating personal and collective aspirations, and cognitive defusion to unhook from "shoulds" and face-related narratives. Acceptance and mindfulness practices help build a willingness to experience uncertainty, while self-as-context loosens over-identification with a "top student" identity. Practical strategies include behavioral experiments, such as submitting "good enough" drafts, and graded exposure to visible mistakes to reduce the fear of negative evaluation. Compassion practices soften self-criticism, and family engagement shifts feedback from outcomes to strategies to increase autonomy support. Group-based delivery normalizes perfectionism and strengthens help-seeking, while school-wide practices like iterative assessment reduce rank salience. Framed within "Fast Forward: Building a Better Future for Gifted Education 2050," the session offers actionable steps for future-ready systems that utilize validated measures to sustain both excellence and well-being in diverse gifted populations.

ID:132 The Struggle to Stay Motivated: Qualitative Insights from Gifted Malaysian Youth

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Keywords: demotivation, Malaysian gifted youth, mainstream schools, parental support, phenomenology

Gifted youth often struggle to find meaning in traditional schooling, which can lead to disengagement, underachievement, and, in some cases, school dropout. Limited research has explored the factors contributing to demotivation among gifted youth in mainstream schools. This phenomenological study investigated the experiences of demotivation among eight Malaysian gifted youth aged 18 to 25 who attended schools that did not have specialized services for academically gifted youth. Specifically, the study examines their learning challenges and coping strategies they employed. Semi-structured interviews and WhatsApp diary submissions were used as data collection methods to create a psychologically safe space for participants. Based on 16 interviews and seven WhatsApp diaries, thematic analysis revealed that they faced two main challenges: the lack of a gifted-friendly schooling environment and school-related demotivation, while seeking parental support was a key coping mechanism. Parents helped by supporting participants' decisions to attend enrichment programs. Findings indicate the crucial role of parents and teachers in keeping gifted youth engaged in school. This research contributes to a deeper understanding of how inadequate academic and social-emotional support can disrupt a young, gifted person's learning, potentially leading them to feel disconnected from school.

ID:137 Unlocking the Potential of Twice-Exceptional Learners: Revealing What Is Hidden Through Inclusion

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Keywords: twice-exceptional, inclusion, gifted education, hidden disability, intervention strategies

When I began my journey at Reach Inclusion, I never imagined the complex beauty of twice-exceptional (2e) learners—children who are both gifted and challenged. Their brilliance often masks their struggles, and vice versa. I remember a boy who could solve any math problem in seconds but was labeled a "behavior problem" because he couldn't sit still. By providing advanced coursework that matched his learning speed alongside behavioral support, he was finally valued for his strengths rather than dismissed for his energy. Then there was a girl with autism whose schools had lowered all expectations. After a year of diverse interventions, her 2e identity surfaced through math. Using TouchMath, she demonstrated a quick, accurate grasp of multiplication, making her intellectual strengths undeniable. I also recall a three-year-old with clear 2e traits. His ADHD was evident in his constant movement, yet his genius was equally visible; he could already read, write, and engage in mature conversations. His inclusion required immediate enrichment—attending higher-grade classes for reading while receiving simultaneous support for his attention and behavioral needs. Finally, I think of a student who appeared "average" for years. At sixteen, he withdrew from school, and at eighteen, he was diagnosed with Asperger's. His sharp intellect had masked his social struggles, while his struggles had hidden his giftedness. He taught me that many 2e students remain invisible until it is almost too late. These stories illustrate that 2e learners require a dual approach: we must nurture their high potential while supporting their developmental challenges. Only by recognizing both sides of their identity can we ensure these "hidden" students truly flourish within our educational systems.

ID:141 When Assessments Overlook Giftedness: 2e Learners Hiding in Plain Sight

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Keywords: Twice exceptional, Assessment, Strength-based, Talent-development

This study explores the complex needs of twice-exceptional (2e) students by interviewing 12 parents whose children received assessment results and recommendations. Using a qualitative case study method, participants' stories were collected through semi-structured, in-depth interviews. The study highlights a shift toward a strength-based, talent-focused model following the assessment process, moving away from the prevalent deficit-based model of education. Findings suggest that parents often observe gifts at home but remain concerned about learning challenges in school. However, professionals still struggle to recognize 2e characteristics, as strengths can mask weaknesses and vice-versa. Without a shared understanding of neurodiversity, many 2e students are misdiagnosed or inadequately supported. Assessments intended to guide interventions often fall short. While comprehensive evaluations should address both disabilities and giftedness using multiple subtests and contextual factors, reports frequently emphasize deficits. Parents may receive lengthy documents focused on remediation and behavior plans, providing little direction on nurturing strengths. This deficit-based framework effectively sidelines gifted potential. The findings suggest it is essential to look beyond assessment scores to implement a talent-focused approach. Several participants described being denied assessments when grades appeared "acceptable," leaving children under-diagnosed. Even when assessments were secured, results were often inconclusive. Parents recalled 17 different types of therapeutic recommendations—academic, psychological, and behavioral—but none addressed giftedness or enrichment. One parent noted, "Nothing, we were never offered anything for giftedness." These shortcomings have real consequences. Without dual identification, 2e students risk missing service eligibility and enduring the toxic stress of navigating unmet needs. This research emphasizes that current assessment practices for 2e students neglect talent development. It is imperative that specialists look beyond asynchronous scores to recommend aligned opportunities for 2e students whose giftedness is hiding in plain sight.

ID:142 Twice-Exceptional University Students: Perceptions of Effective Supports

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Keywords: twice-exceptionality, high ability, tertiary, neurodiversity, learning disability

Twice-exceptional (2e) university students—those with both potential high academic ability/aptitude (often referred to as giftedness and talent) and diagnosed disabilities (e.g., autism spectrum disorder, attention deficit disorder, specific learning disabilities, emotional disorder) remain an underserved and understudied group in higher education (Madaus et al., 2022). While attention to 2e learners has grown in K–12 settings, their postsecondary experiences are still largely overlooked (McClurg et al., 2021). The complicated nature of their learning needs has led to only the disability or area of giftedness/talent being addressed or no services at all being provided. This study addresses this research gap by examining which supports 2e students find most effective, barriers they face, and cross-cultural implications (D'Souza, 2014). Although research highlights the benefits of student-centred, strength-based, and flexible instruction, these approaches are rarely applied in university contexts (Cai & Richdale, 2016). The talent development megamodel (TDMM) serves as the conceptual framework through which this study was examined, specifically the area of appropriate opportunities (Subotnik et al., 2021). Using a mixed-methods design, this study collected data from 2e students from an Australian university. Quantitative and qualitative data was analysed using descriptive statistics and inductive content analysis. The goal was to better understand institutional, instructional, and self-support strategies. Findings include (a) advancing of the theoretical understanding of how 2e students are situated in the TDMM framework; (b) informing the small but growing scholarship in this area; (c) providing greater evidence-based feedback to university instructors, disability support/special education needs staff, and (d) offering guidance for transition planning from high school to university—ultimately promoting more inclusive and equitable learning environments for 2e students.

ID:155 Between Giftedness and Struggle: A Systematic Review of Bullying Among Twice-Exceptional Learners

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Keywords: Twice-exceptional students, gifted with disabilities, bullying, peer victimization

Twice-exceptional (2e) individuals are gifted in one or more domains while also having one or more disabilities, such as learning, developmental, or emotional challenges. This dual profile creates a paradoxical combination of high potential and significant challenge, leading to unique educational and social needs. One understudied area is bullying among 2e students—specifically prevalence, risk factors, experiences, and impacts. Since both giftedness and disability independently increase the risk of peer victimization, it is critical to investigate how these factors intersect. Gifted students may face envy or exclusion, while those with disabilities are often stigmatized. This duality may amplify vulnerability or produce complex social dynamics that current anti-bullying programs fail to address. Understanding these converging risks is essential for informing interventions that support both the strengths and vulnerabilities of 2e learners. This review aims to systematically synthesize empirical literature on bullying experienced by 2e students, examining prevalence, types of bullying, and protective factors. Databases such as ERIC, PsycINFO, Web of Science, and Google Scholar will be searched for relevant studies. The research will follow the PRISMA 2020 guidelines, ensuring a rigorous process for data collection, eligibility criteria, and study selection. Peer-reviewed empirical studies in English or Turkish, published between 2000 and 2026, will be included. Themes will be identified through thematic analysis to provide a comprehensive understanding of how bullying affects 2e students and which support systems are most effective. Ultimately, this review will inform the development of more inclusive educational environments that address the specific needs of twice-exceptional learners. By bridging the gap between identification and protection, the study seeks to ensure that these students can realize their full potential in safe, supportive settings.

ID:163 The Effectiveness of GROWS Training in Developing Gifted Students' Social-Emotional Competence

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Keywords: affective curriculum, intervention, training, gifted students, social-emotional competence

Gifted children possess higher intellectual aptitude than their peers, yet they often face emotional and social challenges, particularly in areas such as social skills, empathy, and emotion regulation. To strengthen their social-emotional competence, targeted interventions are essential. This study examines the effectiveness of GROWS training—a program based on an affective curriculum framework designed for universal application across schools and contexts—in enhancing the social-emotional competence of gifted students. The intervention, focusing on grit, intrinsic motivation, divergent thinking, curiosity, and self-efficacy, was delivered over two days. Participants were identified using IQ scores and the Social Emotional Competence Questionnaire (SECQ). A pretest-posttest experimental design was employed, involving 27 gifted students selected from 145 with the lowest social-emotional competence scores. Data were analyzed using the Wilcoxon test. Results indicated a significant difference between pretest and posttest scores (Asymp. Sig. = 0.001, $p < 0.05$), confirming that GROWS training had a positive impact on the social-emotional competence of gifted students. The findings highlight the importance of integrating social-emotional development programs into the curriculum for gifted learners. Furthermore, parents and teachers play a crucial role by providing opportunities to practice these skills in daily contexts. With appropriate interventions, gifted students can achieve not only academic excellence but also greater emotional balance and social adjustment.

ID:198 Enhancing Science Learning of Resource Room Students in Rural Elementary and Junior High Schools through Technology Education: Implications for Advancing Technology Education for Twice-Exceptional Students in Rural Areas

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Keywords: students with mild disabilities, 3D models, 3D printing pens, scientific inquiry

In recent years, the field of technology has played an increasingly important role in education, offering new pathways for implementing science education activities that enhance students' scientific literacy. However, few studies have incorporated technology-related content to guide special education students in science learning. This study integrates technological tools (including 3D models and 3D printing pens) with biological science instruction to foster scientific cognition, interest, and inquiry among resource room students in elementary and junior high schools, including those with learning disabilities, autism, and emotional/behavioral disorders. The participants were 158 students from 12 rural schools (7 elementary and 5 junior high) in Chiayi County, Tainan City, and Pingtung County, southern Taiwan. Each school implemented a one-day program consisting of six lessons (three in the morning and three in the afternoon, each lasting about 40 minutes). The curriculum was designed around the theme of crabs, employing inquiry-based teaching integrated with technological applications. Students worked in groups of three to four, with three to five counselors providing additional support. Data collection was based on students' post-activity feedback forms, which included four items on "scientific cognition," four items on "scientific inquiry," four items on "scientific attitude," and one open-ended question. Quantitative data were analyzed using descriptive statistics, while qualitative data were derived from students' open-ended responses. Findings indicate that hands-on science activities integrating technology and marine biology effectively enhanced rural resource room students' scientific cognition, inquiry, and attitudes. Moreover, several participating students with disabilities demonstrated high scientific potential, suggesting that such approaches can provide meaningful implications for promoting technology education among twice-exceptional students in rural areas.

ID: 203 Parental Care for Gifted Students, Twice-Exceptional Students, and Underachieving Gifted Students in Primary School

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Keywords: Parental Care, Giftedness, Twice-Exceptional (2e), Underachieving Gifted.

This study aimed to identify differences in the level of academic, psychological, and social parental care received by gifted, twice-exceptional (2e), and underachieving gifted primary students from their own perspectives. Employing a sequential explanatory mixed-methods approach, the researcher utilized a one-way ANOVA for quantitative analysis of 247 upper-primary students in Saudi Arabia's Eastern Province, followed by qualitative focus group interviews to contextualize the findings. Results from the parental care scales indicated that gifted students perceived the highest levels of support across all dimensions, followed by underachieving gifted students, and finally twice-exceptional students. Qualitative insights revealed that parents of gifted students are highly motivated by tangible academic success, whereas parents of underachieving gifted students often struggle with external stressors such as health issues, marital separation, or long working hours, sometimes resorting to ineffective punitive measures. Meanwhile, parents of twice-exceptional students tend to focus disproportionately on remediating deficits rather than nurturing strengths, leading to frustration when academic improvements remain stagnant. The study highlights that the perceived lack of support in the latter groups is often tied to environmental stressors or a narrow focus on academic weaknesses. Based on these findings, the researcher recommends broad awareness campaigns to educate parents on the diverse nature of giftedness beyond academic achievement and suggests further research into the parental support systems of high-achieving gifted individuals across various non-academic fields to establish better support frameworks for at-risk gifted populations.

