PENGARUH PROGRAM PELATIHAN METAAFEKTIF YANG DIFASILITASI KECERDASAN BUATAN TERHADAP KECEMASAN SAINS DAN EFIKASI DIRI SISWA

TESIS

Disusun untuk memenuhi salah satu syarat memperoleh gelar
Magister Pendidikan IPA

oleh
Pohaci Puspa Nuwangi
NIM 2310963

PROGRAM STUDI MAGISTER PENDIDIKAN IPA
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA

2025

PENGARUH PROGRAM PELATIHAN METAAFEKTIF YANG DIFASILITASI KECERDASAN BUATAN TERHADAP KECEMASAN SAINS DAN EFIKASI DIRI SISWA

oleh
Pohaci Puspa Nuwangi

Sebuah tesis yang diajukan untuk memenuhi salah satu syarat memperoleh gelar
Magister Pendidikan pada Program Studi Pendidikan IPA
Fakultas Pendidikan Matematika dan Ilmu pengetahuan Alam

LEMBAR PENGESAHAN

POHACI PUSPA NUWANGI

PENGARUH PROGRAM PELATIHAN METAAFEKTIF YANG DIFASILITASI KECERDASAN BUATAN TERHADAP KECEMASAN SAINS DAN EFIKASI DIRI SISWA

Disetujui dan disahkan oleh pembimbing dan penguji,

Pembimbing 1,

Prof. Dr. H. Riandi, M.Si.
NIP 196305011988031002

Pembimbing 2,

Prof. Dr. H. phil. Ari Widodo, M.Ed.
NIP 196705271992031001

Penguji 1,

Dr. Tina Hayati Dahlan, S.Psi., M.Pd., Psikolog
NIP 97204192009122002

Penguji 2,

Dr. Lilit Rusyati, S.Pd., M.Pd.
NIP 198704202012122001

Mengetahui,

Ketua Program Studi Pendidikan IPA

Prof. Dr. H. phil. Ari Widodo, M.Ed.
NIP 196705271992031001

PERNYATAAN

Saya yang bertanda tangan di bawah ini:

Nama : Pohaci Puspa Nuwangi

NIM : 2310963

Program Studi : Pendidikan IPA

Judul Karya : Pengaruh Program Pelatihan Metaafektif yang Difasilitasi Kecerdasan Buatan terhadap Kecemasan Sains dan Efikasi Diri Siswa

Dengan ini saya menyatakan bahwa karya tulis ini merupakan hasil kerja saya sendiri. Saya menjamin bahwa seluruh isi karya ini, baik sebagian maupun keseluruhan, bukan merupakan plagiarisme dari karya orang lain, kecuali pada bagian yang telah dinyatakan dan disebutkan sumbernya dengan jelas.

Jika di kemudian hari ditemukan pelanggaran terhadap etika kademik atau unsur plagiarisme, saya bersedia menerima sanksi sesuai peraturan yang berlaku di Universitas Pendidikan Indonesia.

Bandung, 25 Juni 2025,

yang membuat pernyataan,

Pohaci Puspa Nuwangi

KATA PENGANTAR

Bismillahirrahmaanirrahiim.

Puji dan syukur penulis panjatkan ke hadirat Tuhan Semesta Alam, Allah Swt., yang telah memberikan berkah dan nikmat tak terhingga sehingga penulis dapat menuntaskan tugas besar berupa tesis bertajuk, "Pengaruh Program Pelatihan Metaafektif yang Difasilitasi Kecerdasan Buatan terhadap Kecemasan Sains dan Efikasi Diri Siswa" ini dengan sebaik-baiknya. Salawat serta salam semoga selalu mengalir kepada Nabi Besar Muhammad saw., keluarganya, sahabat-sahabatnya, dan semoga sampai kepada kita selaku umatnya. Perjuangan hebatnya membawa cahaya untuk menerangi masa yang gelap membuat penulis terinspirasi memetik sinar sekecil apa pun sebagai kekuatan untuk menyelesaikan tesis ini, meski selama prosesnya sangat gulita.

Sebagai salah satu syarat utama untuk memperoleh gelar Magister Pendidikan di bidang Pendidikan IPA, tentunya karya ini wajib selesai. Penulis menikmati setiap suka-duka dalam perjalanannya. Maka setelah melalui perang hebat tiada dua di antara kondisi yang penuh badai berkecamuk, penulis mempersembahkan apa yang telah penulis lahirkan dari telisik, analisis, dan pikir mengenai pengaruh sebuah program yang digagas untuk berfokus pada metaafektif siswa, terhadap kecemasan dan efikasi diri mereka dalam pembelajaran IPA, sebagai usaha memperluas pendekatan pembelajaran yang ramah kesehatan mental siswa serta bersifat humanis dalam dunia pendidikan.

Penulis sadar bahwa tiada satu hal pun di dunia sesempurna Yang Mahasempurna. Maka dengan hati lapang, penulis menerima seluruh masukan dan saran yang membangun, agar ke depannya hasil temuan yang penulis dapatkan selama berproses menjadi lebih bermanfaat dan semakin baik lagi. Meskipun disusun dalam keadaan serbaterbatas, tetapi semoga tulisan ini dapat memperkaya ranah keilmuan, terutama yang berhubungan dengan topik-topik utama dalam penelitian. Penulis harap, seluruh bagiannya dapat memunculkan inspirasi dan ide-ide baru untuk mendukung tumbuhnya generasi masa depan yang unggul melalui cara-cara yang penuh kemanusiaan.

Sekali lagi, penulis mengusap wajah dan bersyukur atas seluruh kasih sayang-Nya yang tak pernah terputus. Dengan izin Allah-lah penulis dapat

menuntaskan tesis ini. Walau dalam perjalannya penulis menemukan berbagai rintangan akademik dan nonakademik yang tak pernah penulis sangka akan menjatuhkan penulis ke titik terendah dalam hidup, tetapi kebaikan-Nya tak pernah habis. Maka, izinkan penulis mengucapkan terima kasih untuk pihak-pihak yang telah mendukung penulis berjuang melawan diri sendiri hingga akhirnya berhasil sampai di sini:

1. Bapak Prof. Dr. Riandi, M.Si., selaku dosen pembimbing pertama dan promotor yang telah sabar serta bermurah hati dalam menghadapi sepak-terjang yang penulis lalui. Beliau telah membantu penulis lewat berbagai bentuk kebaikan. Kepada beliaulah penulis berani mengungkapkan apa yang terjadi selama proses penelitian dan sampai akhir, tak pernah surut dukungan yang beliau berikan. Semoga segala yang baik kembali berlipat ganda kepada beliau dan orang-orang terkasihnya.
2. Bapak Prof. Dr. phil. Ari Widodo, M.Ed., selaku dosen pembimbing kedua dan *co*-promotor yang telah memandu penulis untuk selalu berada di jalur yang tepat. Beliau tak pernah berhenti mendorong penulis untuk tetap memberikan yang terbaik dalam segala kondisi. Kebaikan yang beliau berikan, dari yang terkecil hingga yang terbesar, menumbuhkan harapan dan menyelamatkan penulis ketika kepayahan menyelamatkan diri dari kedalaman pikiran yang *menenggelamkan*. Semoga segala yang baik kembali sebagai yang lebih baik kepada beliau dan orang-orang terkasihnya.
3. Ibu Dr. Tina Hayati Dahlan, M.Pd., Psikolog dan Ibu Dr. Lilit Rusyati, M.Pd. selaku dosen penguji yang telah memberikan pandangan serta rekomendasi yang amat berharga agar ke depannya penulis dapat melakukan penelitian yang lebih baik lagi. Atas seluruh apresiasi dan kritisinya, penulis ucapkan terima kasih. Semoga seluruh kebaikan kembali kepada Ibu Tina dan Ibu Lilit dalam bentuk sebaik-baiknya.
4. Dosen-dosen penulis yang tak pernah lelah memberikan motivasi agar penulis melanjutkan perjalanan, terutama Ibu Dr. Yanti Hamdiyati, M.Si., dan Ibu Dr. Rini Solihat., M.Si., yang selama ini selalu mendukung dan percaya bahwa penulis bisa melalui berbagai hambatan maupun tantangan yang membatasi penulis selama berproses.

5. Orang tua penulis, Mama (Prof. Dr. Retty Isnendes, M.Hum), Ayah (Paiman Raehmat Apandi, M.Pd., S.Pd.), dan Bunda (Ibu Setia Widiastuti Rahayu, M.Pd., S.Pd.), yang selama ini tak berhenti mendoakan penulis, mencurahkan kasih sayang dan cintanya, serta tetap berada di sisi penulis selama penulis menyelesaikan apa yang telah penulis mulai. Dari mereka penulis belajar untuk tak pernah menyerah. Penulis berharap dapat membahagiakan dan membanggakan mereka melalui bukti perjuangan ini. Penulis juga menghaturkan terima kasih untuk almarhum Papa (Asep Sutiadi, M.Pd., S.Pd.), sekaligus permintaan maaf karena penulis belum bisa menyelesaikan tesis ini ketika Papa masih ada. Semoga Papa tenang di sana.
6. Adik-adik penulis, Arum, Paksi, Aris, Bajra, dan Syafiq, yang penulis sayang sepenuh hati. Penulis persembahkan karya ini untuk menginspirasi dan memotivasi. Semoga adik-adik penulis dapat memetik banyak makna dari proses yang telah penulis lalui.
7. Sahabat-sahabat penulis (yang tergabung dalam nama *Morning Melody* dan Menuju Halal), terutama Fadjrina Hapsari Woro Ayuningbudi, S.Psi., yang telah berkenan menjadi ahli dalam penelitian ini, memberikan pandangannya terhadap instrumen penelitian penulis, sekaligus menemani dan menerima penulis dalam segala keadaan; serta Shavina Nabila, S.Pd., Gr. yang meskipun jauh di seberang pulau, tetapi hatinya dekat dan rapat. Tanpa mereka, penulis tak tahu harus memancang jangkar ke mana.
8. Psikolog penulis, Kak Nerissa Arviana, M.Psi., Psikolog, yang telah membukakan penulis dunia yang sebelumnya belum pernah penulis pijaki, membantu penulis bangkit dari jatuh yang paling sakit, dan terus meyakinkan penulis bahwa hujannya akan reda. Dari beliau penulis belajar, semakin penulis tahu mengenai sesuatu, semakin penulis tidak tahu apa-apa. Ilmu yang penulis dapatkan ketika membuat tesis sejalan dengan ilmu yang beliau berikan, dan penulis berharap dapat mengimplementasikannya dengan baik.
9. Keluarga besar penulis, terutama keluarga besar dari pihak ibu yang telah memberikan dukungan, perhatian, dan kasih sayangnya semasa penulis berproses menyelesaikan tesis ini. Penulis ingin meminta maaf kepada

almarhumah nenek penulis, Rd. Euis Sulastri, yang berpulang sebelum penulis menyelesaikan sekolah untuk mendapatkan gelar tertinggi akademik. Maaf belum sempat membawa nenek kembali ke JICA untuk menyaksikan cucu pertamanya mengenakan toga kedua.

10. Teman-teman PMDSU UPI Batch VII, terutama Teh Via Aini, S.Pd., M.Pd., yang tidak pernah lelah membantu penulis secara moral selama waktu-waktu sulit.
11. Bapak Shandy Putra Oktabiawan, S.Psi., M.Psi., Psikolog, Gr. Dan Ibu Vivin Huberta, S.Pd. yang telah membantu penulis dalam menjalankan proses penelitian.
12. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi yang telah memberikan kesempatan bagi penulis untuk melanjutkan pendidikan melalui program beasiswa PMDSU.
13. Serta seluruh pihak yang tidak dapat penulis sebutkan satu per satu.

Bandung, Juni 2025

Pohaci Puspa Nuwangi

ABSTRAK

Pengaruh Program Pelatihan Metaafektif yang Difasilitasi Kecerdasan Buatan terhadap Kecemasan Sains dan Efikasi Diri Siswa

Pohaci Puspa Nuwangi
2310963

SDGs nomor 4 tentang Pendidikan Berkualitas membuka peluang penerapan pendekatan humanis dalam pembelajaran Sains, yang mengakui dan mempertimbangkan dimensi afektif siswa. Memahami serta mengelola emosi siswa di kelas krusial untuk meminimalkan dampak emosi negatif dan meningkatkan emosi positif dalam rangka meningkatkan kualitas pembelajaran IPA. Penelitian ini bertujuan mengeksplorasi pengaruh program pelatihan metaafektif yang dipandu ahli, terintegrasi dalam pembelajaran IPA, serta difasilitasi penggunaan kecerdasan buatan (Chat GPT), untuk mengelola kecemasan Sains dan meningkatkan efikasi diri siswa. Melalui desain penelitian *complex mixed-methods* yang menggabungkan *convergent mixed-method*, *embedded mixed-method*, dan metode kualitatif di akhir, studi ini melibatkan 30 siswa di kelompok kontrol dan 60 siswa di kelompok eksperimen. Sementara itu, pelatihan meliputi tiga langkah utama, yakni pelatihan *mindfulness*, pelatihan strategi *coping mechanism*, serta pemberian motivasi dan perumusan tujuan yang dilaksanakan selama tiga pekan. Variabel terikat berupa kecemasan Sains dan efikasi diri Sains diukur menggunakan skala Likert dan dianalisis secara statistik, sementara data kualitatif digali melalui buku harian, observasi, dan wawancara, kemudian dikategorisasi berdasarkan pola-pola tertentu. Kedua data dianalisis bersamaan untuk menghasilkan penjelasan yang utuh dan luas. Meskipun hasil menunjukkan tidak ada perbedaan signifikan pada kecemasan dan efikasi diri Sains antara kelompok kontrol dan eksperimen pasca-pelatihan, yang mengindikasikan tidak adanya pengaruh langsung pelatihan terhadap kedua variabel tersebut, temuan menarik justru terletak pada dampak positif terhadap terciptanya suasana dan emosi positif di dalam kelas setelah intervensi. Hasil ini menekankan potensi optimalisasi aspek afektif dalam pembelajaran IPA, membuka pandangan baru tentang bagaimana intervensi semacam ini dapat memperkaya pengalaman belajar siswa secara holistik.

