

**DESAIN PEMBELAJARAN *READ-ANSWER-DISCUSS-EXPLAIN- CREATE*  
UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN  
PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL**

**DISERTASI**

diajukan untuk memenuhi sebagian syarat memperoleh gelar Doktor  
Pendidikan Ilmu Pengetahuan Alam (IPA)



oleh

**RENDI RESTIANA SUKARDI  
1907502**

**PROGRAM DOKTOR (S3)  
PENDIDIKAN ILMU PENGETAHUAN ALAM  
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM  
UNIVERSITAS PENDIDIKAN INDONESIA  
2023**

HALAMAN PENGESAHAN DISERTASI

Rendi Restiana Sukardi

Desain Pembelajaran *Read-Answer-Discuss-Explain-Create* untuk  
Mengembangkan Penguasaan Konsep, Kreativitas, dan Persepsi  
Komunikasi Peserta Didik SMP di Kelas IPA Bilingual

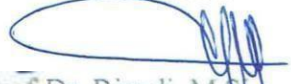
Disetujui dan disahkan oleh panitia disertasi,

Promotor



Prof. Dr. päd. Wahyu Sopandi, M.A.  
NIP. 196605251990011001

Ko-Promotor



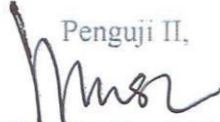
Prof. Dr. Riandi, M.Si.  
NIP. 196305011988031002

Penguji I,



Prof. Dr. R. Asep Kadarohman, M.Si.  
NIP. 196305091987031002

Penguji II,



Dr. Muslim, M.Pd.  
NIP. 196406061990031003

Penguji III,



Prof. Dr. Hayuni Retno Widarti, M.Si.  
NIP. 196408051990012001

Mengetahui,

Ketua Program Studi Pendidikan Ilmu Pengetahuan Alam



Prof. Dr. Ida Kaniawati, M.Si.  
NIP. 19680703199203200

## PERNYATAAN KEASLIAN DISERTASI DAN BEBAS PLAGIARISME

Dengan ini saya menyatakan disertasi dengan judul “Desain Pembelajaran *Read-Answer-Discuss-Explain-Create* untuk Mengembangkan Penguasaan Konsep, Kreativitas, dan Persepsi Komunikasi Peserta Didik SMP di Kelas IPA Bilingual” beserta isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung resiko/sanksi apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2023

Yang membuat pernyataan



Rendi Restiana Sukardi  
NIM. 1907502

Rendi Restiana Sukardi, 2023

*DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL*

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## KATA PENGANTAR

Rasa syukur tak terhingga penulis ucapkan kepada Allah SWT, dengan rahmat dan kasih sayang-Nya penulis dapat menyusun dan menyelesaikan disertasi dengan judul “Desain Pembelajaran RADEC untuk Mengembangkan Penguasaan Konsep, Kreativitas, dan Persepsi Komunikasi Peserta Didik SMP di Kelas IPA Bilingual”, yang merupakan persyaratan untuk memperoleh gelar Doktor Pendidikan Ilmu Pengetahuan Alam. Shalawat dan salam kepada baginda Rasulullah SAW karena perjuangannya kita dapat menikmati indahnya ilmu pengetahuan seperti saat ini.

Penelitian ini memiliki posisi yang penting karena merupakan pengembangan desain pembelajaran RADEC yang tidak hanya meningkatkan penguasaan konsep dan mengembangkan kreativitas namun juga mengembangkan keterampilan berkomunikasi peserta didik dengan menggunakan EMI. Temuan penelitian ini diharapkan menjadi landasan bahwa persepsi komunikasi peserta didik dalam menggunakan bahasa Inggris akan memberikan dampak positif terhadap aktivitas pengembangan kreativitas peserta didik di Indonesia. Penelitian ini memiliki kebaruan yang penting dalam pembelajaran IPA di kelas bilingual.

Penulis mengharapkan kritik dan saran konstruktif dari berbagai pihak demi perbaikan di masa yang akan datang. Harapan penulis kiranya hasil penelitian ini bermanfaat bagi pengembangan pembelajaran IPA ke arah yang lebih baik. Amin ya Rabbal’Alamin.