ID:211 The impact of creativity and self-efficacy on the well-being of gifted students in Hong Kong: A moderation analysis

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Keywords: creativity, self-efficacy, well-being, moderation

Creativity and self-efficacy as psychological capital have been found to positively contribute to the well-being of students on an individual level. Nevertheless, the interrelationships between creativity and self-efficacy and the well-being of gifted students have yet to be fully explored. The present study aims to examine the moderating roles of general self-efficacy in the association between creativity and well-being among gifted students in Hong Kong. A total of 179 gifted learners from primary and secondary school students participated in the study. They completed Wallach-Kogan tests on ideational fluency to assess creativity, a general self-efficacy scale to assess self-efficacy, and a psychological well-being scale and a satisfaction with life scale to assess well-being. The SPSS Process macro 3.5.3 was used for moderation analyses. The findings of this study revealed that general self-efficacy served as a significant moderator in the association between creativity and environmental mastery and life satisfaction among gifted students when controlling for age and gender. Given the important relationships between well-being, creativity, and self-efficacy, the findings have paramount implications for promoting gifted students' well-being by strengthening self-efficacy and, to a lesser extent, by enhancing conditions that foster creativity. Both are psychological capital to enhance well-being in gifted children and adolescents. The implications and limitations of this study are discussed.

ID:218 Psychological Flexibility in the Gifted Classroom: An ACT-Informed Framework for Metacognition and Growth Mindset

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Keywords: Acceptance and Commitment Therapy (ACT), Gifted education, Growth mindset, Psychological flexibility, Metacognition, Self-directed learning

Gifted adolescents often encounter performance-oriented feedback that may reinforce fixed-mindset beliefs and risk-avoidant persistence. This poster outlines a planned systematic review examining whether Acceptance and Commitment Therapy (ACT) processes—acceptance, cognitive defusion, present-moment awareness, self-as-context, values, and committed action—could be integrated into classroom routines to support psychological flexibility, metacognitive regulation, and growth mindset. We will search PsycINFO and Google Scholar for peer-reviewed studies (2000–2025) meeting the following criteria: empirical applications of ACT in non-clinical educational settings; research linking ACT processes to metacognitive skills (planning, monitoring, evaluating); and studies addressing relationships among metacognition, psychological flexibility, and growth mindset in youth. The review will follow transparent screening procedures and narratively synthesize the evidence. Initial scoping suggests that school-based ACT practices are being explored for well-being and flexibility, and that metacognitive regulation is central to self-directed learning. However, the extent to which ACT directly influences metacognition in gifted populations remains uncertain, as do the pathways connecting metacognitive components to growth mindset. To guide interpretation, we will present a provisional conceptual map in which values and committed action may support strategic planning and persistence; present-moment awareness may enhance ongoing monitoring; self-as-context may facilitate reflective evaluation; and acceptance/defusion may reduce evaluation anxiety and cognitive fusion that can impede metacognitive engagement. We will also outline measurement considerations (e.g., multi-method metacognition assessments) and propose design features for future studies (e.g., classroom-based ACT routines, randomized or quasi-experimental designs). The aim is to refine testable propositions and practical hypotheses rather than draw definitive conclusions at this stage. By clarifying the plausibility and boundary conditions of ACT-informed approaches, this work seeks to inform subsequent empirical investigations and, ultimately, contribute to cultivating resilient, self-directed learners in gifted education.

ID: 225 An empirical study to promote the emotional development of Twice-Exceptional students through an interdisciplinary curriculum.

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Keywords: Twice-exceptional (2e) students, Gifted education, Place-based learning, Interdisciplinary curriculum, Social-emotional development

This study explores the affective development of twice-exceptional (2e) students by examining a sample of 45 participants aged 14–17 from Hong Kong's Band 3 school. Using a three-tiered, evidence-based interdisciplinary curriculum grounded in the Hong Kong Gifted Education Framework, data were collected and analyzed to identify changes in social-emotional competencies and emergent leadership. The results indicate that students showed significant improvements in affective development and demonstrated leadership during collaborative, community-based projects. These findings suggest that place-based, interdisciplinary curricula can effectively support both cognitive and affective growth in marginalized 2e learners. This research contributes to inclusive gifted education policy and practice by offering scalable, integrated approaches to meeting the needs of twice-exceptional students in resource-limited contexts. It also advances the application of design thinking and STEAM-based fieldwork in gifted education and highlights the value of community partnerships in fostering real-world learning and student agency.

ID:234 Profiling the Psycho-Social and Vocational Challenges of Gifted Students in Saudi Arabia: A Mixed-Methods Approach for Targeted Guidance

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Keywords: Gifted Students, Psycho-social Challenges, Leadership Development, Saudi Arabia

The educational development of gifted students is a critical priority, yet these individuals often encounter unique psychological, social, and academic challenges that can significantly hinder their potential. Despite the kingdom's investment in talent, systematic analysis within the Saudi Arabian context remains limited, particularly regarding how these factors intersect with students' vocational aspirations and leadership dispositions. This kingdom-wide research aims to bridge this gap by creating a comprehensive profile of gifted students across multiple cities in Saudi Arabia. The objective is to identify distinct psycho-social profiles through quantitative clustering analysis, map primary vocational interests and leadership traits using descriptive statistics, and qualitatively synthesize these findings to achieve a holistic understanding of the gifted population. The methodology involves the analysis of three distinct, anonymized datasets: a survey of self-reported psycho-social challenges, a survey of vocational interests, and a scale measuring leadership qualities. By employing advanced clustering techniques, the research seeks to uncover how various subgroups navigate their educational journeys. The expected impact of this study is profound, as it will provide the region's first evidence-based typology of gifted students' challenges. These resulting profiles will serve as an invaluable tool for educators, policymakers, and counselors, enabling the development of targeted, proactive intervention strategies. By understanding the distinct needs of different student subgroups, this study paves the way for personalized guidance and specialized support. Ultimately, this research ensures that gifted students in Saudi Arabia not only achieve academic excellence but also thrive personally, fostering a generation of leaders prepared to contribute to the nation’s future.

ID:236 Transforming School Culture through Student Voices: A Social Model Approach to Supporting the Strengths and Challenges of Twice-Exceptional Students

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Keywords: 2E, Japan, Social model, School improvement, Student voice

This study explores how Japanese schools can better support twice-exceptional (2e) children—those possessing both high potential and disabilities—by centering the perspectives of the students themselves. The current lack of adequate support is conceptualized as a fundamental mismatch between school culture and student needs. To address this gap, the research adopts a social model approach, focusing on how school culture can be transformed to become more inclusive. In Japan, ongoing discussions regarding the forthcoming revision of the national curriculum guidelines suggest that, for the first time, a curriculum responsive to the needs of gifted children may be introduced. However, two critical issues remain. First, the current debate focuses almost exclusively on children with talents, while insufficient attention is paid to those who are 2e. Second, much of the discussion centers on the difficulty of providing advanced content in regular classrooms due to teacher workloads and shortages. As a result, the proposed solution often involves providing education outside of regular classrooms, which risks reproducing exclusionary practices like those historically experienced by students with disabilities. Instead, what is needed is a serious discussion on how to respond to the needs of gifted—and especially twice-exceptional—students within regular classrooms. This study draws on in-depth interviews with five twice-exceptional students to examine the ways in which existing school cultures fail to address their needs and to identify what forms of reform might be required. The interviews explore children's backgrounds and detailed school experiences, with particular attention to mechanisms of exclusion and inclusion. Building on this analysis, the study also reports on an ongoing school-based intervention aimed at creating more inclusive practices. By situating the voices of 2e children at the center of the analysis, this research highlights their often-neglected presence in Japan's inclusive education discourse while providing practical directions for advancing educational inclusivity.

ID:238 Navigating Neurodiverse Lives: Twice-Exceptional Women's Stories of Growth and Empowerment

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Keywords: Twice-Exceptional Women, Success, 2e support, strategies

This poster presentation highlights a rare study amplifying the lived experiences of six twice exceptional (2e) women, aged 33 to 67, whose lives encompass both extraordinary abilities and learning or behavioral challenges. The research illuminates the nuanced realities of navigating the complexities of giftedness alongside difficulty. Their powerful narratives uncover the strategies that enabled them to meet challenges head-on and achieve meaningful goals throughout their lives. From their life stories, three key themes emerged. First, participants described the ongoing journey of understanding and reconciling their complex neurodiverse profiles. Second, they underscored the importance of building effective support systems—through mentorship, therapy, and academic or workplace accommodations—that helped transform obstacles into opportunities for growth. Finally, they emphasized the significance of self-acceptance and self-care, marking a shift toward embracing their identities, valuing their unique strengths, and prioritizing well-being. Together, these themes outline a transformative growth model of resilience and empowerment. The findings not only shed light on the lived realities of 2e women but also provide valuable guidance for educators, practitioners, and policymakers. By understanding their challenges and the support that made a difference, we can better design learning environments and services that equip younger generations to thrive academically, socially, and emotionally. This poster session invites participants to engage deeply with the voices of 2e women, offering both inspiration and actionable strategies into fostering environments that empower 2e women to thrive, advancing equity and support across their lifespan.

ID:243 Network Analysis of High-Achieving Students' Mental Health and Social Life: Omani Students' Profile

Said Aldhafri, Sultan Qaboos University, Oman

Keywords: High-achieving, mental health, social profile, network analysis.

This study examines the mental health and social life profiles of high-achieving Omani students, using a sample from Sultan Qaboos University (N = 694). Gifted and high-achieving students often face significant challenges, particularly during the transition from school to university. A complex network of factors can hinder their academic achievement if these issues are not identified early in their university careers and addressed with appropriate support. The researcher employed a qualitative approach in which a set of questionnaires was administered to students who had scored 90% or above on the secondary school exit exam, which is used for university admission. The data were collected during the foundation year at Sultan Qaboos University. All questionnaires demonstrated adequate validity and reliability. The sample was divided into two groups: those who scored 95% and above (N = 491), and those who scored between 90% and 94% (N = 203). The researchers employed network analysis to examine the psychological and social profiles of the students. The results indicate that students with higher achievement levels are more likely to exhibit greater parenting resilience, lower levels of social media addiction, less permissive and authoritarian parenting styles, and higher levels of intellectual security. These findings highlight the importance of fostering positive social support and consistently supportive parenting styles to help high-achieving students maintain their academic performance and enhance their creativity during their university years.

ID:257 Supercharging Success: The Impact of Accelerated Learning with Therapies on a 2E Child

Ilyah Abd Aziz, Malaysia

Keywords: Twice-exceptional, Academic Acceleration, Holistic Intervention

This case study examines the academic, emotional, and social impact of accelerated learning along with therapies on a twice-exceptional (2E) gifted child, diagnosed with mild autism at age two, later identified as intellectually gifted. Over six years, a personalized acceleration plan based on Outcome-Based Education (OBE) enabled the child to progress from early learning to university-level. Formal assessments (WISC-IV and SCAT) revealed advanced cognitive strengths in mathematical and logical reasoning. The homeschooling framework incorporated Cambridge IGCSE (O) and A Levels, subject acceleration, ability grouping, and enrichment. Emotional and social development were supported through therapy, religion, recreational activities, and online peer interaction via the New Zealand Centre for Gifted Education. A range of therapies; including speech therapy, occupational therapy, and social skills training, were integrated into the learning process to address the support needs arising from the child's autism diagnosis. These interventions were essential in helping the child manage sensory sensitivities, improve communication skills, and develop emotional regulation. One year of formal schooling further enhanced his social skills and understanding of social norms. This study illustrates that a well-structured and adaptable acceleration strategy, combined with therapies tailored to a 2E learner's cognitive, emotional, and social needs, can promote not only exceptional academic success but also holistic personal growth.

ID:269 The Effectiveness of Gifted Education Teachers in Dealing with Twice-Exceptional Students in Light of International Special Education Standards

Dr. Mahmoud Bin Ali Al-Asiri, Saudi Arabia
Mona Bint Abdulrahman Al-Ghamdi, Saudi Arabia

Keywords: Gifted Education, Twice-Exceptionality (2e), International Special Education Standards, Teacher Preparation.

This study investigates the effectiveness of gifted education teachers in supporting twice-exceptional (2e) students based on international special education standards, while also identifying gaps in current teacher preparation programs. Utilizing a mixed-methods research design, the authors administered questionnaires to gifted education teachers, conducted semi-structured interviews with academic experts, and performed a document analysis of relevant international standards. The results revealed that while teachers possess an acceptable level of knowledge regarding the general characteristics of 2e students, there is a significant deficiency in their understanding of specific behavioral and emotional traits. Furthermore, the findings indicate a lack of specialized pedagogical skills and strategies required to manage this population effectively. Document analysis and interviews further highlighted that current preparation programs fail to adequately incorporate international special education standards. Consequently, the study proposes a comprehensive framework for developing teacher preparation programs that includes specialized coursework on twice-exceptionality, targeted field training, and the adoption of modern international standards. The researchers recommend an immediate review of educational curricula to ensure high-quality training and suggest further applied research to measure the impact of these proposed developments on teacher performance and student outcomes.

ID: 272 Twice-Exceptional Persons with Disabilities at the Aleradah Organization

Mohammed Salem Badghish, Aleradah Organization for Talented Persons with Disabilities, Saudi Arabia

Keywords: Twice-Exceptionality, Talented Persons with Disabilities, Aleradah Organization, Social Inclusion.