Kata Kunci: Program pelatihan metaafektif; kecerdasan buatan dalam pendidikan; kecemasan Sains; efikasi diri Sains; dimensi afektif dalam pembelajaran IPA.

ABSTRACT

The Effect of an AI-Facilitated Metaffective Training Program on Students' Science Anxiety and Self-Efficacy

Pohaci Puspa Nuwangi
2310963

SDG 4 on Quality Education underscores the importance of integrating affective dimensions into science education through humanistic approaches. This study investigates the impact of a structured meta-affective training program—guided by experts, embedded within science instruction, and facilitated by AI (ChatGPT)—on students' science anxiety and self-efficacy. Using a complex mixed-methods design, involving 60 students in the experimental group and 30 in the control group, the intervention comprised three stages: mindfulness training, coping strategies, and goal-oriented motivation over three weeks. Quantitative data from Likert-scale instruments and qualitative data from diaries, observations, and interviews were analyzed concurrently. While no statistically significant differences were found between groups post-intervention, qualitative findings indicated improvements in classroom emotional climate. These results suggest the potential of affect-oriented interventions to enhance science learning environments and support holistic student development.

Keywords: metaffective training program; artificial intelligence in education; science anxiety; science self-efficacy; affective dimension in science learning.

DAFTAR ISI

DAFTAR TABEL

DAFTAR GAMBAR

DAFTAR PUSTAKA

Abdelmageed, R. I., Elhenawy, Y. I., Zaafar, D. K., & Abdelaziz, A. W. (2022). Heliyon Coping strategies among children and adolescents : validity and reliability of the Arabic version of the Kidcope scale. *Heliyon*, *8*. https://doi.org/10.1016/j.heliyon.2021.e08706

Abrahamsson, C., Malmberg, C., & Pendrill, A.-M. (2023). Content, interest and the role of engagement: experienced science. *Phys. Edu*, *58*.

Achor, E. E., Kyado, J. J., Ejeh, E. E., & Eba, K. I. (2023). Perceived Influence of Test Anxiety on the Academic Performance of Secondary School Students in Physics. *Journal of Research in Science and Mathematics Education (J-RSME)*, *2*(2), 102–116.

Adolphs, R., Mlodinow, L., Barrett, L. F., & Hospital, G. (2019). What is an emotion? *Curr Biol*, *29*(20), 1–10. https://doi.org/10.1016/j.cub.2019.09.008.What

Aghajani, S., Eyni, S., & Niazi, J. (2023). Investigating the Relationship between Educational Stress Factors and Educational Competence with School Anxiety with the Mediation of Difficulty in Emotion Regulation in Students. *Educational Psychology*, *19*(67), 164–190. https://doi.org/10.22054/jem.2023.68624.3384

Ahmed, K., & and Yousaf, O. (2025). An exploration of mindfulness during the Islamic prayer in British and Pakistani Muslims. *Cogent Psychology*, *12*(1), 2456335. https://doi.org/10.1080/23311908.2025.2456335

Akdogan, O., Uyar, G. C., Yesilbas, E., Baskurt, K., Malkoc, N. A., Ozdemir, N., Yazici, O., Oksuzoglu, B., Uner, A., Ozet, A., & Sutcuoglu, O. (2025). Effect of a ChatGPT-based digital counseling intervention on anxiety and depression in patients with cancer: A prospective, randomized trial. *European Journal of Cancer*, *221*, 115408. https://doi.org/https://doi.org/10.1016/j.ejca.2025.115408

Aker, L. B., & Ellis, A. K. (2019). A Meta-Analysis of Middle School Students' Science Engagement. *International Dialogues on Education*, *6*(1), 9–24.

Al-abyadh, M. H. A., Abdel, H., & Abdel, H. (2022). Academic Achievement : Influences of University Students ' Self-Management and Perceived Self-Efficacy. *Journal of Intelligence*, *10*(55).

Alberts, B. (2022). Why science education is more important than most scientists think. *FEBS Letters: The Scientists' Forum*, *596*, 149–159. https://doi.org/10.1002/1873-3468.14272

Alhadabi, A., & Karpinski, A. C. (2020). Grit, self-efficacy, achievement orientation goals, and academic performance in University students. *International Journal of Adolescence and Youth*, *25*(1), 519–535. https://doi.org/10.1080/02673843.2019.1679202

Alomari, H. (2023). Mindfulness and its relationship to academic achievement among university students. *Front. Educ.*, 1–9. https://doi.org/10.3389/feduc.2023.1179584

Alwan, A. (2011). Misconception of heat and temperature Among physics students Introduction : *International Conference on Education and Educational Psychology (ICEEPSY 2010) Misconception*, *12*, 600–614. https://doi.org/10.1016/j.sbspro.2011.02.074

Amico, A. D., & Geraci, A. (2022). MetaEmotions at School: A Program for

Promoting Emotional and MetaEmotional Intelligence at School; a Research-Intervention Study. *Education Sciences*, *589*. https://doi.org/https://doi.org/10.3390/educsci12090589

Amoto, J. A. (2023). Challenges and Coping Strategies of Night Junior High School Learners in Learning Sequences and Series Through Mathematics in a Box. *Jurnal Multidisiplin Madani (MUDIMA)*, *3*(12), 2505–2516.

Anderson, M. R., Kaplan, D. M., & Palitsky, R. (2023). Religious and Existential Determinants of Affective Response to a Brief Mindfulness Intervention. *Affective Science*, 143–151.

Andre, L., & Peetsma, T. T. D. (2022). Learning under stress: The moderating role of future time perspective. *Psychology in the School*, *59*, 800–816. https://doi.org/10.1002/pits.22645

Andrew, S., & Hons, B. (1998). Self-efficacy as a predictor of academic performance in science. *Journal of Advanced Nursing*, *27*, 596–603.

Arellado, M. A. F., & Palma, B. S. (2016). Students ' Reasons for Not Doing Their Assignment. *International Journal of Multidisciplinary Reseacrh and Development*, *3*(4), 318–320.

Arlinghaus, K. R., & Johnston, C. A. (2018). The Importance of Creating Habits and Routine. *American Journal of Lifestyle Medicine*, *13*(12), 142–144. https://doi.org/10.1177/1559827618818044.

Artino Jr., A. R. (2012). Academic self-efficacy : from educational theory to instructional practice. *Perspect Med Educ*, *1*, 76–85. https://doi.org/10.1007/s40037-012-0012-5

Asoko, H. (2010). Science Developing Conceptual Understanding in Primary Science. *Cambridge Journal of Education*, *32*(2). https://doi.org/10.1080/0305764022014752

Aurah, C. (2017). Investigating the Relationship between Science Self-efficacy Beliefs , Gender , and Academic Achievement , among High School Students in Kenya. *Journal of Eduaction and Practice*, *8*(8), 146–153.

Avci, F., & Kirbaşlar, F. G. (2017). Determination of Factors Affecting the Science Anxiety Levels of Secondary School Students. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education*, *11*(1), 401–417.

Azrai, E. P., & Prasetya, A. R. (2016). HUBUNGAN TINGKAT KECEMASAN SISWA DALAM MENGHADAPI TES DENGAN TINGKAT MOTIVASI BELAJAR BIOLOGI PADA SISWA KELAS X MIA SMA NEGERI 21 JAKARTA. *Biosfer: Jurnal Pendidikan Biologi (BIOSFERJPB)*, *9*(1), 47–54.

Badrian, M., Bazrafkan, L., & Shakour, M. (2022). Medical science students ' experiences of test anxiety : a phenomenological study. *BMC Psychology*, *10*(187), 4–9. https://doi.org/10.1186/s40359-022-00896-4

Bakan, G., Fadime, A., & Inci, H. (2021). Predictor of self-efficacy in individuals with chronic disease : Stress-coping strategies. *Journal of Clinical Nursing*, *30*, 874–881. https://doi.org/10.1111/jocn.15633

Ballen, C. J., Wieman, C., Salehi, S., & Searle, J. B. (2017). Enhancing Diversity in Undergraduate Science : Self-Efficacy Drives Performance Gains with Active Learning. *CBE—Life Sciences Education*, 1–6. https://doi.org/10.1187/cbe.16-12-0344

Bandura, A. (1977). Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, *84*(2), 191–215.

Bandura, A. (1986). *social foundations of thought and action*. Englewood Cliffs: Pretince Hall.

Baraquia, L. G. (2019). Students' Science Engagement Scale (SSES): Developing the Constructs to Measure Science Engagement. *PANAGDAIT Multidisciplinary Research Journal*, *1*(1).

Barlow, D. H. (2002). *Anxiety and Its Disorder: The Nature and Treatment of Anxiety and Panic* (The Guilfo).

Behan, C. (2020). The benefits of meditation and mindfulness practices during times of crisis such as COVID-19. *Irish Journal of Psychological Medicine*, 3–5. https://doi.org/10.1017/ipm.2020.38

Bekomson, A. N., & Amalu, M. (2021). CHAPTER 24: Test Anxiety; Meaning, Symtomps, Causes, and Management. In *Management Systems and Multi-Disciplinary Perspective*. University of Calabar Press.

Benjamin, L. S. (2023). Test anxiety and academic performance : A correlational study among nursing college students. *The Journal of Palembang Nursing Studies*, *2*(3), 173–178.

Berutu, R., & Mutiawati, M. (2023). Understanding learning anxiety and mental health of final year students : A qualitative study. *Journal of Professionals in Guidance and Counseling*, *4*(1), 42–51.

Blackmore, C., Vitali, J., Ainscough, L., Langfield, T., & Colthorpe, K. (2021). A Review of Self-Regulated Learning and Self-Efficacy : The Key to Tertiary Transition in Science , Technology , Engineering and Mathematics (STEM). *International Journal of Higher Education*, *10*(3), 169–177. https://doi.org/10.5430/ijhe.v10n3p169

Boer, S. F. De, Buwalda, B., & Koolhaas, J. M. (2016). Untangling the Neurobiology of Coping Styles in rodents: towards neural mechanisms underlying individual differences in disease susceptibility. *Neuroscience and Biobehavioral Reviews*. https://doi.org/10.1016/j.neubiorev.2016.07.008

Boileau, L., Gaudreau, P., Gareau, A., & Chamandy, M. (2020). Some days are more satisfying than others: A daily-diary study on optimism, pessimism, coping, and academic satisfaction. *British Journal of Educational Psychology*, *91*(1), 46–62. https://doi.org/10.1111/bjep.12346

Bonanno, A. A., Briesch, A. M., Lifter, K., Kemerer, P., Artola, A., Briesch, A. M., Lifter, K., & Kemerer, P. (2024). Measuring teacher-student relationships in adolescence : A systematic , cross-cultural review cross-cultural review ABSTRACT. *International Journal of School & Educational Psychology*, *12*(2), 96–108. https://doi.org/10.1080/21683603.2024.2328834

Bowen, J. (2014). Emotion in the Classroom: An Update. *About To Improve the Academy: A Journal of Educational Development*, *33*(2). https://doi.org/http://dx.doi.org/10.3998/tia.17063888.0033.204

Bowman, J. D. (2025). *What To Do When Students Don't Do Their Homeworks?* TeachThought. https://www.teachthought.com/

BP, A. R., Munandar, S. A., Fitriani, A., Karlina, Y., & Yumriani. (2022). Pengertian pendidikan, ilmu pendidikan dan unsur-unsur pendidikan. *Al Urwatul Wutsqa: Kajian Pendidikan Islam*, *2*(1), 1–8.

Britner, S. L., & Pajares, F. (2006). Sources of Science Self-Efficacy Beliefs of Middle School Students. *Joirnal of Research in Science Teaching*, *43*(5), 485–499. https://doi.org/10.1002/tea.20131

Britton, W. B. (2019). ScienceDirect Can mindfulness be too much of a good thing? The value of a middle way The Inverted U-Shaped Curve. *Current Opinion in Psychology*, *28*, 159–165. https://doi.org/10.1016/j.copsyc.2018.12.011

Broyd, S. J., Demanuele, C., Debener, S., Helps, S. K., James, C. J., & Sonuga-barke, E. J. S. (2009). Neuroscience and Biobehavioral Reviews Default-mode brain dysfunction in mental disorders : A systematic review. *Neuroscience and Biobehavioral Reviews*, *33*, 279–296. https://doi.org/10.1016/j.neubiorev.2008.09.002

Bruin, E. J. de, Meijer, A. M., & Bogels, S. M. (2020). The Contribution of a Body Scan Mindfulness Meditation to Effectiveness of Internet-Delivered CBT for Insomnia in Adolescents. *Mindfulness*, *11*, 872–882.

Buckley, S., & Sullivan, P. (2021). Reframing anxiety and uncertainty in the mathematics classroom. *Mathematics Education Research Journal*, *0123456789*. https://doi.org/10.1007/s13394-021-00393-8

Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The Brain ' s Default Network Anatomy , Function , and Relevance to Disease. *Annals of the New York Academy Sciences*, *38*, 1–38. https://doi.org/10.1196/annals.1440.011

Bullock, M. (2001). Cognitive Development : Child Education. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of the Social & Behavioral Sciences*. Elsevier Ltd.

Burns, E. C., Martin, A. J., Kennett, R. K., Pearson, J., & Munro-smith, V. (2021). Optimizing science self-efficacy : A multilevel examination of the moderating effects of anxiety on the relationship between self-efficacy and achievement in science. *Contemporary Educational Psychology*, *64*, 101937. https://doi.org/10.1016/j.cedpsych.2020.101937

Burns, R. J. (2002). Education and Social Change: A Proactive or Reactive Role? *International Review of Education*, *48*(1).