Bandung, Agustus 2023

Rendi Restiana Sukardi

Rendi Restiana Sukardi, 2023

*DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL*

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## UCAPAN TERIMA KASIH

Dalam penyusunan disertasi ini, penulis menyadari sepenuhnya bahwa penyelesaian disertasi ini tidak terlepas dari bantuan dari berbagai pihak. Oleh karena itu, pada kesempatan ini penulis menyampaikan rasa terima kasih kepada:

1. Bapak Prof. Dr. paed Wahyu Sopandi, M.A., selaku pembimbing akademik sekaligus promotor dalam penulisan disertasi ini yang telah banyak memberikan motivasi, meluangkan waktu dan pemikiran untuk membimbing penyelesaian disertasi ini secara mendalam, sabar serta kritis terhadap permasalahan dari awal bimbingan hingga disertasi ini rampung.
2. Bapak Prof. Dr. Riandi, M.Si., selaku ko-promotor penulisan disertasi yang di sela- sela kesibukan beliau selalu menyempatkan diri untuk memberikan bimbingan dan motivasi dari awal penyusunan hingga penyelesaian disertasi.
3. Ibu Prof. Dr. Ida Kaniawati, M.Si., Ketua Program Studi Pendidikan IPA FPMIPA UPI yang telah banyak memberikan motivasi dan bantuan sehingga penulis dapat menyelesaikan disertasi ini.
4. Keluarga besar *RADEC Research Group* sebagai rekan diskusi yang telah membantu dari proses validasi hingga analisis data.
5. Bapak Prof. Michael Beeth dari *Wisconsin University Oshkosh*, Amerika Serikat, yang telah memberikan bimbingan dan motivasi selama penulisan artikel ilmiah.
6. Bapak Prof. Roel V. Avila dari *Philippine Normal University South Luzon*, Filipina, yang telah memberikan saran konstruktif selama penulisan artikel ilmiah.
7. Bapak Hywel Coleman dari *University of Leeds*, yang telah berbagi dan berdiskusi tentang penggunaan EMI di sekolah menengah Indonesia
8. Ibu Wiwin Sri Wulan, S.Pd., M.I.L. dan Bapak Deni Fauzi Rahman., M.Pd., yang telah membantu dalam perizinan dan pelaksanaan penelitian di sekolah program bilingual.

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN *READ-ANSWER-DISCUSS-EXPLAIN-CREATE* UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

9. Ibu Dr. Yeni Yuniarti, M.Pd., Ketua Program Studi PGSD Kampus UPI di Cibiru periode 2019-2023, yang tidak pernah henti memberikan dukungan dan motivasi sehingga disertasi ini selesai.
10. Almh. Ibu Dr. Margaretha Sri Yuliariatiningsih, M.Pd., yang selalu meyakinkan penulis bahwa perjalanan penyelesaian studi ini akan usai dengan akhir yang indah.
11. Keluarga Besar PGSD Kampus UPI di Cibiru sebagai *supporting system* yang luar biasa bagi penulis sehingga disertasi ini rampung.
12. Keluarga Besar SD Istiqamah Bandung yang tiada henti memberikan dukungan serta semangat kepada penulis.
13. Permata hati yang tidak pernah padam, Alm. H. Rachkim dan Almh. Hj. Nani Sri Nuraeni, yang menjadi penyemangat serta kekuatan penulis untuk terus berjuang menyelesaikan studi ini hingga akhir.
14. Secara khusus ucapan terima kasih penulis sampaikan kepada orang tua, Bapak H. Nana Sujana dan Ibu Hj. Een Ena Noerhayati serta adik tercinta Lutphi Rizky Ramadhan, yang tiada henti memberikan doa dan semangat untuk kelancaran studi penulis hingga akhirnya mencapai titik ini.
15. Teman-teman Kelas Pendidikan IPA 2019 yang sudah kebersamai dan membantu penulis saat menimba ilmu yang tidak bisa penulis sebutkan satu-satu.
16. Florina Salsa Agustin sebagai rekan diskusi yang telah membantu proses perampungan disertasi ini.
17. Semua pihak yang tidak dapat disebutkan satu persatu.

**Rendi Restiana Sukardi, 2023**

**DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL**

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## ABSTRAK

Penelitian ini bertujuan untuk menghasilkan desain pembelajaran RADEC di kelas IPA bilingual sehingga dapat mengembangkan penguasaan konsep, kreativitas, dan persepsi komunikasi peserta didik SMP. Metode penelitian Mixed Method dengan desain Embedded Experimental Model digunakan dalam penelitian ini. Penelitian ini mengimplementasikan proses ADDIE (*Analysis, Design, Development, Implementation, dan Evaluation*) dalam pengembangan desain pembelajarannya. Subjek penelitian adalah 30 peserta didik SMP pada tahap I dan 60 peserta didik SMP pada tahap II dan III. Indikator pengajaran kreatif, keterampilan berpikir kreatif, penguasaan konsep, dan persepsi dalam berkomunikasi digunakan dalam instrumen penelitian. Data diperoleh melalui berbagai instrumen seperti kuesioner, wawancara, tabel pengamatan, dan tes. Hasil penelitian menunjukkan bahwa strategi penggunaan kata kunci dalam bahasa Inggris cocok digunakan dalam desain pembelajaran RADEC di kelas bilingual. Penguasaan konsep dan kreativitas peserta didik di kelas RADEC menunjukkan hasil yang lebih baik dari pada kelas non-RADEC. Selain itu desain pembelajaran RADEC di kelas bilingual juga memiliki pengaruh efek yang besar serta signifikan terhadap persepsi komunikasi dimana tingkat kecemasan peserta didik berkurang, dan keterampilan berkomunikasi serta penguasaan konsepnya meningkat. Penggunaan strategi bilingual dengan kata kunci dalam bahasa Inggris merupakan solusi untuk peserta didik dalam memahami konteks dan konten IPA secara lebih mendalam tanpa cemas dengan penggunaan bahasa Inggris sebagai medium pengajaran (EMI). Rekomendasi penelitian ini adalah untuk melengkapi desain pembelajaran RADEC di kelas IPA bilingual dengan glosarium yang berisi kata kunci dalam bahasa Inggris agar memudahkan peserta didik SMP untuk memahami konten dan konteks IPA secara lebih mendalam dan terstruktur.