The "Twice-Exceptional Persons with Disabilities" seminar, organized by the Aleradah Organization, serves as a unique platform to highlight exceptional gifted individuals with disabilities, empowering them to showcase their abilities and inspire positive societal change. Established in 2016 as the first global organization of its kind to support all types of disabilities and ages across Saudi Arabia, Aleradah aims to discover and develop talents tailored to the labor market and specific disability types. The seminar showcases achievements facilitated by the organization's diverse programs, most notably the "Ammar Award." This initiative has expanded over seven seasons from a local to a regional and international scale—covering 22 Arab countries—through a rigorous process of registration, screening, interviews, and final selections guided by experts in giftedness and disability. The seminar features inspiring models of beneficiaries who have been discovered, trained, and employed. To date, over 432 gifted individuals have been evaluated, 300 trained, and 15 employed, with additional scholarships provided in diverse fields such as supply chain management, pharmacy, law, and engineering. Ultimately, the seminar seeks to foster collaboration between experts and decision-makers to promote social inclusion and equal opportunities, providing practical strategies to create a stimulating, inclusive environment for twice-exceptional individuals.

ID: 280 A Model for Caring for Twice-Exceptional Gifted Students: A Case Study of Student Faris Al Bin Sheikh and the Role of the Educational Institution in the Transformation from Exclusion to Empowerment

Khaled Bayoumi, AlAhsa Model Private Schools, Saudi Arabia

Keywords: Twice-Exceptionality (2e), Autism Spectrum Disorder, Inclusive Education, Talent Empowerment.

The concept of "Twice-Exceptionality" (2e) is among the most sophisticated frameworks in modern special education, identifying individuals who possess extraordinary creative potential alongside developmental challenges. Within the context of Saudi Vision 2030 and the APCG 2026 conference, there is a pressing need to document successful models that have broken the barriers of "disability" to achieve global recognition. This paper explores the journey of student Faris bin Ahmed Al Bin Sheikh, whose diagnosis of Autism Spectrum Disorder served not as a hindrance, but as a catalyst for a unique form of encyclopedic intelligence. Rather than merely presenting a personal success story, this research analyzes the "support ecosystem" formed by the synergy of a conscious family and a flexible school environment. This collaborative effort was instrumental in rescuing a talent that was once threatened by exclusion, ultimately transforming the educational path from one of marginalization to one of full empowerment.

ID:281 After 100 Years of Education— the status of Twice-Exceptionality in Saudi Arabia

Mohamed Aladsani, Imam Abdulrahman bin Faisal University, Saudi Arabia

Keywords: Twice-exceptional (2e), Saudi Arabian Education Policy, Inclusive Education, Teacher Professional Development, Saudi Vision 2030

Marking a century of formal education in Saudi Arabia, the national system is undergoing a transformative evolution; yet, policy provisions for twice-exceptional (2e) learners—those who are gifted while possessing a disability—remain inconsistently articulated and implemented. This study utilizes policy analysis and a systematic document review to examine how national regulations, ministerial guidelines, and related frameworks have addressed inclusive education for 2e learners over time. Currently, Saudi Arabia offers free, mandatory education that increasingly emphasizes inclusive classrooms, yet the lack of a formally recognized special education category for 2e individuals means their unique needs often remain underserved. This oversight frequently leads to psychological, social, and behavioral challenges, as traditional pedagogy fails to address their dual profile. Furthermore, general education teacher preparation programs often lack required special education training, leaving educators ill-equipped to identify or support 2e students in inclusive settings. While the Ministry of Education and the newly established National Institute for Educational Professional Development (NIEPD) have initiated core reforms and teacher development strategies, a comprehensive understanding of the policy landscape is essential for future progress. This research traces key policy milestones and support models to identify systemic gaps that affect the long-term educational and vocational journeys of these students. By delineating the evolution of scientific research and policy in this cohort, the study aligns with the ambitious goals of Saudi Vision 2030, which advocates for equal opportunity and the effective integration of all citizens into society. Ultimately, the findings will provide a cornerstone for refining policy and professional development programs, ensuring that 2e students can transition from being "hidden" in the system to becoming globally competitive members of the Saudi workforce.

Theme: 21st Century Workforce

ID:5 LCIC: Leadership-Centered Innovation and Creativity for Self-Correcting Cultures

Mohammad Albuzaid, MAB Group, Saudi Arabia

Keywords: Leadership, Innovation, Systems Thinking, Gifted Education, Culture Transformation, Future-ready Education

As education systems evolve to prepare gifted learners for the demands of 2050, leadership models must evolve as well. This paper introduces LCIC – Leadership-Centered Innovation and Creativity, a pioneering framework that enables leaders in educational settings to create self-correcting environments rooted in values, innovation, and cultural sustainability. LCIC asserts that effective leadership goes beyond modeling values—it focuses on shaping systems that inherently sustain those values and continue to improve without constant oversight. In gifted education, this becomes critical to maintain motivation, excellence, and emotional balance in high-potential learners. The LCIC model, along with SSX (Systemic Solutions for Complex Problems), QTL (Qualitative Transformation Leadership), and KPIQC (KPI Quality Check), integrates systems thinking, cultural intelligence, and ethical innovation to empower leaders in education. Through this paper, I aim to offer a vision for building future-ready institutions where excellence, creativity, and adaptability are sustained through leadership-driven culture design. With over 60 published books and a career spanning strategic consulting, executive coaching, and institutional transformation across the Gulf region, my focus has always been on developing practical, scalable models that respond to the complexities of modern education systems. I believe this contribution will be of value to educators, researchers, and policy makers striving to elevate gifted education globally.

ID: 21 AI-Driven Strategic HRM: Integrating Giftedness Frameworks in a Vision 2050 Roadmap for Future-Ready Talent

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Keywords: Talent identification, Giftedness, Artificial intelligence, Dynamic capabilities, Strategic HRM

The rapid progression of technological and economic disruption has increased the imperative for organizations to cultivate agile, innovative, and inclusive workforces that correspond with national initiatives, such as Saudi Arabia's Vision 2030 and Vision 2050. Despite the emergence of artificial intelligence (AI) as a transformative force in numerous business domains, its application in strategic human resource management (HRM) remains limited, as organizations continue to rely on static, retrospective talent processes. This research highlights a notable deficiency and introduces an extensive, AI-enhanced conceptual framework—the AI-Driven Strategic HRM Roadmap—that integrates interdisciplinary perspectives from the evolving landscape of work, AI utilization in HRM, and studies in gifted education. The proposed model, grounded in the Ability–Motivation–Opportunity Framework and Dynamic Capabilities Theory, delineates four sequential phases: AI-assisted talent identification, personalized talent development, predictive retention and engagement, and scenario-based workforce planning that is congruent with long-term strategic objectives. Each phase implements essential theoretical constructs, highlighting fairness, adaptability, and inclusivity, thereby broadening the scope of existing HRM literature beyond discussions centered on the efficiency of AI. The research presents eight falsifiable propositions that convert the roadmap into an empirically testable model, delineating distinct avenues for future investigation. The roadmap provides HR leaders with practical guidance for utilizing AI to develop diverse, future-ready talent pipelines and assist policymakers in aligning organizational capabilities with national economic and social goals. This research systematically integrates gifted education frameworks with AI-driven strategic human resource management, offering a novel, theory-based approach to developing high-potential talent in dynamic labor markets. The proposed model responds to persistent demands for the integration of predictive, inclusive, and ethically grounded talent strategies, positioning AI as a strategic facilitator of workforce resilience and innovation, which are crucial for attaining sustainable competitive advantage in knowledge-based economies.

ID:25 Navigating the Complex Journey toward Professional Excellence in Distinguished Surgeons

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Sarah Al Fawzan, King Faisal University, Saudi Arabia

Keywords: constructivist grounded theory, professional excellence, cognitive productivity, distinguished surgeons, talent development

This study explores the development of professional excellence and cognitive productivity among six globally recognized surgeons by examining their life trajectories and professional experiences. Intensive individual interviews were conducted using a constructivist grounded theory design to generate a conceptual model describing how dynamic processes and evolving contexts shape outstanding surgical performance. The findings revealed that excellence in surgical medicine emerges through the interplay of personal capacities, psychological resilience, and the ability to adapt to complex challenges. Participants engaged in sustained learning, calculated risk-taking, lowering the threshold for taking calculated risks, and innovative practices that contributed to their global impact. A key outcome of the analysis was the conceptualization of surgical excellence as a multidimensional, developmental process progressing across stages and levels. Early, structured educational environments that balance firmness with care, promote experiential learning, and provide exposure to scientific enrichment opportunities were identified as critical foundations. Robust mentorship systems and targeted support, particularly for women aspiring to surgical careers, further reinforced technical competence, confidence, and psychological strength. The study also highlighted the role of innovation-focused training, interdisciplinary collaboration, and leadership development in sustaining high performance. Embedding opportunities for supervised decision-making, experimentation, and reflective practice was found to foster readiness for leadership responsibilities and enhance cognitive productivity.

ID:26 Measuring Leadership Potential in Gifted Learners: Innovative HR Assessments, Gifted education

Megren Altassan, University of Business and Technology, Saudi Arabia

Keywords: leadership assessment, 360-degree feedback, situational judgment tests, metacognitive reflection, cultural alignment.

This study investigates the effectiveness of adapted human resource (HR) tools, 360-degree feedback, Situational Judgment Tests (SJTs), and metacognitive reflections for measuring leadership potential in gifted learners within the context of Saudi Arabian schools. Conducted in Jeddah with a purposive sample of 20 gifted students, the mixed-method research combined quantitative scores from SJTs and feedback forms with qualitative data from reflections, interviews, and focus groups. The results revealed strong alignment between observed leadership behaviors and situational decision-making, validating the use of these tools in educational settings. Eight key leadership themes emerged through thematic analysis, including self-awareness, initiative, collaboration, ethical alignment, adaptability, and communication. Students demonstrated culturally grounded understandings of leadership that emphasized fairness (Adl), trust (Amanah), and inclusion (Shura), suggesting the importance of contextualizing assessments to local values. Teachers and students found the adapted tools both meaningful and usable. The study supports integrating these tools into gifted education programs to better identify and nurture student leadership potential. It also highlights the importance of culturally responsive assessment practices and suggests pathways for future research and digital scalability. The findings align with Saudi Vision 2030 goals to foster character and leadership development among youth.

ID:27 From Self-Efficacy to Social Impact: A Social Cognitive Framework for Nurturing Gifted Youth as Early Adopters of Climate Finance Innovation

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Khadija Engade, ENCGA UIZ, Morocco

Keywords: Gifted Education, Self-Efficacy, Talent Development, Sustainable Finance

The future of gifted education hinges on its capacity to evolve from traditional academic enrichment into a proactive mobilization of talent aimed at addressing global grand challenges, such as climate change and economic instability. This paper explores this responsibility by focusing on a critical but largely untapped demographic: gifted adolescents as potential leaders and innovators in the specialized area of sustainable finance. We propose that the primary barrier to engaging these students in such complex, high-impact fields is not a lack of cognitive capacity, but rather a deficit in domain-specific self-efficacy—the internal belief that they can effectively enact change. To address this gap, we developed and tested the Catalyst Development Model (CDM), a pedagogical approach designed as a theoretical merger of Bandura's Social Cognitive Theory and Rogers' Innovation Diffusion Theory. A mixed-methods study evaluating the efficacy of the 16-week CDM program revealed significant results. Quantitative analysis using ANCOVA demonstrated a statistically significant increase in participants' sustainable finance self-efficacy with a remarkably large effect size. Furthermore, a mediation analysis indicated that these gains were driven primarily by mastery experiences and vicarious learning opportunities. Qualitatively, participant interviews supported these findings, with students describing a fundamental shift in perception; they moved from viewing finance as an abstract, intimidating space to seeing it as a concrete, useful toolkit for social good. Participants reported an increased sense of personal agency, responsibility, and ambition when tackling meaningful global issues with intentionality. Ultimately, this study validates a theoretically-driven model for advancing gifted education, providing an evidence-based template to transform gifted students from passive consumers into "Early Adopters" and courageous change agents. By positioning these youth as leaders in the transition to a sustainable future, the CDM offers a new paradigm for systematically developing the innovators needed to solve the most significant problems of our time.

ID:31 Enhancing teacher efficacy around teaching creativity across 'all' curriculum subjects: Insights from Australian and international teachers

Geraldine Townend, University of New South Wales, Australia

Keywords: creativity, cross-curriculum, P-12, professional learning, teacher self-efficacy

Teachers are expected to prepare gifted students for the competitive demands of the 21st-century workforce by fostering innovation and cross-curricular creativity. However, limited access to pre-service and in-service professional learning (PL) remains a significant challenge, leaving many educators with low self-efficacy regarding the application of creative practices across diverse subjects like mathematics, science, and the humanities. As technology evolves rapidly, embedding creativity into all disciplines has become vital for enhancing opportunities for gifted students. This research investigates how targeted PL influences teacher efficacy in integrating creativity into classroom practice, grounded in Bandura's self-efficacy framework. The study explored teacher perceptions and capabilities through a two-phase design, utilizing pre- and post-PL questionnaires. The participant cohort consisted of 200 in-service primary and secondary teachers—enrolled in a Master of Education course—representing diverse global settings, including Australia (25%), China (70%), and other regions (5%). This mixed-methods methodology provided nuanced understandings of the role of PL in fostering shifts in teacher confidence and pedagogical habits across all school years. Findings indicate that before the intervention, many teachers felt unprepared due to inadequate training and time constraints. Conversely, post-PL data indicates a marked improvement in self-efficacy; participants reported a much deeper understanding of creativity and possessed practical strategies to embed these skills into their daily teaching. This research provides foundational insights into the impact of professional development on teacher efficacy when working with gifted children, aligning directly with global curriculum goals. The significance of this study lies in its contribution to addressing a critical gap in teacher education, demonstrating the transformative potential of well-designed PL to bridge systemic voids. Ultimately, it offers empirical support for an emerging field that seeks to cultivate essential 21st-century creative competencies in the next generation of learners.