Cahyaningtyas, C. D., Fatma, E., Rianto, P. A. M., Nuha, U., Wahyuni, S., & Yusmar, F. (2023). Analisis Miskonsepsi Siswa SMP Pada Materi Konsep Suhu Dan Kalor. *Jurnal Ilmiah Wahana Pendidikan*, *15*, 71–75.

Carroll, S., Mccauley, V., Grenon, M., & Carroll, S. (2024). Science self-efficacy beliefs of upper primary students in Ireland. *International Journal of Science Education*. https://doi.org/10.1080/09500693.2023.2245947

Carter, J. A., Gordon, E. C., Palermos, S. O., Carter, J. A., Gordon, E. C., Extended, S. O. P., Carter, J. A., Gordon, E. C., & Palermos, S. O. (2016). Extended emotion Extended emotion. *Philosophical Psychology*, *29*(2). https://doi.org/10.1080/09515089.2015.1063596

Caymaz, B., & Aydin, A. (2021). An Investigation of Secondary School Students ' Anxiety and Motivation Levels towards Science Course in Terms of Some Variables *. *International Journal of Psychology and Educational Studies*, *8*(3), 13–27.

Chakraborty, A. (2023). Exploring the Root Causes of Examination Anxiety : Effective Solutions and Recommendations. *International Journal of Science and Research*, *12*(2). https://doi.org/10.21275/SR23220002911

Chan, R. C. H. (2022). A social cognitive perspective on gender disparities in self - efficacy , interest , and aspirations in science , technology , engineering , and mathematics (STEM): the influence of cultural and gender norms.

International Journal of STEM Education, *9*(37). https://doi.org/10.1186/s40594-022-00352-0

Chandri, F., Faizah, F., Zaenaf, S., Oktavianes, F., & Hidayah, N. (2024). THE ROLE OF SCIENCE TEACHERS IN INSPIRING THE YOUNGER GENERATION : IMPROVING THE QUALITY AND COMPETENCE OF. *Islamic Journal of Integrated Science Education*, *3*(2), 25–35.

Chang, M., Singh, K., & Mo, Y. (2007). Educational Research and Evaluation : An International Journal on Theory and Science engagement and science achievement : Longitudinal models using NELS data Science Engagement and Science Achievement : Longitudinal models using NELS data. *Educational Reseach and Evaluation*, *13*(4), 37–41. https://doi.org/10.1080/13803610701702787

Chang, Y., Tsai, Y., & Adair, D. (2022). The Effect of University Students ' Emotional Intelligence , Learning Motivation and Self-Efficacy on Their Academic Achievement — Online English Courses. *Front. Psychol*, *13*(February), 1–11. https://doi.org/10.3389/fpsyg.2022.818929

Chen, O., Paas, F., & Sweller, J. (2023). A Cognitive Load Theory Approach to Defining and Measuring Task Complexity Through Element Interactivity. *Educational Psychology Review*, *35*(2), 1–18. https://doi.org/10.1007/s10648-023-09782-w

Chen, Y., Wing, S., Chiu, K., Zhu, J., Wing, W., & So, M. (2022). Maintaining secondary school students ' STEM career aspirations : the role of perceived parental expectations , self-efficacy , and cultural capital. *International Journal of Science Education*, *44*(3), 434–462. https://doi.org/10.1080/09500693.2022.2032463

Chen, Z., & Siegler, R. (2001). Scientific Concepts: Development in Children. In N. J. Smelser & P. B. Baltes (Eds.), *International Encyclopedia of Social & Behavioral Sciences*. Elsevier Ltd.

Cheng, C. M. (2012). Effect of Self-awareness on Negative Affect Among Individuals with Discrepant Low Self-Esteem. *Self and Identity*, *11*(3). https://doi.org/10.1080/15298868.2011.567022

Chiarelott, L., & Czerniak, C. (2010). Science Anxiety: Implications for Science Curriculum and Teaching. *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, *60*(5), 202–205. https://doi.org/10.1080/00098655.1987.9959323

Chiu, M. H., Guo, C. J., & Treagust, D. F. (2007). International Journal of Science Assessing Students ' Conceptual Understanding in Science : An introduction about a national project in Taiwan. *International Journal of Science Education*, *29*(4), 37–41. https://doi.org/10.1080/09500690601072774

Cho, M. T., & Aye, T. T. (2020). Relationship between science anxiety and science achievement of grade 8 students in selected basic education schools in Myanmar. *International Journal of Multidisciplinary Research and Development*, *7*(6).

Clark, D. A., & T., B. A. (2010). *Cognitive Therapy of Anxiety Disorders*. The Guildford Press.

Cox, J. (2019). *Teaching Strategies that Enhance Higher-Order Thinking*. Teach Hub. https://www.teachhub.com/

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Quantitative,*

Qualitative, and Mix Methods Approaches (5th editio). SAGE Publications.

Crosswell, A. D., Moreno, P. I., Raposa, E., Motivala, S. J., Stanton, A. L., Ganz, P. A., Bower, J. E., Angeles, L., Plaza, M., Angeles, L., Sciences, B., Angeles, L., Comprehensive, J., Angeles, L., & Angeles, L. (2018). Effects of mindfulness training on emotional and physiologic recovery from induced negative affect. *Psychoneuroendocrinology*, 78–86. https://doi.org/10.1016/j.psyneuen.2017.08.003.Effects

Cwik, S., & Singh, C. (2022). Gender differences in students' self-efficacy in introductory physics courses in which women outnumber men predict their grade. *Physical Review Physics Education Research*, *18*(2), 20142. https://doi.org/10.1103/PhysRevPhysEducRes.18.020142

da Silva Cezar, B. G., & Maçada, A. C. G. (2023). Cognitive Overload, Anxiety, Cognitive Fatigue, Avoidance Behavior and Data Literacy in Big Data environments. *Information Processing & Management*, *60*(6), 103482. https://doi.org/https://doi.org/10.1016/j.ipm.2023.103482

Dambrun, M., Hanley, A. W., Garland, E. L., Céline, O., Nicolas, S., Maya, P., & Catherine, C. (2024). The effect of a short mindfulness meditation practice on positive mental health : Self-transcendence as a mediating process. *International Journal of Wellbeing*, *14*(3), 1–22.

Daud, M. J., Rahmat, A., & Husain, R. (2021). HUMANISTIC THEORY IN THE PROSPECT OF EDUCATIONAL PHILOSOPHY TO IMPROVE STUDENT LEARNING OUTCOMES THROUGH IPA LEARNING IN CLASS IV SDN 8 TILONGKABILA BONEBOLANGO REGENCY. *European Journal of Humanities and Educational Advancements (EJHEA)*, *2*(11), 131–134.

Davis, G. (1981). Science Anxiety: How Can We Reduce It? *Iowa Science Teachers Journal*, *18*(1).

Dawadi, S., & Giri, R. A. (2021). Mixed-Methods Research: A Discussion on its Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*, *2*(2), 25–36.

de Vries, B. J. M. (2023). *Sustainability Science* (2nd ed.). Cambridge University Press. https://doi.org/DOI: 10.1017/9781009300230

Dehbozorgi, N., Maher, M. L., & Dorodchi, M. (2021). Does Self-Efficacy Correlate with Positive Emotion and Academic Performance in Collaborative Learning? *2021 IEEE Frontiers in Education Conference (FIE)*, 1–8. https://doi.org/10.1109/FIE49875.2021.9637471

Demarzo, M., Martins, P., & Soler, J. (2017). Unwanted effects: Is there a negative side of meditation? A multicentre survey. *PLOS ONE*, *12*(9), 1–11.

Dhand, R. (2019). Physical condition and learning. *ERIC*.

Dolan, R. J. (2002). Emotion, Cognition, and Behavior. *Science*, *298*(1191). https://doi.org/10.1126/science.1076358

DS, Y. N. (2018). Hubungan Konsep Diri dan Kecemasan Siswa Terhadap Prestasi Belajar IPA Kelas IV SD Negeri Sumurgede Cilamaya Kulon – Karawang Sumurgede Cilamaya Kulon - Karawang. *Jurnal Sekolah Dasar: Elementary School Journal*, *1*(3), 11–20.

Dunbar-wallis, A. K., Katcher, J., Moore, W., & Corwin, L. A. (2024). Bee The CURE : Increasing Student Science Self-Efficacy , Science Identity , and Predictors of Scientific Civic CURE. *CBE—Life Sciences Education*, *46*.

https://doi.org/10.1187/cbe.24-01-0015

Dwidiyanti, M., Wiguna, R. I., Pamungkas, A. Y., & Wahyu, H. E. (2019). Concept Analysis of Mindfulness Based on Islam Religion. *Jurnal Ilmu Keperawatan*, *6*(2).

Dwivedi, Y. K., Kshetri, N., Hughes, L., Louise, E., Jeyaraj, A., Kumar, A., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Ahmad, M., Al-busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., … Wright, R. (2023). International Journal of Information Management Opinion Paper : " So what if ChatGPT wrote it ? " Multidisciplinary perspectives on opportunities , challenges and implications of generative conversational AI for research , practice and policy ☆. *International Journal of Information Management*, *71*. https://doi.org/10.1016/j.ijinfomgt.2023.102642

Ebrahimi, H., Atri, S. B., Ghavipanjeh, S., Farnam, A., & Gholizadeh, L. (2013). The Effect of Training Problem-Solving Skills on Coping Skills of Depressed Nursing and Midwifery Students. *Journal of Caring Sciences*, *2*(1), 1–9. https://doi.org/10.5681/jcs.2013.001

Edraki, M., Rambod, M., & Molazem, Z. (2018). The Effect of Coping Skills Training on Depression , Anxiety, Stress, and Self-Efficacy in Adolescents with Diabetes : A Randomized Controlled Trial O riginal Article. *IJCBNM*, *6*(4), 324–333.

Ejei, J., Rezaei, M. R., & Lavasani, M. G. (2011). Procedia Social and The effectiveness of coping strategies training with irrational beliefs (cognitive approach) on test anxiety of students. *Procedia - Social and Behavioral Sciences*, *30*, 2165–2168. https://doi.org/10.1016/j.sbspro.2011.10.420

Elbarazi, A. S. (2025). The effect of emotion regulation training on anxiety in college students in Egypt (Randomized control trial). *Journal of Public Health Research*, *14*(2). https://doi.org/10.1177/22799036251347030

Elyoseph, Z., Hadar-Shoval, D., Asraf, K., & Lvovsky, M. (2023). ChatGPT outperforms humans in emotional awareness evaluations. *Front. Psychol*, *14*(May). https://doi.org/10.3389/fpsyg.2023.1199058

Ennes, M. E., Jones, M. G., Childers, G. M., Cayton, E. M., & Chesnutt, K. M. (2023). Children and Parents ' Perceptions of Access to Science Tools at Home and Their Role in Science Self - efficacy. *Research in Science Education*, *53*(4), 671–687. https://doi.org/10.1007/s11165-022-10077-3

Erdianto, A. A., & Dewi, D. K. (2020). HUBUNGAN ANTARA EFIKASI DIRI DENGAN PROKRASTINASI AKADEMIK PADA SISWA KELAS XI DI SMA X. *Character: Jurnal Penelitian Psikologi*, *8*(8).

Ernawati, M. D. W., Kurniawan, D. A., & Nawahdani, A. M. (2021). Gender Analysis in terms of Attitudes and Self-Efficacy of Science Subjects for Junior High School Students. *Jurnal Penelitian Pendidikan IPA*, *7*. https://doi.org/10.29303/jppipa.v7iSpecialIssue.828

Esmaeilimotlagh, M., Oveisi, K., Alizadeh, F., & Kheirabadi, M. A. (2018). An Investigation on Coping Skills Training Effects on Mental Health Status of An Investigation on Coping Skills Training Effects on Mental Health Status of University Students. *Journal of Humanities Insights*, *2*(1). https://doi.org/10.22034/jhi.2018.61430

Fagadau, I. D., Mariani, L., & Micucci, D. (2024). Analyzing Prompt Influence on

Automated Method Generation : An Empirical Study with Copilot. *32ndIEEE/ACMInternational Conference*. https://doi.org/10.1145/3643916.3644409

Fatahi, S., Vassileva, J., & Roy, C. K. (2024). Comparing emotions in ChatGPT answers and human answers to the coding questions on Stack Overflow. *Frontiers in Artificial Lntelligence*, *September*. https://doi.org/10.3389/frai.2024.1393903

Fauziana. (2022). PENGARUH SELF EFFICACY TERHADAP KEMAMPUAN MEMECAHKAN MASALAH IPA. *PIONIR: Jurnal Pendidikan*, *11*(1), 151–162.

Fazia, T., Bubbico, F., Nova, A., Buizza, C., Cela, H., Iozzi, D., Calgan, B., Maggi, F., Floris, V., Sutti, I., Bruno, S., Ghilardi, A., & Bernardinelli, L. (2023). Improving stress management, anxiety, and mental well - being in medical students through an online Mindfulness - Based Intervention: a randomized study. *Scientific Reports*, *13*(8214), 1–13. https://doi.org/10.1038/s41598-023-35483-z

Fensham, P. J. (2006). Humanistic science education: moves from within and challenges from without. *Proceedings of XII IOSTE Symposium, 30 July - 4 August 2006, Penang Grand Plaza Parkroyal Beach Resort, Penang.*, *August*.

Fia, S. D., Fosu-Ayarkwah, C., & Obuobi-Ayim, T. (2022). Causes , Effects and Management of Science Anxiety among Senior High School Students in Old Tafo Municipality of Ghana. *Open Journal of Psychology*, *2*(384). https://doi.org/10.31586/ojp.2022.384

Firdaus, F. A., & Mariyat, A. (2017). Humanistic Approach In Education According to Paulo Freire. *At-Ta'dib*, *12*(2).

Firdaus, M., Sulistri, E., & Anitra, R. (2023). HUBUNGAN EFIKASI DIRI DENGAN HASIL BELAJAR RANAH KOGNITIF IPA SISWA KELAS IV SD NEGERI 88 SINGKAWANG. *ORBITA: Jurnal Hasil Kajian, Inovasi, Dan Aplikasi Pendidikan Fisika*, *9*(1), 103–111.

Folkman, S., & Moskowitz, J. T. (2004). COPING: Pitfalls and Promise. *Annu. Rev. Psychol*, *55*. https://doi.org/10.1146/annurev.psych.55.090902.141456

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement : Potential of the Concept , State of the Evidence. *Review of Educational Research*, *74*(1), 59–109.

Fredrickson, B. L., Boulton, A. J., Firestine, A. M., Cappellen, P. Van, Algoe, S. B., Brantley, M. M., Kim, S. L., Brantley, J., & Salzberg, S. (2017). Positive Emotion Correlates of Meditation Practice : a Comparison of Mindfulness Meditation and Loving-Kindness Meditation. *Mindfulness*, *8*. https://doi.org/10.1007/s12671-017-0735-9

Gardner, B., Lally, P., Wardle, J., & Provenance. (2012). Making health habitual : the psychology of ' habit-formation ' and general practice. *British Journal of General Practice*, *62*(605), 664–666.

George, L., & Stopa, L. (2008). Private and public self-awareness in social anxiety. *Journal of Behavior Therapy*, *39*, 57–72. https://doi.org/10.1016/j.jbtep.2006.09.004

Gibson, J. (2019). Mindfulness, Interoception, and the Body: A Contemporary Perspective. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.02012

Gojali, I., Hidayah, F., Aniati, A., & Baharun, H. (2024). Mindfulness for Teachers : Strategies to Manage Stress and Improve Learning Quality in Madrasah. *Urwatul Wutsqo: Jurnal Studi Kependidikan Dan Keislaman*, *13*(2), 190–203.

Goldin, P., Ramel, W., & Gross, J. (2009). in Social Anxiety Disorder : Behavioral and Neural Effects. *Journal of Cognitive Psychotherapy: An International Quarterly*, *23*(3). https://doi.org/10.1891/0889-8391.23.3.242

Goonesekera, Y., & Donkin, L. (2022). A Cognitive Behavioral Therapy Chatbot (Otis) for Health Anxiety Management : Mixed Methods Pilot Study Corresponding Author : *JMIR Formative Research*, *6*(10). https://doi.org/10.2196/37877

Gor, P. O., Othuon, L. O. A., & Migunde, Q. A. (2020). Gender Difference in the Relationship between Self-Efficacy and Performance in Science among Secondary School Students in Migori County , Kenya. *Education, Society, and Human Studies*, *1*(2), 154–170. https://doi.org/10.22158/eshs.v1n2p154

Grabau, L., Galand, B., Lafontaine, D., Lavonen, J., Ólafsson, R. F., & Trudel, L. (2024). What is the association between schoolwork-related anxiety and science literacy proficiency ? A comparison between Southeast Asia and Northwest Europe. *Front. Educ.*, *9*(July), 1–16. https://doi.org/10.3389/feduc.2024.1414423

Griethuijsen, R. A. L. F. Van, Eijck, M. W. Van, Haste, H., Brok, P. J. Den, Skinner, N. C., Mansour, N., Gencer, A. S., & Boujaoude, S. (2014). Global Patterns in Students ' Views of Science and Interest in Science. *Research In*, *45*(4). https://doi.org/10.1007/s11165-014-9438-6

Grupe, D. W., & Nitschke, J. B. (2013). Uncertainty and Anticipation in Anxiety. *Nat Rev Neurosci*, *14*(7), 488–501. https://doi.org/10.1038/nrn3524.Uncertainty

Gunawardena, H., Leontini, R., Nair, S., Cross, S., & Hickie, I. (2024). Teachers as first responders : classroom experiences and mental health training needs of Australian schoolteachers. *BMC Public Health*, *24*, 1–13.

Gupta, T., & Mishra, L. (2021). Higher-Order Thinking Skills in Shaping the Future of Students. *Psychology and Education*, *58*(2).

Gusnard, D. A., Akbudak, E., Shulman, G. L., & Raichle, M. E. (2001). Medial prefrontal cortex and self-referential mental activity : Relation to a default mode of brain function. *PNAS*, *98*(7). https://doi.org/10.1073/pnas.071043098

Guzeller, C. O., & Dogru, M. (2012). Development of Science Anxiety Scale for Primary School Students. *Soc Indic Res*, *109*, 189–202. https://doi.org/10.1007/s11205-011-9894-6

Halliwell, E. (2011). *Meditation is an emotional rollercoaster*. The Guardian. https://www.theguardian.com/

Halmuniati, Hasiati, Wui, L., & Binti Awad, F. (2018). Pengaruh Motivasi Belajar dan Tingkat Kecemasan Terhadap Prestasi Belajar IPA Siswa. *KULDJAWA*, *1*(2), 70–76.

Hamelo, S. (2016). Interest of Grade Ten Students Toward Physics Among Other Science Subjects , Case of Wolaita Soddo Town Governmental Secondary Schools , Ethiopia. *Journal of Education and Practice*, *7*(25), 83–86.

Han, J., Kelley, T., & Knowles, J. G. (2021). Factors Influencing Student STEM Learning : Self-Efficacy and Outcome Expectancy , 21 st Century Skills , and

Career Awareness. *Journal for STEM Education Research*, *4*, 117–137.
Handayani, F., Jonathan, B., Joshuar, W., Mark, E., & Halim, C. (2024). Coping Strategies In Overcoming Academic Stress Among High School Students. *Journal Neosantara Hybrid Learning*, *2*(1), 426–441.
Hansen, K. Y., Thorsen, C., Jelena, R., Peixoto, F., Laine, A., & Liu, X. (2024). When competence and confidence are at odds : a cross - country examination of the Dunning – Kruger effect. *European Journal of Psychology of Education*, *39*(2), 1537–1559. https://doi.org/10.1007/s10212-024-00804-x
Harley, J. M., Pekrun, R., Taxer, J. L., & Gross, J. J. (2019). Emotion regulation in achievement situations: An integrated model. *Educational Psychologist*, *54*(2).
Hasina, S. N., Noventi, I., Livana, P. H., & Hartono, D. (2021). Mindfulness Meditation Based on Spiritual Care to Reduce Community Anxiety due to the Impact of Pandemic Coronavirus Disease. *Macedonian Journal of Medical Scoences*, *9*, 41–46.
Hasniati, S. (2017). *PENGARUH KONSEP DIRI DAN KECEMASAN TERHADAP PEMAHAMAN KONSEP IPA PESERTA DIDIK KELAS VIII DI SMPN 21 BANDAR LAMPUNG*. Universitas Islam Negeri Raden Intan Lamppung.
Hayes, M. A. (2009). Naturalistic Education and the Future of Conservation. *Conservation Education*, *23*(5), 1075–1079.
Henning, M. A., Lyndon, M., Ng, L., Sundram, F., Chen, Y., & Webster, C. S. (2025). Mindfulness and Religiosity : Four Propositions to Advance a More Integrative Pedagogical Approach. *Mindfulness*, 681–694. https://doi.org/10.1007/s12671-024-02325-6
Henschel, S. (2021). Antecedents of science anxiety in elementary school. *The Journal of Educational Research*, *114*(3), 263–277. https://doi.org/10.1080/00220671.2021.1922989
Heron, M., & Palfreyman, D. M. (2023). Exploring Higher-Order Thinking in Higher Education Seminar Talk Exploring Higher-Order Thinking in Higher Education Seminar Talk. *College Teaching*, *71*(4), 252–259. https://doi.org/10.1080/87567555.2021.2018397
Hill, J. L., Driel, J. Van, Seah, W. T., Kern, M. L., Hill, J. L., Driel, J. Van, Seah, W. T., Oct, M. L. K., Hill, J. L., & Driel, J. Van. (2024). Students' values in science education: a scoping review. *Studies in Science Education*, 1–53. https://doi.org/10.1080/03057267.2024.2412456
Hilmi. (2012). Pendekatan Humanistik Dalam Belajar. *Kompetensi: Jurnal Pendidikan Dan Pembelajaran*, *1*(1), 1–11.
Hjartarson, B., Daalhuizen, J., & Gustafsson, K. F. (2021). THE DARK SIDE OF METHODS – AN EXPLORATION OF THE NEGATIVE EFFECTS OF METHOD USE AND METHOD. *INTERNATIONAL CONFERENCE ON ENGINEERING DESIGN, ICED21*. https://doi.org/10.1017/pds.2021.561
Holstermann, N., Grube, D., & Bögeholz, S. (2010). Hands-on Activities and Their Influence on Students ' Interest Hands-on Activities and Their Influence on Students ' Interest. *Res Sci Educ*, *40*. https://doi.org/10.1007/s11165-009-9142-0
Hu, X., Jiang, Y., & Bi, H. (2022). Measuring science self-efficacy with a focus on the perceived competence dimension: using mixed methods to develop an instrument and explore changes through cross-sectional and longitudinal

analyses in high school. *International Journal of STEM*, *9*(47).

Ifdil, Apriani, R., Yendi, F. M., & Rangka, I. B. (2016). Level of students ` self-efficacy based on gender. *The International Jornal of Counseling and Education*, *1*(1), 29–33. https://doi.org/10.23916/29-33.0016.11-i41b

Ii, J. E. L., Matney, S., Naseer, Z., & Pfyffer, R. (2023). Sitting Meditation and Mindfulness Effects on Overall Anxiety and Test Anxiety Among College Students. *Mind, Brain, and Education*, *17*(1). https://doi.org/10.1111/mbe.12344

Ijaz, S., Tahir, M., & Irshad, K. (2017). Mindfulness in Salah Prayer and its Association with Mental Health. *Journal of Religion and Health*, *J. Relig.* https://doi.org/10.1007/s10943-017-0413-1

Indrawan, D., & Jalilah, S. R. (2021). Metode Kombinasi/Campuran Bentuk Integrasi Dalam Penelitian. *Jurnal Studi Guru Dan Pembelajaran*, *4*(3), 735–739.

Ingram, E., Honaker, J. M., Pearson, G. A., Ingram, E., Reddick, K., Honaker, J. M., & Pearson, G. A. (2021). Education Making Space for Social and Emotional Learning in Science Education. *Front. Educ.*, *6*(712720). https://doi.org/10.3389/feduc.2021.712720

Isfiani, I. R., & Ekanara, B. (2022). Cognitive Anxiety and Habits of Mind : A Study of the Interrelationships with Biology Learning Outcomes. *Scientiae Educatia: Jurnal Pendidikan Sains*, *11*(2), 94–106.

Jamil, N. L., Nur, S., & Mahmud, D. (2019). Self-Efficacy Relationship on Science Achievement amongst National Secondary School Students. *Creative Education*, *10*, 2509–2527. https://doi.org/10.4236/ce.2019.1011179

Jannah, M., Qomaria, N., Yuniasti, A., & Wulandari, R. (2022). Profil Pemahaman Konsep Siswa dalam Menyelesaikan Soal IPA Konteks Pesapean Ditinjau dari Efikasi Diri. *Jurnal Pendidikan MIPA*, *12*(2), 315–324.

Jerrim, J. (2023). Test anxiety : Is it associated with performance in high- stakes examinations ? *Oxford Review of Education*, *49*(3), 321–341. https://doi.org/10.1080/03054985.2022.2079616

Jirjees, F., Odeh, M., Haddad, A. Al, Ass, R., Hassanin, Y., Obaidi, H. Al, Kharaba, Z., Alfoteih, Y., & Alzoubi, K. H. (2024). Test anxiety and coping strategies among university students an exploratory study in the UAE. *Scientific Reports*, *14*, 1–12. https://doi.org/10.1038/s41598-024-59739-4

Johnson, J. (2024). Effect of emotions on learning, memory, and disorders associated with the changes in expression levels: A narrative review. *Brain Circulation*, *10*(2). https://doi.org/10.4103/bc.bc

Jones, R., Id, M. S., Sparby, T., & Vo, S. (2019). Unpleasant meditation-related experiences in regular meditators : Prevalence , predictors , and conceptual considerations. *PLOS ONE*, *14*(5), 1–18.

Jung, S., Sindermann, C., Yang, H., & Elhai, J. D. (2023). Anxiety - Related Coping Styles and Individual Differences in Primary Emotional Systems Against the Background of Affective Neuroscience Theory : a Study Using Samples. *Trends in Psychology*, *31*(4), 740–756. https://doi.org/10.1007/s43076-022-00161-y

Kamarulbahri, T. M. S. T., Raduan, N. J. N., & Ali, N. F. (2024). The concept of mindfulness in islam. *Journal of Islamic, Social, Economics, and Development (JISED)*, *9*(63). https://doi.org/10.55573/JISED.096306

Kang, N.-H., & Howren, C. (2004). Teaching for Conceptual Understanding. *Science and Children*, *42*(1), 28–32.

Karakaya, F. (2016). Analysis of Primary School Student ' s Science Learning Anxiety According to Some Variables. *Journal of Education and Practice*, *7*(33), 24–31.

Kattmann, U. (2012). Students' alternative conceptions of animal classification. *Annales Universitatis Paedagogicae Cracoviensis*.

Kaya, E., & Yildirim, A. (2014). Science Anxiety among Failing Students. *Elementary Education Online*, *13*(2), 518–525.

Khairunnisa, I. (2018). *SIKAP ILMIAH SISWA DALAM PEMBELAJARAN IPA DI MI AL-HIKMAH KABUPATEN BANDUNG Oleh : IMANIYAH KHAIRUNNISA TESIS*. UIN Sunan Kalijaga.

Khan, M. (2023). Academic Self-Efficacy , Coping , and Academic Performance in College. *International Journal of Undergraduate Research and Creative Activities*, *5*(1).

Khavula, R. M. (2022). PSYCHOLOGICAL CAUSES AND FACTORS OF BOREDOM IN ADOLESCENCE. *Науковий Вісник Ужгородського Національного Університету*, 121–125.