ID:34 Exploring Future Talent Programs Through Artificial Intelligence Integration Toward 2050

Saif Alneyadi, Alain University, United Arab Emirates

Keywords: artificial intelligence, talent development, GCC, future workforce, 2050 vision

This study explores the transformative possibilities of artificial intelligence (AI) in shaping future talent development programs toward the year 2050, focusing on the Gulf Cooperation Council (GCC) region in comparison with global trends. The purpose is to formulate a sustainable hybrid framework that integrates regional initiatives with the best international practices to support workforce readiness and long-term economic diversification. The research adopts an analytical literature review method, drawing on policy documents such as UNESCO (2023) and OECD (2022) reports, as well as GCC strategic visions including Saudi Vision 2030 and UAE Centennial 2071, and peer-reviewed studies published between 2019 and 2025. Findings are synthesized across three key dimensions: technological, ethical/social, and strategic, which enable a comparative understanding of regional and global approaches. Results indicate that GCC predictive strategies emphasize AI-driven early talent identification, adaptive learning ecosystems, and predictive workforce planning. However, persistent challenges are evident, including algorithmic bias, data privacy, and disparities in digital equity and infrastructure. Analysis further suggests that integrating GCC innovation policies with global ethical frameworks can provide a balanced and scalable pathway to future talent development. This research concludes that AI-driven talent programs will be pivotal in preparing future workforces and enhancing competitiveness by 2050. It highlights the importance of adopting equity-focused strategies to ensure that the benefits of AI technologies are broadly accessible, particularly in support of long-term economic and educational reforms. By offering this forward-looking framework, the study contributes to policy and practice in talent development and human capital planning within the GCC and global contexts.

ID:35 A Philosophical Inquiry into Knowledge and Originality to Investigate the Prevailing Criticism of ChatGPT et al.

Mohammad Mohi Uddin, University of Alabama, United States

Keywords: Creative Imitation in ChatGPT, Functional Adaptability of ChatGPT, Value-Added Chatbot Learning, Reshaping Attitude toward Conversational AI, Responsible Generative AI

The rapid advancement of Conversational AI tools like ChatGPT has sparked polarized debates in academia, particularly around issues of plagiarism, ownership, and bias. Unexamined misconceptions may hinder the effective integration of Conversational AI tools, limiting their potential to stimulate interactive and convergent learning experiences. This study investigates prevailing criticisms by infusing insights from theories of Mimesis from Greek philosophy, Value Creation from Economics, and Deconstruction from Western philosophy to provide a well-rounded perspective. Utilizing qualitative thematic coding, this review analysed 40 ChatGPT-related articles selected from an initial pool of 302 articles sourced from Scopus and Web of Science using a Boolean search. The PRISMA flowchart was employed to ensure transparency and rigor in the screening process. The review also integrated 14 theoretical and 10 methodology-focused studies. The findings revealed that: (i) nothing in the world is truly original except for Nature itself and knowledge derives from imitation and shared understanding; (ii) creation involves adaptation and transformation in response to user or contextual demands; and (iii) truth is multiple and resists rigid binary notions of right and wrong; which suggest that attributing blame to Conversational AI for plagiarism, ownership, or bias is unjustified. Conversational AI, when used with clear guidelines and thoughtful pedagogical strategies, can foster creativity through collaboration, enhance opportunities by synthesizing raw information, and elicit intellectual engagement by offering non-binary truths. The findings will help students, educators, and administrators cross-check the criticisms of Conversational AI tools and reshape attitudes to embrace their functional adaptability to enhance knowledge dissemination.

ID:37 A Study on Industry-Academia-Government Cooperation Models for fostering AI Talent and Policy Implications in Korea

Kwang Surk Jung, Korean Educational Development Institute, South Korea

Keywords: AI Education, K-12 Education, Teacher Training, Industry-Academia-Government Cooperation

This study explores the formation of a national Artificial Intelligence (AI) talent cultivation ecosystem by examining the cooperative models among IT corporations (industry), educational institutions (academia), and government bodies in South Korea. Using a methodology of case study and comparative analysis of public literature, data were collected and analyzed to identify the distinct roles and strategic interactions that define these industry-academia-government partnerships. The results indicate that corporations act as strategic investors to secure future talent, academia functions as a dual innovation and knowledge diffusion hub, and the government serves as a master architect coordinating the overall ecosystem through national visions and policy instruments. These findings suggest the need for policy advancements in three areas: establishing customized, TPACK (Technological Pedagogical Content Knowledge)-focused teacher training; implementing longitudinal evaluation frameworks to track long-term outcomes; and solidifying an open innovation model with clearly delineated roles. This research contributes to the field of national talent development policy by providing a comprehensive analytical framework and actionable recommendations for structuring effective partnerships aimed at cultivating a sustainable pipeline of AI innovators.

ID:38 Future Thinking Among Gifted Students Using a Multidimensional Approach: A Mixed-Methods Study

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Abdulhamid Alarfaj, king Faisal University, Saudi Arabia

Keywords: Future Thinking Skills, Future Problem-Solving Skills, Multi-Dimensional Curriculum, Gifted Students

This study aimed to explore the level of future thinking skills among gifted students using the Multi-dimensional Curriculum Model (MdCd), which encompasses content, process, and product. It also examined gender-based differences and investigated the factors that contribute to the development of future thinking skills from the perspective of teachers. The researcher employed a mixed-methods approach and developed a validated and reliable questionnaire comprising 18 items across two dimensions: future thinking and future problem-solving. The quantitative sample included 47 randomly selected gifted students from Al-Ahsa Governorate. Additionally, semi-structured interviews were conducted with five teachers of gifted students. Quantitative analysis revealed that the students demonstrated high levels of creative thinking skills (M = 4.31, SD = 0.5) and future problem-solving skills (M = 4.45, SD = 0.46). Significant gender differences were found in favor of male students. Qualitative findings highlighted key academic factors such as content development, strategy enhancement, teacher experience, and technological advancement, as well as social factors including a supportive environment and effective communication. The study recommended integrating future thinking skills into curricula, training students in creative thinking, providing a safe learning environment, and equipping teachers to foster future thinking skills through both curricular and extracurricular activities.

ID:41 Skills of Gifted Entrepreneurs and the Challenges They Encounter

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Keywords: Challenges; Entrepreneurs; Entrepreneurial Skills, Gifted

The study aimed to explore the challenges that gifted entrepreneurs encounter when establishing their entrepreneurial projects. It also highlighted the skills they possess and how these skills helped them overcome the obstacles they faced throughout their careers. Additionally, it assessed the skills and readiness that university students possess that pertain to their future lives. To achieve the study's objectives, the researchers employed a mixed-methods approach, specifically the "Exploratory Sequential Design." They first applied the qualitative method to multiple case studies, followed by a quantitative survey method. The qualitative sample consisted of 5 entrepreneurs, while the quantitative sample comprised 110 gifted university students. The researchers employed a quasi-structured interview and an instrument they designed to measure entrepreneurial skills among university students. The validity and reliability of both qualitative and quantitative instruments were verified using multiple methods. The study results revealed that the skills possessed by entrepreneurs included creativity, innovation, independence, seizing opportunities, perseverance, and risk-taking. Regarding the challenges they encountered, the findings revealed a range of challenges, including cognitive, personal, executive, financial, environmental, and social challenges. The findings also revealed that, in general, the level of entrepreneurial skills among the gifted university students was "High" in terms of independence and "Very High" in perseverance. Meanwhile, the innovation level of skills, creativity, risk-taking, and seizing opportunities was "Medium." The researchers recommended focusing more on developing entrepreneurial skills among the gifted students to enhance collaboration with educational institutions and the private sector and to intensify programs and courses that help entrepreneurs build their future careers in the field.

ID:43 The Role of Electronic Educational Platforms in the Professional Development of Gifted Education Teachers from Their Perspectives

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Keywords: Professional development, gifted teachers, and educational platforms

The study aimed to identify the role of electronic educational platforms in the professional development of gifted education teachers in Al-Ahsa Governorate by examining the level of platform utilization and whether there were differences attributable to gender, educational qualification, or teaching experience. The researchers employed the descriptive method and developed a questionnaire to measure the role of electronic platforms in the professional development of gifted education teachers. The questionnaire consisted of 15 items distributed across three dimensions: (1) educational content, (2) administrative and technical arrangements, and (3) enhancing teachers' competence. Its validity and reliability were verified. The study sample consisted of 56 male and female gifted education teachers in Al-Ahsa Governorate, selected randomly. The study concluded that the level of utilization of electronic platforms in training gifted education teachers in Al-Ahsa was high, with a mean score of 4.18. Regarding differences based on gender, the results favored females, while no significant differences were found in educational qualification or teaching experience. The researchers recommended developing plans and strategies to expand the use of electronic educational platforms to improve teachers' instructional behavior and enhance learning outcomes for gifted students.

ID:49 Designing a Digital Educational Platform Based on the STEM-Robotics Approach to Foster Design Thinking among Gifted Students

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Ali Al-Shuaili, Sultan Qaboos University, Oman
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Keywords: Gifted students, STEM-Robotics, design thinking, educational platforms

Contemporary global trends in gifted education emphasize the importance of equipping students with design thinking skills, as it serves as a systematic framework that fosters innovation and addresses complex problems. This paper aims to highlight how design and develop a digital educational platform based on the STEM-Robotics approach, specifically tailored to enhance design thinking skills among school gifted students. The platform was designed to provide a rich digital learning environment incorporating hands-on activities, robotics simulations, and real-world projects, offering students opportunities for interaction, idea exploration, and the development of creative solutions. The platform was implemented with a sample of 28 school gifted students (male and female), and a design thinking scale was applied to measure the targeted skills. The analysis of students' learning outcomes revealed significant and statistically measurable improvements in their ability to empathize with users, define clear problems, generate innovative solutions, and design developable prototypes. These improvements were accompanied by increased intrinsic motivation, active engagement in learning, and the ability to transfer skills to new contexts. The study recommends developing integrated educational environments grounded in design thinking and incorporating STEM-Robotics-based instructional applications within gifted education programs, given their sustainable impact on fostering innovation and building the capacities of future generations.

ID:52 From Assistance to Co-Creation: The Impact of AI-Integrated Composition Instruction on Writing Performance, Critical Thinking, and Competition Achievement in Secondary Education

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Keywords: AI-human co-creation; Technology-integrated writing instruction; Critical thinking; Writing competition performance; AI literacy

Recent advances in generative artificial intelligence have prompted a pedagogical shift from AI-assisted writing toward AI-human co-creation, yet empirical evidence in secondary education remains scarce. This study investigated the pedagogical efficacy of an AI-integrated composition platform designed to support outline generation, multimodal information retrieval, and iterative revision, with a focus on its influence on writing proficiency, critical thinking, and competition achievement. An eight-week randomized quasi-experimental pretest–posttest design was implemented with two intact classes (n = 35 each). Analysis of covariance, controlling for pretest scores, indicated that the co-creation group outperformed the control group in posttest writing scores (M = 84.1 vs. 77.3, adjusted mean difference = 6.8, 95% CI: 3.0–10.6, $p < .01$; Cohen's $d \approx 0.65$), with notable gains in structure completeness (+16%), argument clarity (+19%), and lexical diversity (+12%). Beyond standardized assessments, 12 students from the experimental group submitted their revised compositions to formal competitions, yielding a 58% award rate—including two national top three prizes-compared to 27% in the control group ($p < .05$; OR ≈ 3.6). Thematic analysis of post-intervention interviews suggested that AI–human co-creation reduced cognitive load during ideation, accelerated revision cycles, and fostered adaptive drafting strategies, while simultaneously exposing challenges related to source evaluation, fact-checking, and ethical AI use-key components of AI literacy. These findings substantiate the potential of AI-human co-creation as a transformative instructional paradigm that bridges in-class learning outcomes and authentic performance contexts. The study contributes to the evolving discourse on AI literacy in language education and underscores the necessity of longitudinal, cross-cultural, and multimodal approaches to fully capture the long-term cognitive and metacognitive impacts of AI-mediated writing pedagogy.

ID:55 Exploring Interactions of Factors Influencing the Career Development of Gifted Leaders in the Economic Field

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Abdulrahman Al-Sayed, King Faisal University

Keywords: Career Development, Gifted Leaders, Economic Field, Decision Makers.

This study aimed to uncover the interactions between key internal and external factors—and the interplay between them—that influence the career development of gifted leaders within the economic sector. To achieve this, the researchers employed a qualitative phenomenological approach, utilizing chronological tracking of leadership trajectories. Data were collected through three primary tools: document analysis, semi-structured interviews, and focus groups. The study context involved economic leaders across Saudi Arabia listed within the 491 companies of the Saudi Capital Market Authority (CMA). The participant pool included 26 leaders, 10 focus group members, and 13 "gatekeepers" (decision-makers), selected via purposive and snowball sampling methods. The results identified critical internal interactions between autonomy and decision-making, motivation and decision-making, and motivation and autonomy. Key external interactions were found between family and school, family and society, family and friends, and family and business organizations/opportunities. Furthermore, the study highlighted significant interactions between internal and external factors, most notably the influence of family on decision-making, responsibility-taking, and motivation.