Kibga, E. S., Sentongo, J., & Gakuba, E. (2021). Effectiveness of Hands- On Activities to Develop Chemistry Learners ' Curiosity in Community Secondary Schools in Tanzania. *Journal of Turkish Science Education*, *18*(4), 605–621.

Kibirige, I. (2021). Exploring the Prevalence of Misconceptions Regarding Heat and Temperature among Grade Nine Natural Science Learners. *Unnes Science Education Journal*, *10*(3), 115–123.

Kiran, D., & Sungur, S. (2012). Middle School Students ' Science Self-Efficacy and Its Sources : Examination of Gender Difference. *Jornal of Science Education Technology*, *21*, 619–630. https://doi.org/10.1007/s10956-011-9351-y

Kumar, A. A. (2023). Perspective Chapter: Emotive Cognition Strategies on Enhancing Meaningful Learning among Undergraduate Student-Teachers. In D. Ortega-Sánchez & K. K. M. Stavropoulos (Eds.), *Education Annual Volume 2023*. IntechOpen Book.

Kumar, A. A., & Chellamani, K. (2020). Effect of Emotive Cognition Strategies on Enhancing Meaningful Learning. *International Journal of Education*, *9*(1).

Kwon, H., Williams, A. M., & Barroso, L. R. (2019). Mathematics and Science Self-efficacy and STEM Careers : A Path Analysis. *Journal of Mathematics Education*, *12*(1), 74–89.

Lalot, F., Delplanque, S., & Sander, D. (2014). Mindful regulation of positive emotions : a comparison with reappraisal and expressive suppression. *Front. Psychol*, *5*(March), 1–9. https://doi.org/10.3389/fpsyg.2014.00243

Lau, C., Kitsantas, A., Miller, A. D., & Rodgers, E. B. D. (2018). Perceived responsibility for learning , self-efficacy , and sources of self- efficacy in mathematics : a study of international baccalaureate primary years programme students. *Social Psychology of Education*, *21*(3), 603–620. https://doi.org/10.1007/s11218-018-9431-4

Lauditta, A. E. K. A., & Ariana, A. D. (2021). Hubungan antara Efikasi diri dengan Kecemasan dalam menghadapi Ujian SBMPTN pada Siswa SMA. *Buletin*

Riset Psikologi Dan Kesehatan Mental, *1*(2), 1246–1252.

Lavoué, E., Kazemitabar, M., Doleck, T., & Lajoie, S. P. (2020). Towards emotion awareness tools to support emotion and appraisal regulation in academic contexts. *Educational Technology Research and Development*, *68*(1), 269–292. https://doi.org/10.1007/s11423-019-09688-x

Lazarus, R. S., & Folkman, S. (1984). *Stress, Appraisal, and Coping*. Springer.

Ledoux, J. E., & Ledoux, J. E. (2015). Feelings: What Are They & How Does the Brain Make Them? *Daedalus: The Journal of the American Academy of Arts & Sciences*, *144*(1), 96–111.

Lembang, G. B., Huwae, A., Siregar, R. M., Menengah, S., Kristen, A., & Toraja, B. (2022). Program Coping Mechanism untuk Mengelola Stres Akademik Siswa di Masa Pandemi COVID-19 (Coping Mechanism Program for Managing Student Academic Stress During The COVID-19 Pandemic). *Devotion: Jurnal Pengabdian Psikologi*, *1*(1), 1–10.

Lengelle, R., Luken, T., & Meijers, F. (2016). *Is self-reflection dangerous ? Preventing rumination in career learning*. *25*(3), 99–109. https://doi.org/10.1177/1038416216670675

Lewis, A., Smith, D., & Lewis, A. (1993). Defining higher order thinking. *Theory Into Practice*, *32*(3), 37–41. https://doi.org/10.1080/00405849309543588

Li, J., Kaltiainen, J., & Hakanen, J. J. (2024). Job boredom as an antecedent of four states of mental health : life satisfaction , positive functioning , anxiety , and depression symptoms among young employees – a latent change score approach. *BMC Public Health*, 1–9. https://doi.org/10.1186/s12889-024-18430-z

Lilier, K., Mikulewicz, M., Selim, S. A., Tauheed, S., Rafia, R., & Jennifer, I. (2024). "What Can We Do?": A Psychological Perspective on (Mal)Adaptive Coping Strategies and Barriers to Coping in an Area of Severe Climate Vulnerability in Bangladesh. *International Journal of Behavioral Medicine*, *0123456789*. https://doi.org/10.1007/s12529-024-10329-8

Lin, T., & Tsai, C. (2013). A Multi-Dimensional Instrument for Evaluating Taiwanese High School Students' Science Learning Self-Efficacy in Relation to Their Approaches to Learning Science. *International Journal of Science and Mathematics Education*, *11*, 1275–1301.

Lindsay, E. K., Chin, B., Greco, C. M., Young, S., Brown, K. W., Wright, G. C., Smyth, J. M., Burkett, D., & Creswell, J. D. (2019). How mindfulness training promotes positive emotions: Dismantling acceptance skills training in two randomized controlled trials. *J. Pers. Soc. Psychol.*, *115*(6), 944–973. https://doi.org/10.1037/pspa0000134.How

Lippincott, W. T. (1979). Why Students Hate Chemistry. *Journal of Chemical Education*, *56*(1), 1979.

Liu, J. (2024). ChatGPT : perspectives from human – computer interaction and psychology. *Front. in Artificial Intelligence*, *7*. https://doi.org/10.3389/frai.2024.1418869

Liu, Y., Pan, H., Yang, R., Wang, X., Rao, J., Zhang, X., & Pan, C. (2021). The relationship between test anxiety and emotion regulation : the mediating effect of psychological resilience. *Annals of General Psychiatry*, *20*(40), 1–9. https://doi.org/10.1186/s12991-021-00360-4

Liu, Y., Yajun, Y., & Zhou, S. (2022). Education for Social Change: Perspectives

on Global Learning by Douglas Bourn. *Education for Change*, *26*(1).

Luan, J., Yang, M., Zhao, Y., Zang, Y., Zhang, Z., & Chen, H. (2023). Aromatherapy with inhalation effectively alleviates the test anxiety of college students : A. *Front. Psychol*, *January*, 1–11. https://doi.org/10.3389/fpsyg.2022.1042553

Lundh, L. (2022). The emancipation of mindfulness from its religious context. *EXPLORE*, *18*(5), 515–516. https://doi.org/10.1016/j.explore.2021.06.003

Luo, L., Song, N., Yang, H., Huang, J., Zhou, L., Zhang, L., & Luo, L. (2021). Intervention Effect of Long-Term Aerobic Training on Anxiety , Depression , and Sleep Quality of Middle School Students With Depression After COVID-19. *Front. Psychiatry*, *12*(October), 1–8. https://doi.org/10.3389/fpsyt.2021.720833

Luo, T., Wing, W., So, M., & Wan, Z. H. (2021). STEM stereotypes predict students ' STEM career interest via self-efficacy and outcome expectations. *International Journal of STEM Education*, *8*(36).

Luo, Z., Subramaniam, G., & O'Steen, B. (2020). Will Anxiety Boost Motivation?The Relationship between Anxiety and Motivation in Foreign Language Learning. *Malaysian Journal of ELT Research*, *17*(1).

Lusi, A., Nalle, A. P., & Saba, K. R. (2023). Hubungan Antara Kecemasan Akademik dengan Self- Efficacy pada Mahasiswa yang sedang menyusun Skripsi di rumpun Ilmu Pendidikan FKIP Universitas Nusa Cendana. *Jurnal Bimbingan Konseling Flobamora*, *1*, 91–100.

Maharani, K., Haryani, A., Rahmawati, D., Suwardiman, D., & Rizkianti, I. (2024). The Relationship of Coping Mechanisms and Mental Health After Breakup. *Health and Technology Journal*, *2*(1), 93–100.

Majali, S. Al. (2020). Positive Anxiety and its Role in Motivation and Achievements among University Students. *International Journal of Instruction*, *13*(4), 975–986.

Malespina, A., & Singh, C. (2022). Gender differences in test anxiety and self-efficacy : why instructors should emphasize low- stakes formative assessments in physics courses Gender differences in test anxiety and self-efficacy : why instructors should emphasize low-stakes formative. *European Journal of Physics*, *43*.

Mallow, J., Kastrup, H., Bryant, F. B., Hislop, N., Shefner, R., & Udo, M. (2010). Science Anxiety , Science Attitudes , and Gender : Interviews from a Binational Study. *J Sci Educ Technol*, *19*, 356–369. https://doi.org/10.1007/s10956-010-9205-z

Mallow, J. V. (1981). *Science anxiety: fear of science and how to overcome it*. Thomond Press.

Mallow, J. V. (1987). Science Anxiety and Gender. *Bull. Sci. Tech. Soc*, *7*, 958–962.

Mansell, W., Barnes, A., Grant, L., & Sousa, L. M. De. (2022). Do meta-emotion strategies and their effects vary in students between their family home and their university home ? *Current Psychology*, *41*, 4920–4930.

Martínez-Pérez, I., García-Rodríguez, A., Morales-Rodríguez, F. M., & Pérez-Mármol, J. M. (2023). Mindfulness Abilities Are Associated with Anxiety Levels, Emotional Intelligence, and Perceived Self-Efficacy. *Sustainability*, *15*(4729), 1–14. https://doi.org/https://doi.org/10.3390/su15064729

Maskour, L., Alami, A., Zaki, M., & Agorram, B. (2019). Plant Classification Knowledge and Misconceptions among University Students in Morocco. *Education Sciences*, *9*(48). https://doi.org/10.3390/educsci9010048

Mason, M. F., Norton, M. I., Horn, J. D. Van, Wegner, D. M., Scott, T., & Macrae, C. N. (2007). Wandering Minds: The Default Network and Stimulus-Independent Thought. *Science*, *315*(5810), 393–395.

Masrizal. (2011). Mixed Method Research. *Jurnal Kesehatan Masyarakat*, *6*(1), 53–56.

Mcewen, B. S., Nasca, C., & Gray, J. D. (2016). Stress Effects on Neuronal Structure : Hippocampus , Amygdala , and Prefrontal Cortex. *Neuropsychopharmacology*, *41*, 3–23. https://doi.org/10.1038/npp.2015.171

Megreya, A. M., & Al-emadi, A. A. (2023). The impacts of math anxiety, science anxiety, and gender on arts versus sciences choices in Qatari secondary schools. *PeerJ*. https://doi.org/10.7717/peerj.14510

Megreya, A. M., Denes, S., & Moustafa, A. A. (2021). The Abbreviated Science Anxiety Scale: Psychometric properties, gender differences and associations with test anxiety, general anxiety and science achievement. *PLOS ONE*, *16*(2), 1–20. https://doi.org/10.1371/journal.pone.0245200

Meidayanti, P. M., & Hidayat, A. (2019). Analisis Efikasi Diri Siswa pada Pembelajaran Sains Berdasarkan Kuesioner yang Dikembangkan Lin dan Tsai. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 556–561.

Membiela, P., González, A., Acosta, K., & Yebra, M. A. (2023). Motivation to learn science, emotions in science classes, and engagement towards science studies in Chilean and Spanish compulsory secondary education students. *Science Education*, *104*(4), 939–963. https://doi.org/10.1002/sce.21793

Menon, V., & Uddin, L. Q. (2010). Saliency, switching, attention and control: a network model of insula function. *Brain Structure Function*, *214*(5–6), 655–667. https://doi.org/10.1007/s00429-010-0262-0.Saliency

Mercader-rubio, I., Guti, N., & Silva, S. (2023). Levels of Somatic Anxiety, Cognitive Anxiety, and Self-Efficacy in University Athletes from a Spanish Public University and Their Relationship with Basic Psychological Needs. *International Journal of Environmental Research and Publich Health*, *20*(2415).

Mercer-lynn, K. B., Bar, R. J., & Eastwood, J. D. (2014). Causes of boredom : The person, the situation, or both ? *Personality and Individual Differences*, *56*, 122–126. https://doi.org/10.1016/j.paid.2013.08.034

Miles, J. A., & Naumann, S. E. (2021). Science self-efficacy in the relationship between gender & science identity. *International Journal of Science Education*, *43*(1).

Millar, R. (2010). *ANALYSING PRACTICAL SCIENCE ACTIVITIES TO ASSESS AND IMPROVE THEIR EFFECTIVENESS*. Association for Science Education.

Mogg, K., & Bradley, B. P. (1998). A cognitive-motivational analysis of anxiety. *Behaviour Research and Therapy*, *36*, 809–848.

Morgenroth, O., Keck, M., & Gensicke, M. (2021). Time will tell: Time perspective as a source for metacognitive emotion-focused coping and its measurement. *Personality and Individual Differences*, *168*. https://doi.org/10.1016/j.paid.2020.110367

Morrison, R., Paz-Diaz, C., Gutierres, P., Frias, C., Espinosa, A., Gonzalez, A., Mella, S., & Lopez, I. (2020). Effects of active meditation on physical and psycho-emotional stress indicators in Chilean health sciences students. A pilot study. *Rev. Fac. Med*, *68*(4). https://doi.org/10.15446/revfacmed.v68n4.77122

Muhammad, N. I., Amran, M., & DH, S. (2021). Hubungan antara Efikasi Diri dengan Kemampuan Berpikir Kritis IPA Siswa. *Jurnal Pendidikan Dasar Dan Menengah (Dikdasmen)*, *1*(1), 12–20. https://doi.org/10.31960/dikdasmen-v1i1-1060

Munoz, A. S.-A., Lopez, M. F. P., & Vieitez, J. C. (2018). Self-efficacy and anxiety in female hospital healthcare workers. *Ansiedad y Estres*, *24*, 99–104.

Murphy, K. M., & Kelp, N. C. (2023). Undergraduate STEM Students ' Science Communication Skills , Science Identity , and Science Self-Ef fi cacy In fl uence Their Motivations and Behaviors in STEM Community Engagement. *Journal of Microbiology and Biology Education*, *24*(1).

Musgrove, M. M. C., Cooley, A., Feiten, O., Petrie, K., & Schussler, E. E. (2021). To Cope or Not to Cope ? Characterizing Biology Graduate Teaching Assistant (GTA) Coping with Teaching and Research Anxieties. *CBE—Life Sciences Education*, *20*, 1–18. https://doi.org/10.1187/cbe.20-08-0175

Musisi, M., Kibanja, G., & Tumwebaze, C. (2021). Gender , Science Self-efficacy and Science Related Career Aspirations among Ordinary Level Students in Uganda : A Case of Wakiso District. *International Journal of Applied Psychology*, *11*(1), 12–23. https://doi.org/10.5923/j.ijap.20211101.02

Naganuma, S. (2020). Why students ' interest in science declined ? On Focus Group of Japanese Undergraduate Students. *International Conference New Perspectives in Science Education*.

Naparin, M., Rumansyah, & Almubarak. (2020). Identification of Critical Thinking Skills and Self Efficacy Students of Class XI IPA High School Of Banjarmasin City In Reaction Rate. *JCAE, Journal of Chemistry and Education*, *3*(3), 106–117.

Navarro, J., Multon, M., Petit, M., & Claude, M. (2025). Transportation Research Part F : Psychology and Behaviour We all fall for it : Influence of driving experience , level of cognitive control engaged and actual exposure to the driving situations on the Dunning-Kruger effect. *Transportation Research Part F: Traffic Psychology and Behaviour*, *109*(July 2024), 1–18.

Naz, A., & Nasreen, A. (2013). An Exploration of Students ' Misconceptions about the Concept ' Classification of Animals ' at Secondary Level and Effectiveness of Inquiry Method for Conceptual Change. *Ankara University, Journal of Faculty of Educational Sciences*, *46*(2), 195–214.

Naz, M. A., Shazia, A., & Khalid, A. (2020). Role of Mindfulness , Religious Coping and Serenity in Institutionalized and Non-Institutionalized Elderly Role of Mindfulness , Religious Coping and Serenity in. *Journal of Spirituality in Mental Health*, *00*(00), 1–17. https://doi.org/10.1080/19349637.2020.1789536

Ndetei, D. M., & Mutiso, V. (2021). Boredom – understanding the emotion and its impact on our lives : an African perspective. *Frontiers in Sociology*, 2018–2021.

Newell, M. J., & Ulrich, P. N. (2022). Gains in Scienti fi c Identity , Scienti fi c Self-Ef fi cacy , and Career Intent Distinguish Upper-Level CUREs from

Traditional Experiences in the Classroom. *Journal of Microbiology and Biology Education*, *23*(3).

Ngan, S. T. J., & Cheng, P. W. (2022). Classification of Mindfulness Meditation and Its Impact on Neural Measures in the Clinical Population. *Front. Psychol*, *13*(June), 1–9. https://doi.org/10.3389/fpsyg.2022.891004

Nhien, C. (2025). How Southeast Asian Students Develop Their Science Self-Efficacy During the First Year of College How Southeast Asian Students Develop Their Science Self- ABSTRACT. *The Journal of Higher Education*, *96*(2), 251–278. https://doi.org/10.1080/00221546.2024.2339173

Ning, H., Ho, J., & Liang, J. (2021). The Interrelationship Among High School Students ' Conceptions of Learning Science , Self-Regulated Learning Science , and Science Learning Self-Efficacy. *International Journal of Science and Mathematics Education*, *20*.

Nissen, J. M. (2019). Gender differences in self-efficacy states in high school physics. *Physical Review Physics Education Research*, *15*(1), 13102. https://doi.org/10.1103/PhysRevPhysEducRes.15.013102

Novanto, Y. S., Djudin, T., T., A. Y., & Murdani, E. (2024). Pengaruh penerapan model pembelajaran POE (Predict-Observe-Explain) dan Efikasi Diri terhadap Kemampuan Pemahaman Konsep IPA Siswa Kelas IV SDN 23 Singkawang. *Jurnal Pendidikan Dasar Indonesia*, *9*(3), 144–156.

Nurfitri, & Muldayanti, N. D. (2018). Analisis Tingkat Kecemasan Siswa Menghadapi Ujian Akhir Semester Pada Mata Pelajaran IPA Kelas VIII Mts. Raudlatul Firdaus. *Jurnal Bioeducation*, *1*(1), 1–7.

Nurhasanah, Lufri, Andromed, & Mufit, F. (2022). Analysis of Students ' Self Efficacy in Science Learning. *Unnes Science Education Journal*, *11*(2), 109–114.

Nuwangi, P. P., Nahadi, Anwar, S., & Riandi. (2023). Penerapan Nilai-nilai Berkelanjutan dalam Pendidikan Perubahan Iklim: Sebuah Kajian Epistemologi dan Aksiologi. *Paradigma: Jurnal Filsafat, Sains, Teknologi, Dan Sosial-Budaya*, *29*(5), 80–88.

Nuwangi, P. P., Riandi, Suwarma, I. R., & Agustin, M. (2025). MEWUJUDKAN PEMBELAJARAN SAINS YANG HUMANIS MELALUI PENDEKATAN BERORIENTASI SOSIO-EMOSIONAL. *Jurnal Pendidikan Modern*, *10*(3), 291–302.

Nuwangi, P. P., Widodo, A., Isnendes, R., Hapsari, F., & Ayuningbudi, W. (2025). Identification of Students ' Science Anxiety : Do Grade Level and Gender Affect It ? *Jurnal Penelitian Pendidikan IPA*, *11*(1), 119–127. https://doi.org/10.29303/jppipa.v11i1.9715

Nwafor, S. C., Eke, J. A., & Ibe, F. N. (2023). Correlation between test anxiety and students ' chemistry achievement. *Journal of Research in Instructional*, *3*(1), 31–40.

O, A. S., A, O. L., U, A. E., & U, A. M. (2019). Classroom science with everyday life : A means for improving performance in sciences and national development in Nigeria. *International Journal of Science and Technology Educational Research*, *10*(3), 25–29. https://doi.org/10.5897/IJSTER2019.0457

OECD. (2023). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education: Vol. I*. OECD Publishing.

Ojala, M. (2012). Regulating worry, promoting hope: How do children, adolescents, and young adults cope with climate change? *International Journal of Environmental & Science Education*, *7*(4), 537–561. https://doi.org/10.4018/978-1-59904-945-8.ch070

Ojala, M. (2013). Coping with climate change among adolescents: Implications for subjective well-being and environmental engagement. *Sustainability (Switzerland)*, *5*(5), 2191–2209. https://doi.org/10.3390/su5052191

Ojala, M. (2015). Hope in the Face of Climate Change: Associations with Environmental Engagement and Student Perceptions of Teachers Emotion Communication Style and Future Orientation. *Journal of Environmental Education*, *46*(3), 133–148. https://doi.org/10.1080/00958964.2015.1021662

Ojala, M. (2017). Hope and anticipation in education for a sustainable future. *Futures*, *94*, 76–84. https://doi.org/10.1016/j.futures.2016.10.004

Oje, O., Adesope, O., & Oje, A. V. (2021). Work in Progress : The Effects of Hands-on Learning on STEM Students ' Work in Progress : The Effects of Hands-on Learning on STEM Students ' Motivation and Self-efficacy : A Meta-Analysis. *2021 ASEE ANNUAL CONFERENCE*. https://doi.org/10.18260/1-2--38204

Onwuegbuchulam, S. P. C. (2022). Towards a Theory of Education for Social Change: Exploring the Nexus between Transformational Education and the Capability Approach. In H. Şenol & K. K. M. Stavropoulos (Eds.), *Pedagogy - Challenges, Recent Advances, New Perspectives, and Applications*. IntechOpen Book.

Oosterwijk, S., Lindquist, K. A., Anderson, E., Dautoff, R., Moriguchi, Y., & Barrett, L. F. (2013). States of mind: Emotions, body feelings, and thoughts share distributed neural networks. *Neuroimage*, *62*(3), 2110–2128. https://doi.org/10.1016/j.neuroimage.2012.05.079.States

Othman, M., Cyril, N., Mangao, D. D., & Ng, K. T. (2022). Southeast Asian Students ' Perspective in Science and Science Education. *DINAMIKA Jurnal Ilmiah Pendidikan Dasar*, *14*(2).

Özbuğutu, E. (2021). An Investigation into Anxiety about the Science Lesson Through a Mixed Model. *Journal of Education and Learning*, *10*(1), 104–117. https://doi.org/10.5539/jel.v10n1p104

Özpir, H. C., Çömez, C. B., & Benzer, E. (2025). Scientific stories in the assessment of higher order thinking skills. *Cogent Education*, *12*(1). https://doi.org/10.1080/2331186X.2025.2460226

Pally, R. (1998). Emotional processing: the mind-body connection. *The International Journal of Psycho-Analysis*, *79 (Pt 2)*, 349–362.

Palmer, T. (2017). Why school students choose and reject science : a study of the factors that students consider when selecting subjects. *International Journal of Science Education*. https://doi.org/10.1080/09500693.2017.1299949

Palmes, H. R. (2023). Science Anxity, Self-esteem, and Science Performance: a correlational study. *Psychology and Education: A Multidisciplinary Journal*, *13*, 969–973. https://doi.org/10.5281/zenodo.8379977

Parikesit, A. A., & Damiyanti, M. (2019). Kecemasan terhadap Mata Ajar Ilmu Pengetahuan Alam (IPA) pada Siswa Sekolah Dasar dan Menengah. *Jurnal Manajemen Pendidikan*, *14*(2), 82–90.

Pascoe, M. C., Manincor, M. De, Tseberja, J., Hallgren, M., Baldwin, P. A., &

Parker, A. G. (2021). Comprehensive Psychoneuroendocrinology Psychobiological mechanisms underlying the mood bene fi ts of meditation : A narrative review. *Comprehensive Psychoneuroendocrinology*, *6*(February), 100037. https://doi.org/10.1016/j.cpnec.2021.100037

Peffer, M. (2020). "I Have Learned to Hate Science." *The American Biology Teacher*, 80309.

Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions : Assumptions , Corollaries , and Implications for Educational Research and Practice. *Educ Psychol Rev*, *18*, 315–341. https://doi.org/10.1007/s10648-006-9029-9

Pekrun, R. (2024). Control - Value Theory : From Achievement Emotion to a General Theory of Human Emotions. In *Educational Psychology Review*. Springer US. https://doi.org/10.1007/s10648-024-09909-7

Pekrun, R., Lichtenfeld, S., Marsh, H. W., Murayama, K., & Goetz, T. (2017). Achievement Emotions and Academic Performance : Longitudinal Models of Reciprocal Effects. *Child Development*, 1–18. https://doi.org/10.1111/cdev.12704

Pekrun, R., & Stephens, E. J. (2009). Goals, Emotions, and Emotion Regulation: Perspectives of the Control-Value Theory: Commentary on Tyson, Linnenbrink-Garcia, and Hill. *Human Development*, *52*(6).

Pekrun, R., & Stephens, E. J. (2012). Academic emotions. In *APA Educational Psychology Handbook: Vol. 2. Individual Differences and Cultural and Contextual Factors*. American Psychological Association. https://doi.org/10.1037/13274-001

Pekrun, R., & Stephens, E. J. (2015). Test Anxiety and Academic Achievement. In *International Encyclopedia of Social & Behavioral Sciences* (Second Edition, Vol. 24). Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.26064-9

Permatasari, S. A., & Prasetyawati, W. (2023). Efforts to Overcome Adolescent Academic Anxiety through Intervention Programs with a Cognitive-Behavioral Therapy Approach. *Bisma The Journal of Conseling*, *7*(1), 130–137.

Pertiwi, F. N., & Astuti, R. Y. (2022). EFIKASI DIRI SISWA PADA PEMBELAJARAN IPA DITINJAU DARI PEMBELAJARAN. *Lensa (Lentera Sains): Jurnal Pendidikan IPA*, *12*(1), 41–50. https://doi.org/10.24929/lensa.

Peters, S. K., Dunlop, K., & Downar, J. (2016). Cortico-Striatal-Thalamic Loop Circuits of the Salience Network : A Central Pathway in Psychiatric Disease and Treatment. *Frontiers in Systems Neuroscience*, *10*(December), 1–23. https://doi.org/10.3389/fnsys.2016.00104

Pienta, N. J. (2014). Applying Science to Everyday Life. *Journal of Chemical Education*, *91*, 1751–1752.

Pines, A. L., & West, L. H. T. (1986). Conceptual Understanding and Science Learning : An Interpretation of Research within a Sources-of-know ledge. *Science Education*, *70*(5), 583–604.

Ponce, Timothy M. (2024). AI Resume Writing: How Prompt Confidence Shapes Output and AI Literacies. *Business and Professional Communication Quarterly*, 23294906241273316. https://doi.org/10.1177/23294906241273317

Ponnusamy, P., Ponselvakumar, G., & Kowsalya, G. (2022). Effect of Science Practical Activities on Students ' Achievemesnt : A Study in High School Level. *Indian Journal of Natural Sciences*, *13*(73).

Potvin, P., & Hasni, A. (2014). Analysis of the Decline in Interest Towards School Science and Technology from Grades 5 Through 11. *J Sci Educ Technol*, *23*, 784–802. https://doi.org/10.1007/s10956-014-9512-x

Pratiwi, T. P., Munasir, M., & Suprapto, N. (2023). ENHANCING STUDENTS ' SCIENCE COMMUNICATION SKILLS THROUGH. *Jurnal Penelitian Pendidikan Sains*, *10*(1). https://doi.org/10.26740/jpps.v10n1.p1844-1856

Purnama, Z. R., Laely, N., Hamidah, I. S., Ina, K., & Tukan, T. (2023). Hubungan Tingkat Kecemasan Belajar Dan Kemampuan Literasi Sains Dengan Hasil Belajar IPA Mahasiswa PGSD UNSAR. *Jurnal Administrasi Pendidikan*, *2*(2), 375–382.