ID:56 Personal Factors Influencing the Career Development of Gifted Leaders in the Economic Field

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Abdulrahman Al-Sayed, King Faisal University
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Keywords: Career Development, Gifted Leaders, Economic Field, Decision Makers

This study identifies the personal factors influencing the career development of gifted leaders in the economic sector through a qualitative phenomenological approach and retrospective analysis of leadership trajectories. Data were collected via document analysis, semi-structured interviews, and focus groups from a sample of 26 leaders, 10 focus group participants, and 13 "gatekeepers" associated with companies listed by the Saudi Capital Market Authority. The findings delineate personal development into four critical stages: identity formation (autonomy and responsibility), capability development (self-management), mastery and expertise (obstacle management, risk-taking, and openness), and excellence and achievement (drive for results, inspiring others, and wisdom). These results provide a roadmap for understanding how individual traits evolve to meet the demands of high-level economic leadership.

ID:58 Reclaiming STEM Talent for 21st-Century Careers

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Keywords: 21st-century workforce, STEM persistence, career development, science enrolments

Preparing gifted students for careers in a dynamic, technology-driven global economy requires a robust foundation in STEM education, particularly in Physics and Chemistry (Dobson, 2018). Despite their critical role in fostering innovation, senior secondary enrollments in these subjects have declined in New South Wales, Australia, with disproportionate underrepresentation among specific demographics (NESA, 2025). Addressing these trends necessitates a deeper understanding of the psychological and contextual factors driving gifted students' STEM persistence. Drawing on Social Cognitive Career Theory (Lent & Brown, 2019) and Expectancy-Value Theory (Eccles & Wigfield, 2020), this study investigates the motivational and identity-related factors shaping gifted students' educational trajectories. Using sequential explanatory mixed-methods design, survey data were collected from 1,019 gifted students across 12 schools in New South Wales to compare three competing structural models. The optimal model was selected based on theoretical alignment and statistical fit, with thematic coding of open-ended responses enriching the quantitative findings. Based on these results, I argue that interest-enjoyment, achievement expectations, and career aspirations significantly contribute to gifted students' intentions to persist in the physical sciences. While investigative interests and inquiry-based learning motivate students, boredom with repetitive tasks and concerns about meeting high standards act as deterrents. Science capital and science identity, shaped by access to STEM media, resources, and mentors, form essential pathways of influence. By mapping these mechanisms, this study offers actionable insights for educators and policymakers to strengthen the STEM pipeline. The findings underscore the necessity of designing learning environments that prioritize challenge and career relevance for gifted learners facing high academic demands. In the context of declining enrollments, targeted interventions that build science capital and affirm identity will be critical for informing curriculum design and professional learning initiatives, ensuring a future-ready workforce capable of driving global innovation through 2050 and beyond.

ID:61 The Silent Trigger Theory: A Predictive Behavioral Framework for Gifted Education and 21st-Century Talent Development

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Keywords: Predictive Safety, Behavioral Indicators, Proactive Risk Management, Talent Development, 21st Century Skills, Silent Trigger Theory

While gifted education has made major advances in curriculum design, a critical gap remains: the early detection of stress and silent disengagement. Gifted learners often face intense expectations and cultural pressures that lead to withdrawal, yet conventional frameworks frequently overlook the subtle signals preceding burnout. This paper introduces the Silent Trigger Theory, a predictive behavioral framework adapted from safety science, to address this void. Its purpose is to demonstrate how recognizing "silent triggers"—subtle behavioral deviations like unusual silence or ambiguous responses—can help educators safeguard well-being while sustaining motivation. At its core, the theory integrates the STARC Framework (Shift, Traceable, Ambiguity, Risk Link, Corrective Loop) with the STAR-CYCLE, a closed-loop intervention model. This structured tool enables educators to detect, validate, and respond to early indicators of distress, reframing student silence as valuable data for proactive intervention rather than neutrality. Case-based scenarios illustrate how this theory enhances personalized learning; for instance, a student's sudden quietness may signal anxiety that requires timely mentoring to prevent isolation. Furthermore, a digital tool and measurement platform are currently under development to provide educators with real-time tracking of behavioral indicators, supporting scalable, evidence-based decision-making. The Silent Trigger Theory aligns with the APCG 2026 theme, "Fast Forward: Building a Better Future for Gifted Education 2050," by offering a vision where predictive monitoring complements talent development. By integrating insights from behavioral science and organizational psychology, the model positions well-being as the foundation for 21st-century skills like leadership and adaptability. Ultimately, this framework reframes gifted education as both the pursuit of excellence and the protection of human potential. By responding to early behavioral signals, educators can ensure that achievement is balanced with resilience, identity, and a profound sense of belonging.

ID:62 Constructing Leadership Self-Efficacy among Gifted Adolescents: A Thematic Analysis of Junior and Senior-High Students' Challenges and Supports

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Keywords: gifted education, leadership ability, adolescent learners

This study investigates how gifted adolescents construct leadership self-efficacy across two educational stages. Sixteen participants (8 junior-high and 8 senior-high students; ages 13–17) were purposively sampled from Taiwan's gifted education programs. Semi-structured, in-depth interviews probed past leadership tasks, encountered challenges, and perceived support. Transcripts were analyzed using thematic analysis, and ethical procedures, including informed consent from students and guardians, were strictly followed. Thematic analysis revealed three core areas of divergence. First, self-efficacy levels correlated with distinct support needs and coping mechanisms. High-efficacy students, bolstered by long-term mastery experiences, valued autonomy and trust-based guidance. In contrast, low-efficacy students often received academically focused encouragement lacking concrete strategies, which they perceived as pressure. Consequently, they tended to adopt avoidant behaviors—such as compliance, withdrawal, or solo work—to minimize emotional strain, prioritizing self-preservation over team interests. Second, gender-based patterns emerged. Male students typically demonstrated a goal-oriented approach, linking their self-efficacy to measurable outcomes and the successful execution of tasks. They expressed a stronger need for instrumental support, such as specific strategies and resources. Female students, however, adopted a more collaborative and relationship-oriented style, deriving confidence from building consensus and gaining team members' affirmation. They prioritized emotional and relational support, such as trust and encouragement. Third, educational stage significantly shaped leadership experiences. Junior-high leadership was often confined to administrative classroom roles, with self-efficacy heavily reliant on external validation from teachers and peers. Senior-high students engaged in more complex, large-scale projects, fostering an internalized sense of efficacy built on past successes and autonomous practice. Based on these findings, this study recommends a differentiated leadership education model. For junior-high students, programs should offer exploratory, scaffolded challenges, while senior-high students require authentic, project-based learning. Curricula should be tailored to provide both instrumental and emotional support to foster robust leadership self-efficacy in all gifted adolescents.

ID:73 The Level of Critical Thinking Among Gifted Secondary School Students in Light of Selected Variables

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Keywords: Critical Thinking Skills, Gifted Students, secondary school

This study aimed to explore the level of critical thinking skills among gifted secondary school students in Al-Ahsa Governorate, Saudi Arabia, in light of several variables, most notably the type of education (public/private) and gender (male/female). The study adopted a mixed-methods approach (quantitative and qualitative), employing quantitative tools to measure the level of critical thinking among a sample of 274 gifted students, in addition to conducting qualitative interviews with 9 teachers and educational supervisors to gain a deeper understanding of the educational context related to these skills. The results revealed statistically significant differences in critical thinking levels attributable to the type of education, with private school students outperforming their public school counterparts in some sub-skills of critical thinking. Additionally, the findings indicated gender-based differences in favor of female students in certain areas. The qualitative analysis highlighted several challenges, including the limited use of instructional practices that support critical thinking, as well as the need for specialized teacher training programs in this area. In light of these findings, the study recommends reconsidering the design of gifted education programs to include interactive instructional practices that foster critical thinking. It also emphasizes the importance of training teachers in higher-order thinking strategies and enhancing collaboration between public and private education sectors to provide enriched learning environments that stimulate gifted students' thinking and diversify assessment methods.

ID:80 Academic Talent and University Major: A Gap in Choice or an Opportunity for Empowerment?

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Keywords: academic talent, university major, personality traits, 21st century skills, cognitive abilities

This study explores the challenge of aligning students' academic decisions with their true talents and labor market demands by examining the gap between chosen majors and actual capabilities. Using an AI-driven predictive model, data were collected and analyzed across multiple dimensions including personality traits, career interests, skills, and cognitive abilities to identify the most suitable university majors. The results indicate that mismatches between talents and academic choices contribute to poor performance, higher switching/dropout rates, and long-term dissatisfaction, while the proposed model can significantly narrow this gap. These findings suggest that academic talent can be transformed from dormant potential into a strategic tool for student empowerment and informed decision-making. This research contributes to advancing academic guidance philosophy, offering implications for talent development, educational policy, and future workforce readiness.

ID: 81 The Extent of Integrating the 2030 Sustainable Development Goals (SDGs) in the National Olympiad for Scientific Creativity (Ibda'a) 2024 Projects: A Descriptive Analytical Study

Rabab Al-Ghamdi, Imam Mohammad Ibn Saud Islamic University, Saudi Arabia

Keywords: Sustainable Development Goals 2030, National Olympiad for Scientific Creativity (Ibda'a) 2024.

This study aimed to identify the extent to which the winning student projects in the 2024 National Olympiad for Scientific Creativity (Ibda'a) integrated the 2030 Sustainable Development Goals (SDGs). Specifically, the research analyzed the inclusion levels of knowledge, values and attitudes, and educational skills related to sustainable development indicators. Using a descriptive content-analysis methodology, the researcher examined a sample of 62 winning projects from the 2024 Olympiad. The results revealed varying levels of integration across the different dimensions: the knowledge dimension was present in 15% of the projects (covering 10 out of the 17 SDGs), values and attitudes appeared in 17% (covering 9 out of 17 SDGs), and educational skills were found in only 7% (covering 2 out of 17 SDGs). Based on these findings, the study suggests several recommendations, most notably: encouraging scientific projects that address diverse social issues, designing gifted education programs centered on the 2030 SDGs to prepare students for international forums, and developing enrichment activities for gifted learners that merge sustainable development goals with Artificial Intelligence (the "technical dimension") to align with global trends.

ID:85 Challenges Faced by the Private Sector in Supporting Talent Development: Perspectives of Leaders and Gifted Employees

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Abdullah Aljughaiman, King Faisal University, Saudi Arabia
Sarah Al Fawzan, King Faisal University, Saudi Arabia

Keywords: Talent management, Talent development, Private sector, Excellence, Giftedness

The study aimed to uncover the challenges facing the private sector in developing talent from the perspectives of leaders and talented employees. The study followed a qualitative (basic interpretive) approach, and the number of participants was 20 leaders and talented employees from 13 private sector companies in the Kingdom of Saudi Arabia. The companies were selected intentionally, and the study used semi-structured interviews to collect data. After analyzing the data using thematic analysis, it was found that there were (3) categories of internal challenges, including topics such as: organizational management (lack of a clear definition of gifted employees, weak recruitment and attraction systems, deficient administrative leadership), performance management (weak focus on innovation, challenges of job security and motivation, and weak training and development), and an attractive work environment (difficulty integrating talented employees, company capabilities, and the impact of talent characteristics). It was also found that there were (2) categories of external challenges, including: market and business requirements (intense market competition, difficulty in obtaining talent), and the economic and legal environment (the impact of policies, the specifics of the external context).

ID:86 Factors affecting talent development among innovators; From the point of view of the innovators

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Ahlam Alnaim, King Faisal University, Saudi Arabia
Malak Alabdulatif, King Faisal University, Saudi Arabia
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Abdulhamid Alarfaj, King Faisal University, Saudi Arabia

Keywords: talent development, students with gifts, innovation, innovators, case study

The study aimed to identify the internal and external factors that helped innovative individuals develop their talents, from their point of view. The study followed the qualitative approach (multiple cases study), and the participants in the study consisted of three innovators from the Kingdom of Saudi Arabia. The participants were selected in an intentional way. The researchers used the semi-structured interview tool to collect data. A Thematic Analysis was conducted. The findings revealed two common topics in the internal factors; Personal, mental, and cognitive aspects (personal traits, mental abilities, and skills, intended practice); psychological and social aspects (motivation and self-esteem). While they revealed three common external factors; the country, the local community, and specialized institutions; the family environment; and the educational environment (learning opportunities).

ID:104 Evaluating the creative productivity of university students in the Kingdom of Saudi Arabia in light of the theory of self-determination

Sarah Alsulami, Saudi Arabia

Keywords: creative productivity, self-determination theory, university stage

The current study aimed to measure the level of academic creativity and the extent of self-motivation and personal motivation according to the theory of self-determination. This study followed a descriptive correlational approach to evaluate the creative productivity of university students in Saudi Arabia in light of the theory of To achieve the objectives of the study, a simple random sample was selected from students at King Faisal University, King Abdulaziz University, and Jeddah University, with a total sample size of 157 male and female students for the current study for the year 2025. The researcher first prepared two scales: one to measure creative productivity among the study sample and the other to measure self-motivation according to the theory of self-determination. The results of the study showed that the level of creative productivity among university students in the Kingdom of Saudi Arabia had a mean score of 3.577, which is considered high. which is at a high level. The results also show that the level of self-motivation according to the theory of self-determination among university students in Saudi Arabia was 3.907 on average, which is a high level. The study also revealed a strong correlation between the independent variables (dimensions of self-motivation according to the theory of self-determination) and the dependent variable "creative productivity." The researcher also found that there were no statistically significant differences at the 0.05 level in creative productivity scores attributable to the classification variable (gifted/ungifted) Based on the results of the study, the researcher recommends developing programs that target the needs for independence and enhance internal motivation, and diversifying creativity measurement tools to include multiple aspects of creativity, taking into account the cultural context.