Purwanti, I. Y., Wangid, M. N., & Aminah, S. (2019). Self-Confidence and Academic Anxiety of College Students. *The Proceeding of 2nd International Seminar on Guidance and Counseling*, 564–568.

Putri, M., Habibie, A., Kartika, P., & Soesilo, M. (2023). " WILL ACTIVE LEARNING EXPERIENCE MAKE YOU BETTER ?" THE EFFECT OF ACTIVE LEARNING ON GENERATION Z ' S SELF- EFFICACY , SELF-ESTEEM , AND FOOD CHOICE WISENESS AT. *Journal of Social Research*, *2*(10), 3495–3502.

Qazi, S., Hussain, I., & Nizamani, M. (2024). Exploring the Impact of Teachers' and Students' Emotional Intelligence on Classroom Dynamics, Behavior Management, and Learning Outcomes. *Journal of Policy Research*, *10*(3), 290–298.

Rahmadani, A., Wilujeng, I., & Afikah, A. (2023). *Students ' Self -Efficacy in Science Learning based on Gender*. *9*(6), 4143–4150. https://doi.org/10.29303/jppipa.v9i6.2873

Raile, P. (2024). The usefulness of ChatGPT for psychotherapists and patients. *Humanities & Social Sciences Communications*, *11*(47), 1–8. https://doi.org/10.1057/s41599-023-02567-0

Rava, J. A., & Hotez, E. (2021). Mindfulness and Wellbeing Among College Students During the COVID-19 Pandemic : A Qualitative Analysis of Emergent Themes and Concerns. *Cureus*, *13*(12). https://doi.org/10.7759/cureus.20755

Razavi, S. A., Shahrabi, A., & Siamian, H. (2017). The Relationship Between Research Anxiety and Self-Efficacy. *Mater Sociomed*, *29*(1), 247–250. https://doi.org/10.5455/msm.2017.29.247-250

Rebolledo-Mendez, G., & Huerta-Oacheco, N. S. (2021). Meta-Affective Behaviour within an Intelligent Tutoring System for Mathematics. *International Journal of Artificial Intelligence in Education*, *32*, 174–195. https://doi.org/https://doi.org/10.1007/s40593-021-00247-1

Reddin, V. M., Lee, D., & Pottorf, O. (2024). Effects of Mindfulness Training in Reducing Anxiety Levels for College Students. *International Journal of Education and Research*, *12*(1), 1–10.

Retnawati, H., Djidu, H., Sembilanbelas, U., Kolaka, N., Kartianom, K., & Apino, E. (2018). TEACHERS ' KNOWLEDGE ABOUT HIGHER-ORDER THINKING SKILLS AND. *Problems of Education in the 21st Century*, *2*.

https://doi.org/10.33225/pec/18.76.215
Rezai, A., Soyoof, A., & Lee, B. (2024). Disclosing the Correlation Between Using ChatGPT and Well-Being in EFL Learners : Considering the Mediating Role of Emotion Regulation Disclosing the Correlation Between Using ChatGPT and Being in EFL Learners : Considering the Mediating Role of Emotion R. *European Journal of Education*, *September*. https://doi.org/10.1111/ejed.12752
Rieber, R. W., & Carton, A. S. (1987). The Development of Scientific Concepts in Childhood. In *The Collected Works of L. S. Vygotsky*. Springer.
Robinson, K. A., Perez, T., White-Levatich, A., & Linnebrink-Garcia, L. (2022). Gender Differences and Roles of Two Science Self-Efficacy Beliefs in Predicting Post-College Outcomes. *J Exp Educ*, *90*(2), 344–363.
Robson, D. (2021). *How too much mindfulness can spike anxiety*. BBC. https://www.bbc.com/
Rod, K. (2015). OBSERVING THE EFFECTS OF MINDFULNESS-BASED MEDITATION ON ANXIETY AND DEPRESSION IN CHRONIC PAIN PATIENTS. *Psychiatria Danubina*, *27*(1), 209–211.
Rodriguez-donaire, S. (2024). Influence of Prompts Structure on the Perception and Enhancement of Learning through LLMs in Online Educational Contexts. In S. Goundar (Ed.), *Massive Open Online Courses - Learning Frontiers and Novel Innovations*. IntechOpen Book.
Rohandi. (2017). Teaching and Learning Science: Students' Perspective. *International Journal of Indonesian Education and Teaching*, *1*(1), 16–31.
Rot, A. (2016). *From Anxiety to Boredom: Heidegger, Freud, and The Emotional History of Secularization*. John Hopkins University.
Rowland, D. L., & Lankveld, J. J. D. M. (2019). Anxiety and Performance in Sex, Sport, and Stage: Identifying Common Ground. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.01615
Rüschenpöhler, L., & Markic, S. (2020). How the home environment shapes students' perceptions of their abilities: the relation between chemistry capital at home and students' chemistry self-concept. *International Journal of Science Education*, *42*(12), 2075–2094. https://doi.org/10.1080/09500693.2020.1812010
Rusyati, L. (2023). *Strategies for Building Students' Meta-affective and Meta-cognitive in Science Learning*. Universitas Pendidikan Indonesia.
Rutherford, F. J. (1972). A Humanistic Approach To Science Teaching. *NASSP Bulletin*, *56*(361), 53–62.
Saepuloh, D., Sabur, A., Lestari, S., & Siti, U. (2021). Improving Students ' Critical Thinking and Self-Efficacy by Learning Higher Order Thinking Skills Through Problem Based Learning Models. *JPIt*, *10*(3), 495–504. https://doi.org/10.23887/jpi-undiksha.v10i3.31029
Sainio, P., Eklund, K., Hirvonen, R., Ahonen, T., & Kiuru, N. (2020). Adolescents ' Academic Emotions and Academic Achievement Across the Transition to Lower Secondary School : The Role of Learning Difficulties Adolescents ' Academic Emotions and Academic Achievement Across the Transition to Lower Secondary School : The Rol. *Scandinavian Journal of Educational Research*, 1–19. https://doi.org/10.1080/00313831.2019.1705900
Sakellariou, C., & Fang, Z. (2021). Self-efficacy and interest in STEM subjects as

predictors of the STEM gender gap in the US : The role of unobserved heterogeneity. *International Journal of Educational Research*, *109*. https://doi.org/10.1016/j.ijer.2021.101821

Sanstad, E. A. (2018). *The Fear of Science : a Study of Science Anxiety and the Learning Capabilities of Adult College Students* (Issue December). The University of Wisconsin-Milwaukee.

Santos, A. C., Simoes, C., Cefai, C., Freitas, E., & Arriaga, P. (2021). Emotion regulation and student engagement: Age and gender differences during adolescence. *International Journal of Educational Research*, *109*. https://doi.org/10.1016/j.ijer.2021.101830

Saputra, H., & Mustika, D. (2022). Analysis the Conceptual Understanding Level Understanding Model of Pre-Service Physics Teacher. *Jurnal Penelitian Pendidikan IPA*, *8*(5), 2367–2372. https://doi.org/10.29303/jppipa.v8i5.2246

Sari, N. L. G. E. P., Suma, I. K., & Subagia, I. W. (2023). PENGARUH MODEL PEMBELAJARAN BERBASIS MASALAH DAN. *Jurnal Pendidikan Dan Pembelajaran IPA Indonesia*, *13*(2), 57–65.

Savina, E., & Fulton, C. (2024). Students' and teachers' emotions in the classroom: an ecological dynamic systems perspective. *European Journal of Psychology of Education*, *39*(3), 2763–2781. https://doi.org/10.1007/s10212-024-00880-z

Schoeberlein, D., & Sheth, S. (2009). *Mindful Teaching and Teaching Mindfulness*. Wisdom Publication.

Schuman-Olivier, Z., Trombka, M., Lovas, D. A., Brewer, J. A., Vago, D. R., Gawande, R., Dunne, J. P., Lazar, S. W., Loucks, E. B., & Fulwiler, C. (2020). Mindfulness and Behavior Change. *Harvard Review of Psychiatry*, *28*(6), 371–394. https://doi.org/10.1097/HRP.0000000000000277

Schunk, D. H., & Dibenedetto, M. K. (2021). Self-efficacy and human motivation. In *Advances in Motivation Science* (1st ed., Vol. 8). Elsevier Inc. https://doi.org/10.1016/bs.adms.2020.10.001

Sharp, A. (2012). Humanistic Approaches to Learning. In *Encyclopedia of the Sciences of Learning*. Springer.

Shcheglova, I., Costley, J., Gorbunova, E., Lange, C., Shcheglova, I., Costley, J., Gorbunova, E., & Lange, C. (2025). Does activation of higher-order thinking skills lead to students (dis) satisfaction with their academic experience ? *Innovations in Education and Teaching International*, *62*(1), 31–44. https://doi.org/10.1080/14703297.2024.2332738

Shirazi, S. (2017). Student experience of school science. *International Journal of Science Education*. https://doi.org/10.1080/09500693.2017.1356943

Shivni, R., Cline, C., Newport, M., Yuan, S., & Bergan-roller, H. E. (2021). Establishing a baseline of science communication skills in an undergraduate environmental science course. *International Journal of STEM Education*, *8*(47).

Sihaloho, L., Rahayu, A., & Wibowo, L. A. (2018). Pengaruh Metakognitif terhadap Hasil Belajar pada Mata Pelajaran Ekonomi Melalui Efikasi Diri Siswa. *Jurnal Ekonomi Pendidikan Dan Kewirausahaan*, *6*(2), 121–136. https://doi.org/10.26740/jepk.v6n2.p121-136

Siswadi, G. A. (2023). Konsep Pendidikan Naturalistik Jean Jacques Rousseau dan Relevansinya bagi Pengembangan Sistem Merdeka Belajar di Indonesia. *Bawi Ayah: Jurnal Pendidikan Agama Dan Budaya Hindu*, *XIV*(2), 59–75.

Smits, J. M., & Owen, S. V. (1994). Explaining Science Self-Efficacy. *AERA*.

Sormaz, M., Murphy, C., Wang, H., Hymers, M., Karapanagiotidis, T., & Poerio, G. (2018). Default mode network can support the level of detail in experience during active task states. *PNAS*, *115*(37), 9318–9323. https://doi.org/10.1073/pnas.1721259115

Spielberg, C. D., Averill, J. R., McReynolds, P., Zuckerman, M., Hodges, W. F., Goulet, L. R., Phillips, B. N., & Martin, B. (1972). *Needed Research on Stress and Anxiety: A Special Report of The USOE-Sponsored Grant Study (Critical Appraisal of Reseach in The Personality-Emotions-Motivation Domain)*.

Stapleton, P., Dispenza, J., & Douglas, A. (2024). " Let ' s keep calm and breathe "— A mindfulness meditation program in school and its effects on children ' s behavior and emotional awareness : An Australian pilot study. *Psychology in the School*, *61*, 3679–3698. https://doi.org/10.1002/pits.23249

Steinberg, L., & Morris, S. A. (2001). Adolescent Development. *Annual Review Psychology*, *52*, 83–110. https://psycnet.apa.org/record/2001-00511-004

Stensrud, R., & Stensrud, K. (1983). Coping Skills Training : A Systematic Approach to Stress Management Counseling. *The Personnel and Guidance Journal*. https://doi.org/10.1111/j.2164-4918.1983.tb00189.x

Stone, O., & Zahavi, D. (2022). Bare attention, dereification, and meta-awareness in mindfulness. In R. Repetti (Ed.), *Routledge Handbook on the Philosophy of Meditation*. Routledge.

Sugara, G. S., Ayu, S. R., & Muhajirin, M. (2024). ANALYSIS OF COPING STRATEGY TRENDS IN JUNIOR HIGH SCHOOL STUDENTS. *Psikoedu: Journal of Guidance and Counseling*, *4*(2), 1–18.

Suherman, D. P., Purwianingsih, W., & Diana, S. (2018). The Analysis of Self-efficacy and Metacognitive and Its Relation with Academic Performance of High School Students Based on Gender on Genetics Concept. *Assimilation: Indonesian Journal of Biology Education*, *1*(1), 14–20.

Sujadi, E. (2022). Mindfulness, Self-Compassion, Resilience, and Academic Anxiety among College Students: A Structural Equation Modeling Approach. *Tarbawi: Jurnal Ilmu Pendidikan*, *18*(2), 122–139.

Sukamti, N., Keliat, B. A., & Wardani, I. Y. (2019). The influence of coping skills training and family health education on self-esteem among adolescents in substance abuse prevention &. *Enfermeria Clinica*, *29*, 532–534.

Sumarto. (2019). Budaya, Pemahaman dan Penerapannya. *Jurnal Literasiologi*, *1*(2), 16. https://doi.org/10.47783/literasiologi.v1i2.49

Sun, G., & Lyu, B. (2022). Relationship between emotional intelligence and self - efficacy among college students : the mediating role of coping styles. *Discover Psychology*, *2*(42). https://doi.org/10.1007/s44202-022-00055-1

Supandi, D., Khotimah, K., & S., S. U. (2024). Pengaruh Efikasi Diri dan Kreativitas belajar terhadap Sikap Ilmiah IPA (Survei pada SMP Islam Swasta di Kota Bekasi). *Secondary: Jurnal Inovasi Pendidikan Menengah*, *4*(3), 123–134.

Supriadi, N., Z, W. J., & Suherman, S. (2024). The role of learning anxiety and mathematical reasoning as predictor of promoting learning motivation : The mediating role of mathematical problem solving. *Thinking Skills and Creativity*, *52*(December 2023), 101497. https://doi.org/10.1016/j.tsc.2024.101497

Suri, R. K., & Pareek, S. (2024). *Boredom: Warning Sign for Procrastination and Anxiety*. Talk To Angel. https://www.talktoangel.com/

Susanto, E., & Novitasari, Y. (2024). Implications of the Dunning - Kruger Effect for Counselors in Counseling Practice : A Systematic Review. *Guidena: Jurnal Ilmu Pendidikan, Psikologi, Bimbingan Dan Konseling*, 749–758.

Taber, K. S. (2017). Reflecting the Nature of Science in Science Education. In K. S. Taber & B. Akpan (Eds.), *Science Education: An International Course Companion* (pp. 23–37). SensePublishers Rotterndam.

Takhdat, K., Rebahi, H., Rooney, D. M., Babram, M. A., Benali, A., Tauzani, S., Lamtali, S., & El Adib, A. L. (2024). The impact of brief mindfulness meditation on anxiety, cognitive load, and teamwork in emergency simulation training: A randomized controlled trial. *Nurse Education Today*, *132*.

Tan, C. Y., Gao, L., & Hong, X. (2023). Socioeconomic status and students science self-efficacy. *British Educational Research Journal*, *49*(4).

Tanggira, T., & Subagiyo, L. (2022). High School Students ' Misconceptions on Materials of Temperature and Heat Using Three-Tier Diagnostic Tests Assisted by Live Worksheets. *Berkala Ilmiah Pendidikan Fisika*, *10*(1). https://doi.org/10.20527/bipf.v10i1.11378

Thakur, M., & Kaur, P. (2013). RELATIONSHIP BETWEEN SELF-EFFICACY AND ANXIETY OF SECONDARY SCHOOL STUDENTS ACROSS GENDER GROUP. *International Journal of Behavioral Social and Movement Sciences*, *02*(1), 144–148.

Thomas, A. R., Maike, G., Donker, M., Bieleke, M., Caltabiano, A., & Mainhard, T. (2023). Control, anxiety and test performance: Self-reported and physiological indicators of anxiety as mediators. *British Journal of Educational Psychology*, *93*(1), 72–89. https://doi.org/10.1111/bjep.12536

Thomas, J., Furber, S. W., & Grey, I. (2018). The rise of mindfulness and its resonance with the Islamic tradition. *Mental Health, Religion & Culture*, 1–13. https://doi.org/10.1080/13674676.2017.1412410

Timbers, V. L., & Hollenberger, J. C. (2022). Christian Mindfulness and Mental Health : Coping through Sacred Traditions and Embodied Awareness. *Religions*, *13*(1), 1–13.

Todd, B. C. (2020). *Factors Influencing Student Interest in Science at School by Submitted in Partial Fulfillment of the Requirements for the Master of Arts Degree In Education*. California State University San Marcos.

Tracy, C. B., Driessen, E. P., Beatty, A. E., Lamb, T., Pruett, J. E., Botello, J. D., Brittain, C., Ford, Í. C., Josefson, C. C., Klabacka, R. L., Smith, T., Steele, A., Zhong, M., Bowling, S., Dixon, L., & Ballen, C. J. (2022). Why Students Struggle in Undergraduate Biology: Sources and Solutions. *CBE—Life Sciences Education*, *21*(48), 1–14. https://doi.org/10.1187/cbe.21-09-0289

Treadwell, T., & Matsika, C. (2007). A Research into the Problems of Students Not Completing Homework Assignments in the Middle School : The Case of Weaver Middle School in Bibb County , Georgia A Research into the Problems of Students Not Completing Homework ~ ents in the Middle School : Th. *The Corinthian: The Journal of Student Research at GSCU*, *8*.

Trowbridge, J. E., & Mintzes, J. (1985). Students' Alternative Conceptions of Animals and Animal Classification. *School Science and Mathematics*, *85*(April 1985), 304–316.

Ucak, E., & Say, S. (2018). Analyzing the Secondary School Students' Anxiety towards Science Course in Terms of a Number of Variables. *European Journal of Educational Research*, *8*(1), 63–71. https://doi.org/10.12973/eu-jer.8.1.63

Ugwuanyi, C. S., Okeke, C. I. O., & Ageda, T. A. (2020). Motivation and Self-efficacy as Predictors of Learners ' Academic Achievement. *J Sociology Soc Anth*, *11*(3–4), 215–222. https://doi.org/10.31901/24566764.2020/11.3-4.351

UNESCO. (2010). *Climate Change Education for Sustainable Development: The UNESCO Climate Change Initiative* (No. 0000190101; ED.2010/WS/41). https://doi.org/10.1097/01.NAJ.0000577348.86760.b3

UNESCO. (2018). Education for Sustainable Development and the SDGs: Learning to Act, Learning to Achieve. In *UNESCO Global Action Programme on Education for Sustainability Development*.

UNESCO. (2023a). *Climate Change Education for Sustainable Development (CCESD)*. https://www.unesco.org/

UNESCO. (2023b). *Education for Sustainable Development A roadmap*. UNESCO.

United Nations Indonesia. (2024). *Sustainability Development Goals: Quality Education*.

Vaillant, G. E. (2011). Involuntary coping mechanism: a psychodynamic perspective. *Dialogues in Clinical Neuroscience*, *13*(3), 366–370.

Valenci, M. I. C. (2018). Introducing Education for Sustainable Development (ESD) in The Educational Institutions in The Philippines. *Journal of Sustainable Development Education and Research*, *2*(1), 51–57.

Vanutelli, M. E., Hommel, B., & Cancer, A. (2024). Editorial : Moving the mind , thinking the body : new insights on the mind-body connection from the neuroscience of movement , sports , arts , yoga , and meditation. *Front. in Human Neuroscience*, *18*.

Vasconcelos, C., & Orion, N. (2021). *Earth Science Education as a Key Component of Education for Sustainability*. 1–11.

Verduyn, P., & Lavrijsen, S. (2015). Which emotions last longest and why : The role of event importance and rumination. *Motiv Emot*, *39*. https://doi.org/10.1007/s11031-014-9445-y

Vilmala, B. K., Kaniawati, I., Suhandi, A., & Permanasari, A. (2022). *A Literature Review on Education for Sustainable Development (ESD) in Science Learning : What, Why, and How*. *5*(1), 35–44. https://doi.org/10.24014/jnsi.v5i1.15342

Vzorin, G. D., & Bukinich, A. M. (2024). *e Emotional Intelligence of the GPT-4 Large Language Model*. *17*(2).

Waack, S. (2018). *Hattie Ranking: 252 Influences And Effect Sizes Related To Student Achievement*. https://visible-learning.org/

Waddington, J. (2023). Self-efficacy. *ELT Journal*, *January*. https://doi.org/10.1093/elt/ccac046

Wang, C., Wang, B., & Xu, D. (2025). The role of ChatGPT and grammarly in promoting emotion regulation , psychological well-being , motivation , and academic writing in Chinese college students : A self-determination theory perspective. *Learning and Motivation*, *90*(April), 102131. https://doi.org/10.1016/j.lmot.2025.102131

Wang, L., & Yu, Z. (2023). Gender-moderated effects of academic self-concept on

achievement, motivation, performance, and self-efficacy: A systematic review. *Front. Psychol*.

Wang, R., Zhao, Z., & Li, L. (2024). The relationship between boredom proneness , the behavioral inhibition system , and anxiety in college students : variable-centered and person-centered analytic approaches. *Frontiers in Psychology*, 1–8. https://doi.org/10.3389/fpsyg.2024.1414736

Wardhani, P. A. (2015). EFIKASI DIRI DAN PEMAHAMAN KONSEP IPA DENGAN HASIL BELAJAR ILMU PENGETAHUAN ALAM SISWA SEKOLAH DASAR NEGERI KOTA BENGKULU. *Jurnal Pendidikan Dasar*, *6*(1).

Watford, T. S. (2014). The Impact of Mindfulness on Emotion Dysregulation and Psychophysiological Reactivity under Emotional Provocation. In *Thesis and Disertation*. University of South Carolina.

Web-Williams, J. (2018). Science Self-Efficacy in the Primary Classroom: Using Mixed Methods to Investigate Sources of Self-Efficacy. *Research in Science and Technological Education*, *48*.

Wetering, J. Van De, Leijten, P., Spitzer, J., & Thomaes, S. (2022). Does environmental education benefit environmental outcomes in children and adolescents ? A meta-analysis. *Journal of Environmental Psychology*, *81*(March), 101782. https://doi.org/10.1016/j.jenvp.2022.101782

Widodo, A., Riandi, Sriyati, S., Purwianingsih, W., Rochintaniawati, D., Solihat, R., & Siswandari, P. (2023). *Pengembangan Nilai-nilai Keberlanjutan dalam Pelajaran Sains*. UPI Press.

Widyastuti, I., Supriadi, D., Fitriana, A., Prakoso, A. H., Prasetyo, E. E., Nugraha, B. P. S. P., & Guslina, L. (2020). Affective-Humanistic Approach in Online Learning Practices. *International Conference on Technology, Education, and Science (InCoTES)*, 152–155.

Williams, M. M., & George-Jackson, C. E. (2014). USING AND DOING SCIENCE : GENDER , SELF-EFFICACY , AND SCIENCE IDENTITY OF UNDERGRADUATE STUDENTS IN STEM. *Journal of Women and Minorities in Science and Engineering*, *20*(2). https://doi.org/10.1615/JWomenMinorScienEng.2014004477

Wong, B., Chiu, Y. T., Murray, Ó. M., Horsburgh, J., Copsey-blake, M., Wong, B., Chiu, Y. T., Murray, Ó. M., & Horsburgh, J. (2023). International Studies in Sociology of Education ‘ Biology is easy , physics is hard ’: Student perceptions of the ideal and the typical student across STEM higher education. *International Studies in Sociology of Education*, *32*(1), 118–139. https://doi.org/10.1080/09620214.2022.2122532

Woods-McConney, A., Oliver, M. C., McConey, A., & Schibcci, R. (2011). Science Engagement and Literacy : A Retrospective Analysis for Indigenous and Non-Indigenous Students in Aotearoa New Zealand and Australia Science Engagement and Literacy : A Retrospective Analysis for Indigenous and Non-Indigenous Students in Aotearoa N. *Res. Sci. Educ*, *43*. https://doi.org/10.1007/s11165-011-9265-y

Wu, R., Liu, L., Zhu, H., Su, W., Cao, Z., & Zhong, S. (2019). Brief Mindfulness Meditation Improves Emotion Processing. *Front. in Neuroscience*, *13*, 1–10. https://doi.org/10.3389/fnins.2019.01074

Xu, J. (2013). Why Do Students Have Difficulties Completing Homework ? The

Need for Homework Management. *Journal of Education and Training Studies*, *1*(1), 98–105. https://doi.org/10.11114/jets.v1i1.78

Yang, G., Badri, M., Al-Mazroui, K., & Al-Rashedi, A. (2017). Science as Interests but not for Career : Understanding High School Students ' Engagement in Science in Abu Dhabi. *Eurasia Journal of Mathematics, Science and Technology Education*, *13*(7), 3621–3639. https://doi.org/10.12973/eurasia.2017.00

Yang, Q., Bos, K. Van Den, & Li, Y. (2021). Intolerance of uncertainty, future time perspective, and self-control. *Personality and Individual Differences*, *177*.

Yang, X., Zhang, M., Kong, L., Wang, Q., & Chao, J. (2021). The Effects of Scientific Self - efficacy and Cognitive Anxiety on Science Engagement with the " Question - Observation - Doing - Explanation " Model during School Disruption in COVID - 19 Pandemic. *Journal of Science Education and Technology*, *30*, 380–393. https://doi.org/10.1007/s10956-020-09877-x

Yasa, I. K. D., Pudjawan, K., Ayu, I. G., & Agustiana, T. (2020). Peningkatan Efikasi Diri Siswa Pada Mata Pelajaran IPA Kelas IV SD Melalui Model Pembelajaran Numbered Head Together. *Mimbar PGSD Undiksha*, *8*(3), 330–341.

Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology*, *18*(5).

Yilmaz, M. M. (2024). Inspiring an Early Passion for Science : The Impact of Hands-on Activities on Children ' s Motivation. *ECNU Review of Education*, *7*(4). https://doi.org/10.1177/20965311241265413

Yousaf, O., Love, S., Ramsay, J. E., & Yousaf, O. (2025). The relationship between mindfulness and religious faith : validation of the Mindfulness during Worship Scale (MWS) in a British Muslim sample. *Mental Health, Religion & Culture*, 1–15. https://doi.org/10.1080/13674676.2024.2374353

Yusefzadeh, H., Iranagh, J. A., & Nabilou, B. (2019). The effect of study preparation on test anxiety and performance : a quasi-experimental study. *Advances in Medical Education and Practice*, *10*.

Yusna, N. (2021). *INVESTIGASI TINGKAT KECEMASAN MAHASISWA SAINS DAN PENDIDIKAN SAINS TERHADAP MATA KULIAH KIMIA DASAR*. UIN Syarif Hidayatullah Jakarta.

Zahra, O. A., Oktavianti, I., & Hilyana, F. S. (2024). HUBUNGAN EFIKASI DIRI DAN REGULASI DIRI TERHADAP TANGGUNG JAWAB BELAJAR SISWA KELAS IV DI SD GUGUS GATOTKACA. *Pendas: Jurnal Ilmian Pendidikan Dasar*, *9*(2).

Zandi, H., Amirinejhad, A., Azizifar, A., Aibod, S., & Veisani, Y. (2021). The effectiveness of mindfulness training on coping with stress, exam anxiety, and happiness to promote health. *Journal of Education and Health Promotion*, *10*. https://doi.org/10.4103/jehp.jehp

Zhao, J., & Liu, E. (2021). What factors can support students ' deep learning in the online environment : The mediating role of learning self-e cacy and positive academic emotions ? *Front. Psychol*.

Zheng, B. (2020). Self-Efficacy, Academic Motivation, and Self-Regulation: How Do They Predict Academic Achievement for Medical Students? *Medical Science Educator*, 4–9.