ID:107 The Creativity Code: Mapping the Conceptual Linkage between Personality and Creativity among Creative Individuals—A Scoping Review

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Sarah Al Fawzan, Saudi Arabia

Keywords: creativity, personality, creative individuals, psychological complexity, environmental complexity.

Given the increasing scholarly interest in understanding how personality influences creativity, alongside the growing recognition of complexity as a contextual and psychological factor in creative achievement, there is an urgent need for a comprehensive conceptual mapping of this relationship. This scoping review employs a scoping review to examine empirical and theoretical literature addressing the intersections among personality, creativity, psychological complexity, and environmental complexity. While personality–creativity associations are frequently examined—most often through Big Five trait frameworks and related models—scholars have increasingly questioned the sufficiency of such trait-based approaches, arguing that they may oversimplify the multifaceted and dynamic nature of creativity, particularly when neglecting psychological and environmental complexity. Existing studies tend to address complexity implicitly, focusing on either cognitive or contextual aspects without a unifying model. This review maps the scope of existing research, highlights conceptual and methodological gaps, and provides a foundation for future interdisciplinary work aimed at integrating personality, creativity, and complexity into coherent frameworks applicable across research and practice.

ID:116 Global Innovators: The Role of Ecosystems in Unlocking Talent

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Sami AlHussayen, Saudi Arabia

Keywords: Innovation ecosystems, Enabling environments, Talent development

This paper explores the journeys of exceptional talents from our region who, by relocating to more enabling environments, were able to flourish and deliver innovations that left a lasting impact on human progress. It first identifies notable scientists and entrepreneurs from the past two centuries, then selects distinctive figures to analyze the factors that most influenced their success. Particular attention is given to the role of the surrounding environment—examining how ecosystems of support, resources, and empowerment nurture young talents and unlock their full potential. The study concludes by outlining the essential components of such ecosystems and their implications for fostering future generations of innovators.

ID:128 Before AI, Teach the A.I., Aptitudes of Innovators: How to Transform Today's Classrooms for Tomorrow's Innovators

Jeanne Paynter, Educating Innovators, United States

Keywords: innovation, creativity, creative problem solving, talent development, teaching and learning

The era of test-targeted teaching has passed; in an automated age where AI can do almost anything, our children's success in the 21st-century workplace depends on developing "human intelligences." This is the age of the innovation-literate classroom, where we must teach all learners as tomorrow's innovators today. Innovation literacy, the competence in creative problem-solving, is essential for gifted and all students' success. It is the capacity to use specific abilities to create unique, useful solutions, or innovations. We can operationalize and explicitly teach innovation literacy by deconstructing it into key cognitive and psychosocial variables, or "aptitudes," that are cross-disciplinary. These intrinsically human aptitudes include curiosity, logical reasoning, creative thinking, insight, persistence, empathy, metacognition, and leadership. Each plays a crucial role in the divergent and convergent creative problem-solving process. All learners potentially possess these aptitudes, but even among gifted students, they need targeted opportunities to develop. This presentation demonstrates a systematic process for Talent-Targeted Teaching and Learning (TTTL) with specific tools schools can use to explicitly teach and assess these aptitudes in a content-based curriculum. This strengths-based approach is achieved in five comprehensive phases. (1) EXPLORE: Use the Talent Aptitude Survey to pre-assess student aptitudes. (2) EXPLAIN: Define the aptitudes using direct, empowering "I am" statements. (3) EMBED: Explicitly target the aptitudes in transformed instructional goals. (4) ENGAGE: Apply targeted aptitudes in purposeful, content-rich, problem-based tasks. (5) EVALUATE: Create rubrics using learning progressions that define the emerging, developing, and advancing stages of each aptitude for formative feedback. Education aimed at mastering these aptitudes undergirds our students' future success, promoting equity and creative achievement for gifted and all learners as they intentionally apply their content knowledge in purposeful, productive, and innovative ways for a better world.

ID:129 Changing yourselves for effective teaching

Renato Ravizza, Studio Ravizza, Italy

Keywords: inclusion, self-assessment, dialogical relationship, questions

In recent years, interest in developing individual potential and giftedness has grown internationally. In Italy, however, this focus is a relatively recent phenomenon. Following the introduction of Special Educational Needs legislation, Italian schools have expanded possibilities for flexible responses to diverse student requirements. Yet, inclusive public schools primarily feature heterogeneous class groups, creating unique challenges for educators in mixed-ability settings. Despite foundational insights from figures like Piaget, Vygotsky, Feuerstein, Bruner, Sternberg, and Renzulli, classroom practices remain slow to evolve. Many educators still grapple with principles articulated centuries ago by Michel de Montaigne (1533-1592). In his *Essays*, Montaigne warned against merely pouring information into students like a funnel, prioritizing deep understanding over rote memorization. He famously likened the unprocessed regurgitation of knowledge to indigestion: "It is a signe of cruditie and indigestion for a man to yield up his meat even as he swallowed the same." As a teacher trainer, I frequently observe the "teach to the middle" approach. The results are often disappointing, causing exasperation for both teachers and students. Gifted learners experience frustration with a curriculum that lacks challenge and moves too slowly, while students with special needs flounder without the necessary scaffolding and structure to frame their learning. All teachers are now called upon to deepen their professional skills to meet these diverse challenges. We must ask: what can we do within the classroom, and during the preparation before and reflection after? This report highlights how teachers must engage in a dialogical relationship, remaining willing to be changed by their students' inquiries. The analysis aims specifically to promote a rigorous process of self-assessment, encouraging educators to view themselves as facilitators of learning rather than mere conduits of information. By evolving these practices, we can better serve the variety of educational settings found in modern Italian schools.

ID:130 Developing the basis of strategic thought in talented athletes: example in tennis

Renato Ravizza, Studio Ravizza, Italy

Keywords: Strategic thought, problem, data gathering, exploratory behavior

In the training and development of a tennis player, the coach, depending on the situation, finds himself both developing and consolidating new skills and helping the player identify and apply useful game strategies to face opponents more effectively. Being able to adapt to the situation at hand -opponent and score- is important in tennis, so: (1) Define the problem correctly, (2) Recognize the relevant data, (3) Plan an action, (4) Process multiple pieces of information together, (5) Be able to anticipate. Bad shots or wrong strategic choices often are not the consequence of poor information processing or motor response but of impaired data gathering before and during the match; it is mainly our capacity to gather data that enables us to choose the best possible solution. Many studies, i.e., provided strong evidence that professionals and advanced players can predict final ball locations or the performed stroke types more accurately compared with novices. For many years, the cognitive approach has provided guidance and support to those involved in teaching sports. My presentation will use examples in tennis to show how to train and improve exploratory behavior, while analyzing the impairments that can influence exploration. The concepts of the zone of proximal development, scaffolding, and cognitive mediation will be some of our companions on this journey.

ID:133 From Theory to Practice: Creating Thriving Work Environments for Gifted Education Across Global Contexts

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Blane McCann, Westside Community Schools, United States

Keywords: employee engagement, Gallup Q12, four needs of followers, gifted education, cross-cultural comparison, leadership

Employee engagement is increasingly recognized as a crucial determinant of organizational effectiveness, staff learning, staff retention, and well-being. Gallup's Q12 engagement model identifies twelve elements of engagement, while the Four Needs of Followers—hope, trust, compassion, and stability—highlight relational expectations of leadership. Despite the robust application of these frameworks in corporate and educational contexts in the United States, little is known about their relevance in non-Western contexts, particularly in gifted education programs. This study integrates qualitative data from Saudi Arabia's Distinguished and Talented Students Program (DSTP) with quantitative benchmarks from Gallup's Q12 engagement survey in the United States and global datasets. Using a comparative cross-case design, the study applies the Q12 and Four Needs frameworks, alongside the Health and Well-being in the Workplace model, to analyze structural and relational aspects of engagement. Results indicate that in Saudi Arabia, engagement is undermined by administrative ambiguity, weak coordination, and unclear responsibilities. In contrast, in the U.S., engagement is stronger structurally but limited by deficits in clear expectations, recognition, and trust. Global Gallup data show significant regional disparities, with North America reporting the highest engagement and Europe and MENA the lowest. In the book "It's the Manager," Clifton and Harter report that 70% of engagement is determined by the direct supervisor (2019). The findings demonstrate that employee engagement in gifted education is shaped by both universal and culturally specific factors. By moving from theory to practice, this study provides actionable insights for leaders to enhance clarity, trust, compassion, and stability, ultimately improving gifted education work environments across diverse contexts.

ID:162 Personal Factors Supporting High Achievers in Chemical Sciences.

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Keywords: Personal factors, intrinsic motivation, nurturing gifted individuals, outstanding individuals, high achievement, chemical sciences.

Given the growing need for highly accomplished science experts, the importance of studying the factors influencing the development of their talents has emerged, given its implications for field practices and services for talented and distinguished individuals. Based on this importance, the current study aimed to identify the set of personal factors associated with individual traits, social skills, and intrinsic motivation, which contributed to the development of the talent of distinguished individuals in the chemical sciences, in light of their personal experiences. The study adopted a qualitative approach using semi-structured individual interviews as the primary tool. Interviews were conducted with (18) participants who met the study criteria in the Kingdom of Saudi Arabia. Qualitative data analysis was performed through coding and classification. The analysis revealed eight categories that contributed to supporting talent development and excellence. These categories include: developing a team spirit, enhancing personal inclinations through self-exploration, perseverance and commitment, openness to new experiences and experiments, passion-driven specialization, awareness of academic relationships, openness and readiness for change and professional development, and mastering project management and assuming professional responsibility. These findings also provide a cognitive framework that helps guide educational and professional practices related to the quality of services for gifted individuals. They also pave the way for more in-depth future studies on the dynamics of the growth and development of scientific talent.

ID:170 Talent Forward: Career Decisions of High-Achieving Young Women in the AI Economy

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Keywords: AI era, Career decision-making, CIP theory, Employment trend, Female employment, Talent

Artificial intelligence is reshaping labor markets worldwide, automating routine tasks while creating new, hybrid roles that demand a blend of technical and interpersonal skills. This poster presents a work-in-progress scoping review on the career interests, decisions, and transitions of young women (aged 18–35) in the AI era, with specific attention to implications for high-achieving and gifted learners. The review aims to identify how AI literacy, gendered social factors, and perceptions of job "substitutability" influence choices, and to highlight actionable directions for talent development aligned with a 2050 vision for gifted education. We are systematically searching literature published from 2020 to 2025 across Google Scholar, ERIC, PsycINFO, Scopus, and Web of Science. Inclusion criteria focus on empirical and review studies in English and Chinese addressing young women's career decision-making in AI-affected sectors; commentaries without an empirical basis are excluded. Data extraction examines AI literacy, career self-efficacy, perceived automation risk, and the valuation of human-centric skills like empathy and communication. Early indications suggest that young women may show a preference for roles perceived as less automatable or for hybrid positions that leverage collaboration with AI. There appear to be mismatches between market demand and women's self-perceptions in AI-related fields, where AI literacy may mediate the link between self-efficacy and job-seeking anxiety. Human-centric competencies are frequently framed as differentiators, yet persistent gender stereotypes and structural barriers continue to shape choices. Evidence gaps include limited longitudinal research and few studies focusing specifically on gifted women. Implications for gifted education include integrating AI literacy with advanced, human-centered competencies and applying CIP-informed career interventions. Also, expanding mentorship and experiential learning in hybrid human–AI. By partnering with industry to create agile pathways that reduce stereotype threat, targeted, evidence-informed interventions can help high-ability young women navigate future-proof career trajectories and thrive in a technology-driven global economy.

ID:172 A Prospective Framework for Designing Gifted Programs in Light of the Requirements of Human Capability Development Program in the Saudi Arabia

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Keywords: Prospective framework, Gifted education program, Human Capability Development Program, RPPSA Model

This research paper aimed to develop an integrated a prospective framework for the design of gifted education programs in the Kingdom of Saudi Arabia, based on the requirements of the Human Capability Development Program as one of the core initiatives of Saudi Vision 2030, which seeks to enhance the competitiveness of Saudi citizens and empower them cognitively and skill-wise. The paper begins with an analysis of the conceptual framework of giftedness, along with expanded approaches that link giftedness to creativity, innovation, and human capital within the knowledge economy. It also addresses the philosophy underpinning the design of gifted education programs in light of future transformations and reviews the current state of gifted education in the Kingdom and the Arab world. This paper proposes a prospective framework grounded in the RPPSA Model as a developmental, constructivist model for capacity building. This model is based on five sequential stages: readiness, preferences, processes, and skills, culminating in capabilities. The framework aligns the model with the objectives of the Human Capability Development Program, beginning from early childhood, designing educational content based on developmental progression, employing interactive teaching strategies, and adopting authentic assessment approaches based on learners' actual performance. The paper presents mechanisms for implementing the proposed framework, followed by recommendations and future proposals for the design of gifted education programs. This paper aspires that the proposed framework will contribute to guiding national efforts toward the development of more inclusive, flexible, and effective gifted education programs, supporting the development of innovative human capital capable of keeping pace with future transformations and promoting the transition toward a sustainable knowledge-based economy in KSA.

ID:185 Long-Term Effects of Early Online Learning: A 9 Year Follow-Up on Career and Personal Growth

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Keywords: Educational equity, longitudinal study, online mentoring, STEM, underrepresented

Educational equity in gifted education remains a persistent challenge, with marginalized students significantly underrepresented in STEM fields despite having comparable academic potential. This longitudinal study examines the long-term impact of the CyberBridge program, an innovative online gifted education initiative that served underrepresented elementary students from 2016-2018. Through a comprehensive 9-year follow-up analysis, this research investigated how former participants, now aged 18-21, perceive the program's influence on their academic and personal development. Sixty-two participants completed surveys incorporating both quantitative measures and qualitative open-ended questions to assess program effectiveness across multiple developmental domains. The CyberBridge program employed a three-phase integrated learning model combining online STEM curriculum delivery, university student mentoring, and intensive residential summer camps on a prestigious university campus. Results demonstrate substantial positive long-term effects across three primary areas. First, participants reported significant influence on STEM career trajectory development, with qualitative data revealing direct career path crystallization in science and engineering fields. Second, the program fostered enhanced academic self-confidence, with participants describing lasting confidence gains that enabled them to pursue challenging academic opportunities. Third, participants experienced improved cognitive development and learning strategies that extended beyond STEM domains. These findings provide compelling evidence that brief but intensive online mentoring programs incorporating university partnerships can create meaningful developmental trajectories for marginalized gifted learners. The study offers practical guidance for developing more equitable approaches to nurturing exceptional potential across all demographic groups.

ID:189 Developing and Validating a Career Decision-Making Scale for Gifted Female High School Students

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Keywords: Gifted Students, Career Counseling, Career Decision-Making, Fourth Industrial Revolution, Validity and Reliability.

This study aimed to develop and validate a Career Decision-Making Scale for gifted female high school students in alignment with the requirements of the Fourth Industrial Revolution. The exploratory factor analysis sample consisted of 175 gifted tenth-grade students who had successfully passed the National Program for Gifted Identification in Al-Ahsa, Saudi Arabia. The final version of the scale comprised 33 items distributed across three main dimensions: Self-Efficacy Evaluation, Self-Understanding, and Self-Efficacy. Results of the exploratory factor analysis showed a Kaiser-Meyer-Olkin (KMO) value of 0.869 and a statistically significant Bartlett's Test of Sphericity ($p < 0.0001$), indicating the suitability of the data for factor analysis. The total explained variance reached 41.12%. Reliability coefficients ranged from 0.763 to 0.932, as measured by Cronbach's alpha, split-half, and Guttman methods, confirming the high reliability of the instrument. These findings provide strong evidence for the validity and reliability of the scale, making it a useful tool for applied research and career counseling programs targeting gifted students. The scale supports the enhancement of career decision-making and the alignment of educational and professional pathways with the dynamic demands of the Fourth Industrial Revolution.

ID:201 Developing 5C Skills Via Robotics in Educational Programs

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Keywords: LEGO Robotics; Education; 21st Centruty Skills; Jamali 5C Skills.

Developing 21st-century skills has been the focal point of many educational programs in recent years. Mechanical engineering, in terms of educational LEGO robotics, provided a promising tool in this respect. The paper presents evidence from an enrichment program involving 60 students aged 9-11 years old, divided into two treatment and control groups. In each session, a problem was used as a prompt, and children were asked to invent solutions using LEGO robotics. A total of 12 sessions were conducted. The results from pre-post tests on Creativity, along with observations and semi-structured interviews, demonstrated the positive impacts of the program on fostering five 21st-century skills: collaboration and communication, critical thinking and problem-solving, creativity and innovation, cultural and global awareness, and coping, adaptability, and resilience. The research recommends attending Jamali's 5C Skills in designing educational robotic curriculum.

ID:202 Tertiary-Education Partnerships in Secondary Gifted Education

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Keywords: Tertiary-Education Partnerships in Secondary Gifted Education

Gifted education in Hong Kong's schooling system often relies on school-based pull-out programs and acceleration. This approach can shorten the learning timeline, but it does not adequately fulfil the gap between gifted students and the advanced academic and research opportunities they require. As a result, extending the gifted education system to university-level through Tertiary-Education Partnerships is essential for transitioning gifted students from the classroom to real-world impact. This paper illustrates how a sustainable framework has been implemented at a public secondary school in Hong Kong that creates a direct pathway for talent development extending beyond the school environment and provides authentic university-level research exposure for gifted students through Tertiary-Education Partnerships. The implementation is demonstrated through three key actions: 1) organizing advanced learning experiences that foster genuine university-level inquiry; 2) facilitating student internships and attachments for early research exposure; and 3) strategically cultivating long-term partnerships with the tertiary institutions. These collaborations are considered as essential environmental catalysts needed to transform innate potential into developed talent in Gagné's DMGT (2010). In addition to the sharing of practices in gifted education through Tertiary-Education Partnerships, this paper may serve to facilitate the development of insights for further development of gifted education, particularly regarding cooperation between secondary and tertiary institutions.

ID:207 Equipping Gifted Learners with Creativity, Communication, and Innovation: Collaborative Pedagogies and RRI for a Technology-Driven Global Economy

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Keywords: Collaborative Learning Practices (CLP), Gifted Learners, Global Competencies, Higher Education Reform, Responsible Research and Innovation (RRI)

In the knowledge-driven global economy, higher education must evolve beyond traditional lecture-based instruction to equip gifted learners with competencies exceeding academic achievement. This paper explores Collaborative Learning Practices (CLP) integrated with the Responsible Research and Innovation (RRI) framework. This approach bridges gaps between academic performance and the development of global competencies, such as creativity, innovation, and communication. The qualitative case study, conducted at an engineering college in South India, investigates classroom restructuring that transitions students from passive knowledge acquisition to active participation, innovation, and leadership. The intervention involved redesigning timetables to allocate half the day to structured collaborative tasks, peer-led discussions, and group presentations, supported by formative assessment and faculty facilitation. Data were collected through classroom observations, faculty reports, student reflections, and a comparative analysis of academic outcomes. Results indicated significant improvements in academic performance, communication fluency, and teamwork. Gifted learners demonstrated enhanced problem-solving, adaptability, and digital competencies, which fueled entrepreneurial initiatives and socially responsible projects like rural outreach programs. Daily group tasks fostered accountability, while peer collaboration-built leadership confidence. The outcomes suggest that CLP serves as a strategic pathway for developing global economic competencies, enabling students to apply disciplinary knowledge in creative, impactful ways. This study concludes that modest pedagogical reforms rooted in collaboration and innovation can transform higher education into a healthy, competitive environment. Such reforms nurture both academic excellence and broader competencies essential for employability, entrepreneurship, and civic engagement. These implications offer universities a practical framework for preparing students to meet the challenges of a rapidly changing economy while fulfilling their broader responsibility to society. By repositioning gifted students as active contributors, this model ensures that higher education institutions remain relevant and effective in cultivating the next generation of global leaders and innovators.

ID:212 Construction of an Indicator System for Top-Tier Innovative Talents and Its Implications for Higher Education Talent Development

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Keywords: Top-Tier Innovative Talents; Indicator System; Talent Identification; Dynamic Evaluation; Higher Education

The cultivation of top-tier innovative talents represents a critical challenge faced by higher education institutions. Developing a scientifically grounded indicator system is fundamental to the identification, assessment, and nurturing of such talents. Building upon Dai Yun's (2024) systematic research on the typologies, identification mechanisms, and developmental pathways of innovative talents, this study proposes a multidimensional and dynamic framework for an indicator library tailored to elite innovative individuals. The framework encompasses five core dimensions: Innovation Potential (e.g., divergent thinking, logical reasoning, domain knowledge), Personal Traits (e.g., curiosity, resilience, risk-taking), Cognitive Framework (e.g., systems thinking, interdisciplinary integration), Practical Skills (e.g., project execution, teamwork, problem-solving), and Cultural Adaptability (e.g., inclusiveness, critical thinking, value orientation). The construction of the indicator system emphasizes not only static qualities but also dynamic assessment within real-world contexts, capturing individuals' developmental trajectories and growth potential. It integrates a dual pathway of "overall screening" and "individual identification," complemented by a "revolving door" mechanism to enhance the flexibility and precision of talent selection and development. For higher education institutions, this indicator system offers three key insights: First, integrating "enrichment and acceleration" strategies into curriculum design to strengthen interdisciplinary and project-based learning; Second, fostering a pedagogical approach that combines mentorship with self-directed learning to stimulate intrinsic motivation and exploration; Third, incorporating developmental evaluation into assessment practices to focus on students' potential realization and achievement at different growth stages. This research aims to provide a theoretical basis and practical pathway for universities to establish scientific, systematic mechanisms for talent identification and cultivation. It advocates shifting from an experience-based approach to an evidence-driven model, thereby enhancing the competitiveness of future talents amid global challenges and rapid technological change.

ID:214 Meta-Analysis of the Effect of Korean Educational Programs on Critical Thinking in the AI Era

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Keywords: critical thinking, critical thinking skills, critical thinking disposition, meta-analysis, gifted education in Korea

This meta-analysis integrates the findings of 16 journal articles published between 2016 and 2025 to assess the effectiveness of educational programs implemented in South Korea over the past decade in enhancing students' critical thinking abilities. Recognizing critical thinking as a core competency in the AI era, this study systematically reviewed and synthesized quasi-experimental and experimental research published in academic journals and dissertations. The analysis encompassed students from elementary school through college and examined diverse instructional approaches, including literature-based programs, project-based learning (PBL), science inquiry activities, and cooperative discussion models. Both critical thinking skillsand critical thinking dispositionswere included as outcome variables. In this study, critical thinking was analyzed in terms of both skills and dispositions. Critical thinking skills were delineated into sub-domains such as distinguishing fact from opinion, evaluating the sufficiency and relevance of evidence, exploring multiple perspectives, detecting bias, and identifying hidden meanings. Critical thinking dispositions were categorized into the sub-domains of Truth-seeking, Open-mindedness, Inquisitiveness, Analyticity, Systematicity, Self-confidence, and Maturity of judgment. Through these sub-domains, critical thinking was further specified and systematically examined. Overall, the synthesized effect size indicates that critical thinking can be systematically cultivated through intentional program design. These results provide compelling evidence for integrating critical thinking training not only into general curricula but also into gifted education, where higher-order reasoning and problem-solving capacities are essential for nurturing future talent in the AI era.

ID: 219 Proposed Indicators for Enhancing Innovation in General Education Schools in the Kingdom of Saudi Arabia

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Keywords: Proposed Indicators, Enhancing Innovation, Mixed Methods, Relevant Experts.

This study established a framework of proposed indicators for fostering innovation in Saudi Arabian general education schools by utilizing a mixed-methods approach and the Delphi technique with a panel of 14 experts. Through three rounds of evaluation, the researchers identified seven primary dimensions—educational environment, organizational structure, school administration, curricula, teachers, students, and innovation supported by 78 specific sub-indicators. By ensuring a 75% consensus threshold among specialists in giftedness, quality, and school leadership, the resulting list provides a validated tool for educational institutions to measure and enhance their innovative capacity. The findings suggest that adopting these indicators will help transition schools toward more creative and output-oriented environments in alignment with national educational goals.

ID:224 Towards a Sustainable Hospitality Future A Proposed Model for Nurturing Professional Talent from Childhood to Specialized High School Education – The Case of Saudi Arabia – 30092025

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Keywords: Gifted education, talent development, hospitality sector, vocational education, Vision 2050, workforce, Saudi hospitality.

This research aims to present a comprehensive and innovative model for nurturing talent in the hospitality sector, starting from early education up to professional specialization in high school. The model seeks to address the growing gap between the changing demands of the rapidly evolving hospitality market and the academic and professional preparation of students. The proposed framework begins with the early identification of professional talents at a young age (from 4th grade, approximately 10 years old) by integrating simplified subjects into the fundamentals of the hospitality industry. In a later stage (9th grade), students who show suitable inclinations and abilities are nominated through personality tests and talent assessments, leading to their guidance toward a specialized educational track. This guidance involves enrolling in a vocational high school specializing in hospitality, where students begin to define their career path early (from ages 15-16). The model emphasizes the importance of critical thinking, digital skills, adaptability, and leadership as essential competencies for developing future leaders in the hospitality sector. The paper discusses the importance of partnerships between educational institutions and industry to ensure that curricula are aligned with market requirements. This model is expected to contribute to building a new generation of talented and qualified Saudi professionals, enhancing Saudi Vision 2030 and ensuring the future sustainability of the hospitality sector

ID:226 Motivational Profiles of High-Achieving Mathematics Students: A Cross-National Latent Profile Analysis Using TIMSS 2019 and 2023

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Keywords: high-achieving students, mathematics achievement, learning motivation, latent profile analysis, TIMSS

This study investigates the relationship between learning motivation types and academic achievement among high-achieving mathematics students using data from the Trends in International Mathematics and Science Study (TIMSS) 2019 and 2023. High-achieving students, defined as the top 10% of mathematics achievers, display distinctive cognitive strengths but face motivational risks, such as declines in interest and confidence. To address this, the study applies expectancy-value theory, focusing on interest and confidence as key motivational dimensions. Methodologically, the study employs a criterion-based approach using TIMSS scores and Latent Profile Analysis (LPA) to identify distinct motivational profiles. A pseudo-cohort design examines changes between elementary and middle school, while cross-national comparisons among Korea, Singapore, Japan, the United States, England, and Finland capture universal and context-specific characteristics. The findings reveal that high-achieving students are classified into several distinct motivational profiles. Although the high-expectancy and high-value group was larger than in the general population, it still accounted for less than half of the high achievers. As students progressed from Grade 4 to Grade 8, the proportion reporting positive levels of both confidence and interest decreased, indicating that affective characteristics are not stable over time. Interestingly, confidence tended to increase, whereas interest showed a marked decline. A subgroup characterized by negative responses in both areas persisted across cohorts. Furthermore, cross-national analyses demonstrated that cultural contexts significantly influence these profiles. These findings contribute to a deeper understanding of heterogeneity within high-achieving groups, challenging the assumption that such students consistently maintain high motivation. The study provides important implications for gifted education and mathematics instruction by identifying at-risk subgroups and suggesting timely interventions. Ultimately, the research offers guidance for designing policies and practices that foster long-term engagement, equity, and excellence in mathematics education across diverse global contexts, ensuring that high potential translates into sustained achievement.

ID:235 International Science Games: A Case Study in International Scientific Collaboration and Convergence for the Development of a Sustainable Research Community of Gifted School Students

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Keywords: gifted education, international collaboration, science education, research community, olympiads, project-based learning, Yakutia, sustainable

This paper presents a case study of the Yakutia International Science Games (ISG), a large-scale international event held in the Republic of Sakha (Yakutia), Russian Federation. The ISG model represents a innovative approach to fostering a global community of gifted and highly motivated students, educators, and scientists. By analyzing official regulatory documents, conceptual frameworks, and historical data from the 2018 iteration, this study examines how the ISG creates a unique ecosystem that converges two traditionally separate paths of talent development: olympiad-style competitions and project-based research. The paper details the structure, mission, and multifaceted program of the ISG, which includes competitions, collaborative research schools, symposia, and cultural exchanges. We argue that the ISG's design, emphasizing international collaboration, interdisciplinary convergence, and the creation of a sustained network, serves as an effective model for nurturing future scientific talent, promoting sustainable development goals, and building a resilient, global research community among youth.

ID: 240 Implicit Theories of Intelligence and Giftedness as Predictors of Leadership Skills and Wisdom Among Gifted Youth in the Eastern Province

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Keywords: Implicit Theories of Intelligence and Giftedness, Leadership Skills, Wisdom

This study aimed to determine the extent to which dimensions of implicit theories of intelligence and giftedness predict leadership skills and wisdom among gifted university students in the Eastern Province. The researcher employed a descriptive-predictive methodology, examining how variations in independent variables project onto dependent variables. Data collection occurred during the first semester of the 2024/2025 academic year, involving a purposive sample of 41 gifted students (aged 18–24) at Imam Abdulrahman Bin Faisal University in Dammam. The study utilized scales for implicit theories of intelligence and giftedness, leadership skills, and wisdom. Findings revealed that gifted youth primarily adopt an incremental (growth-based) view of their abilities: "Intelligence as a developmental component" ranked first ($M = 4.38$), followed by "Giftedness as a developmental component" ($M = 4.27$). While a statistically significant correlation was found between implicit theories and leadership skills, the relationship with wisdom was not statistically significant. However, a significant correlation was observed between wisdom and leadership skills. Notably, the developmental view of giftedness emerged as the strongest predictor for both leadership skills and wisdom. Based on these results, the researcher recommends developing standardized electronic enrichment programs focused on leadership and wisdom, sponsored by the King Abdulaziz and His Companions Foundation for Giftedness and Creativity (Mawhiba), alongside establishing strategic community partnerships and Ministry of Education initiatives to provide diverse scientific content for talent development.

ID:242 Factors Influencing Gifted Female High School Students' Choice of Engineering as a University Major

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Keywords: Gifted female students, university major selection, engineering, influencing factors, career counseling.

This study explored the factors influencing gifted female high school students' choice of engineering, across its various specializations, as a university major. A qualitative case study design was employed, and data were collected through three methods: semi-structured interviews, observations, and document analysis. The sample consisted of 12 gifted students admitted to engineering programs, along with 12 of their parents. The findings revealed four main categories of factors: personal aspects such as self-confidence and motivation; societal factors including family influence and cultural perceptions; educational factors represented by academic achievement and enrichment programs; and economic factors related to labor market opportunities and income. The study recommends implementing targeted career counseling programs for gifted students, designing specialized enrichment opportunities in scientific and engineering fields, and strengthening partnerships with educational and community institutions. These findings highlight the importance of preparing gifted female students for informed career decision-making aligned with labor market needs and Saudi Arabia's Vision 2030.

ID:247 The Degree of Implementation of Leadership Talent Management Strategies at the Sabah Al-Ahmad Center for Giftedness and Creativity in the State of Kuwait from the Perspectives of Male and Female Teachers

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Keywords: Talents, leadership Talent Management, Sabah Al-Ahmad Center for Giftedness and Creativity, Teachers, Kuwait.

This study aimed to determine the degree of implementation of leadership talent management strategies at the Sabah Al-Ahmad Center for Giftedness and Creativity in the State of Kuwait from the perspectives of male and female teachers. The study followed a descriptive survey approach, and the study sample consisted of (42) male and female teachers at the Sabah Al-Ahmad Center for Giftedness and Creativity. To achieve the study objectives, the researcher constructed a questionnaire consisting of (30) items distributed across three areas: talent development, talent retention, and talent motivation. The study revealed the following results: The teachers' assessments of the degree of implementation of leadership talent management strategies at the Sabah Al-Ahmad Center for Giftedness and Creativity were high in all areas. The results also showed no statistically significant differences ($\alpha = 0.05$) in the assessments of the teachers of the Sabah Al-Ahmad Center for Giftedness and Creativity regarding the degree of implementation of leadership talent management strategies attributable to the variables of gender and academic qualification. In light of the study's findings, the researcher made several recommendations, the most important of which is the need for the Sabah Al-Ahmad Center for Giftedness and Creativity to place leadership talents in important leadership positions appropriate to their abilities.

ID: 251 Institutional Partnership and Its Impact on Developing Gifted Participation and Enhancing Their Presence in International Awards: The Abdulmonem Al-Rashed Humanitarian Foundation Apprenticeship as a Model

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Keywords: Gifted Education, Institutional Partnerships, Scientific Research, International Awards, Sustainable Development.

This study explores the role of institutional partnerships—involving universities, training centers, factories, and platforms—in building an integrated ecosystem to support gifted students and enhance their participation in international competitions. Utilizing a mixed-method embedded design, the researcher analyzed data from 120 gifted learners participating in enrichment programs between 2019 and 2024 through participation records, surveys, and semi-structured interviews. Quantitative results revealed a dramatic shift following the implementation of partnership models: the percentage of students submitting projects to international competitions rose from 18% to 62%, with participation rates tripling annually, while the award-winning rate increased from 1.7% to 8%. Qualitative findings highlighted that these partnerships provided critical access to advanced laboratories and specialized training in soft skills, such as media communication and time management. Despite logistical challenges like travel and visa procedures, institutional support proved vital in navigating these barriers. The study concludes that combining academic supervision, professional training, and financial support through clear partnership agreements is essential for doubling the global presence of gifted Saudi students and ensuring the sustainability of their representation in international scientific forums.

ID:273 Fast Forward to 2050: Environment-Centered STEAM & Architecture as Engines of Talent Discovery at Takween

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Keywords: Gifted Education, STEAM, architecture, design studio, twice-exceptional.

How can we truly see and nurture a child's potential? Traditional models often seek to "identify" talent as a fixed trait, yet this paper explores an alternative, environment-centered approach where talent is understood as an emergent capacity surfacing through purposeful activity. We present a case study of the Takween STEAM and Architecture workshops, designed on the conviction that every child possesses latent strengths that flourish in contexts of structured freedom, authentic making, and collaborative reflection. The workshop model utilizes simple, repeatable structures to make complex design thinking accessible. Children engage with open-ended challenges through short cycles of planning, building, and reflecting. Time is made visible, roles rotate, and guided prompts focus peer conversation. These deliberate scaffolds organize creativity, making challenges feel safe and doable. Architecture provides a context for spatial reasoning, while STEAM offers a tangible toolkit of sensors and coding, creating multiple pathways for children to demonstrate artistic, technical, or collaborative competence. Our findings reveal consistent patterns. When the environment prioritizes agency and iteration, we observe: (1) growth in resilient problem-solving; (2) transfer of spatial-logical strategies to mathematical thinking; (3) strengthened student voice; and (4) the emergence of "quiet" competencies in learners often missed by conventional screening, including twice-exceptional students. For instance, one reserved nine-year-old orchestrated her team's design and articulated a sophisticated rationale—abilities previously invisible in standard settings. Looking toward 2050, this model advances three priorities: broadening participation, supporting twice-exceptional learners, and ensuring equitable access. By centering environment over selection, the workshop functions as a personalized learning ecosystem where each child pursues a credible route to mastery. The approach is frugal and portable, enabling adoption across diverse contexts without sacrificing rigor. When we upgrade the environment, children's gifts surface and compound, offering a practical blueprint for inclusive, innovation-oriented talent development.

ID:274 Assessing Generative AI Policies in Japanese Higher Education: Addressing the Needs of Gifted Learners and Advancing Talent Development

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Keywords: Generative AI Policies, Gifted Education, Higher Education in Japan, Talent Development, Academic Integrity.

The increasing integration of Generative Artificial Intelligence (AI) into higher education presents important considerations for gifted students and institutional strategies for talent development. Gifted and high-ability learners often engage in advanced, self-directed, and research-oriented activities; therefore, the clarity and effectiveness of institutional AI policies directly influence their capacity to use these tools for complex analysis, creative tasks, and investigative work. Well-crafted and transparent policies can enhance gifted students' opportunities to deepen their expertise, solve challenging problems, and pursue innovative research, all while upholding ethical standards and academic integrity. Conversely, weak policy frameworks unintentionally hinder their ability to utilize emerging AI features that support accelerated learning and talent cultivation. This study systematically assesses the scope and quality of Generative AI policies at Japan's top 50 universities, as listed in the 2025 QS World University Rankings, focusing on their implications for gifted education and talent development. Using a 24-item analytical framework based on existing literature, we examined publicly available institutional guidelines to evaluate their thoroughness, clarity, and alignment with principles that support gifted learners. The results show that 37 universities (74%) have published Generative AI guidelines; however, many lack essential components, including distinctions among AI model types, requirements for documenting prompts and outputs, detection methods, and procedures for reporting misuse. These gaps are particularly significant for gifted learners, who need structured yet adaptable guidance to engage meaningfully and responsibly with advanced technological tools. Furthermore, the analysis shows that national universities tend to have stronger AI governance structures, providing more consistent support for gifted students' advanced academic endeavors. In contrast, public and private institutions display more inconsistent policy development. Overall, the study emphasizes the need for comprehensive, transparent, and regularly updated Generative AI policies that address institutional and ethical concerns while intentionally promoting gifted learners' high-level inquiry, intellectual independence, and long-term talent growth.

ID: 276 Scientific Research in Arab Universities: Between Creativity and Conformity

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Keywords: Scientific Research, Innovation, Arab Universities, Research Methodologies, Knowledge Economy.

Scientific research is no longer merely an academic luxury or a means for a researcher to obtain a promotion or a salary increase, as is currently the case in most Arab universities. Rather, the purpose of scientific research should be to solve existing societal problems and to foster innovation and invention in any field that contributes to generating new, useful ideas and implementing them in reality. Research should not consist mostly of theoretical studies that pile up in university libraries, as seen in many Arab countries where shelves are filled with "regurgitated" research that merely repeats old information and relies on imitation. True scientific research must seek new knowledge and embrace creativity in addressing problems to produce novel results; this is the very essence of scientific inquiry. Without creativity and excellence, these studies become like expired food—no longer fit for consumption. The need for creativity in research is fundamental because the relationship between the two is inseparable; creativity represents the novelty and originality of ideas, which is the heart of scientific work. Therefore, this paper explores why scientific research necessitates creativity and innovation, advocating for a departure from the traditional patterns currently prevalent in Arab universities—patterns that are often nothing more than numbers and mathematical equations. Such traditions lean heavily on quantitative methods while neglecting qualitative approaches that stimulate scientific inquiry to be truly creative and authentic.

ID:282 Dar Al-Fikr Schools Competency-Driven Model Based on Five Strategic Initiatives as an implementation of Vision 2050 for Gifted Education

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Keywords: Vision 2050, Gifted Education, Talent Development, Student Competencies, Entrepreneurship, Action Research, Future-Ready Learning, Systemic School Reform, Competency-Based Learning, Inclusive Giftedness

The future direction of gifted education calls for a shift from the selective and achievement- oriented approach to an inclusive and competent-based ecosystem that empowers students to thrive and succeed under conditions of uncertainty, complexity, and accelerating sociocultural shifts. In the vision of "Vision 2050 on Gifted Education," the current research proposes a comprehensive model designed and delivered at the "Dar Al-Fikr Schools (DAF)." The empowerment strategy encompasses five institutional initiatives that altogether reshape the very concept of giftedness through the notion of dynamic potential. These five initiatives converge to emphasize proficiency-oriented student profiling, academic excellence, communication and research expertise, entrepreneurship, and "action research," through which the model focuses on equipping the students with both "hard and soft skills" to thrive and succeed and realize the future vision of gifted students. Through the descriptive and analytical method of case study and focusing on the institutional data and the long-term observation of the research setting, this study clearly articulates the vision of "Vision 2050 on Gifted Education" to be translated and realized within a concrete and tangible format of a school setting. The findings of the research clearly illustrate and demonstrate that the institutional integration of the five strategies provides a "continual learning experience" for the gifted students of the institution through the convergence of the streams of academic, entrepreneurship, and research.

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