**Kata Kunci:** Desain Pembelajaran RADEC, Bilingual, EMI, Penguasaan Konsep, Kreativitas, Persepsi Komunikasi

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## ABSTRACT

The research aims to produce a RADEC learning design in bilingual science classes. It is expected to develop mastery of concepts, creativity, and communication perceptions of secondary school lower-level students. The Mixed Method research method with the Embedded Experimental Model design was used in the research. The research implemented the ADDIE process (Analysis, Design, Development, Implementation, and Evaluation) in developing its learning design. The research subjects were 30 secondary school lower-level students in stage I and 60 secondary school lower-level students in stages II and III. Creative teaching indicators, creative thinking skills, mastery of concepts, and perceptions of communication were used in research instruments. Data were obtained through various instruments such as questionnaires, interviews, observation tables, and tests. The results showed that the strategy of using keywords in English was suitable for use in the bilingual RADEC learning design. Mastery of concepts and creativity of students in the RADEC class showed better results than the non-RADEC class. Besides, the RADEC learning design in the bilingual class also has a large and significant effect on the perception of communication where the anxiety level of students decreases, and their communication skills and mastery of concepts increase. The use of bilingual strategies with keywords in English is a solution for students to understand the context and content of science in more depth without worrying about using English as a teaching medium (EMI). The recommendation of this research is to complement the RADEC learning design in bilingual science classes with a glossary that contains keywords in English to make it easier for secondary school lower-level students to understand the content and context of science in a more in-depth and structured manner.

**Keywords:** RADEC Learning Design, Bilingual, EMI, Mastery Concept, Creativity, Communication Perception

Rendi Restiana Sukardi, 2023

*DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL*

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu



## DAFTAR ISI

LEMBAR PENGESAHAN.....	i
PERNYATAAN KEASLIAN DISERTASI DAN BEBAS PLAGIARISME .....	ii
KATA PENGANTAR.....	iii
UCAPAN TERIMA KASIH .....	iv
ABSTRAK .....	vi
ABSTRACT .....	vii
DAFTAR ISI.....	viii
DAFTAR GAMBAR .....	xii
DAFTAR TABEL .....	xiv
BAB I PENDAHULUAN .....	1
A. Latar Belakang Penelitian.....	1
B. Rumusan Masalah Penelitian .....	14
C. Tujuan Penelitian.....	14
D. Manfaat Penelitian.....	15
E. Definisi Operasional.....	15
F. Struktur Organisasi Disertasi.....	19
BAB II KAJIAN PUSTAKA .....	21
A. Desain Pembelajaran .....	21
B. Model Pembelajaran RADEC .....	28
1. Nilai-Nilai yang Dikembangkan dalam Model Pembelajaran RADEC.....	42
2. Moda Luring, Daring, dan Campuran Pembelajaran RADEC .....	45
C. Penguasaan Konsep Tema Lingkungan.....	48
1. Pengukuran Penguasaan Konsep Tema Lingkungan.....	56
2. Pentingnya Penguasaan Konsep Lingkungan untuk Meningkatkan Kesadaran Lingkungan.....	59
3. Hasil Komparatif tentang Peringkat Kualitas Lingkungan Indonesia .....	62
4. Konsep yang Harus dikuasai Peserta Didik Indonesia .....	64
D. Kreativitas Peserta Didik dalam Pembelajaran IPA .....	67
1. Keterampilan Berpikir Kreatif.....	70
2. Produk Kreatif Peserta Didik dalam Pembelajaran IPA .....	72
3. Rubrik Keterampilan Berpikir Kreatif dan Produk Kreatif.....	74
E. <i>English as Medium Instruction</i> (EMI) dalam IPA.....	81
1. Pembelajaran Bilingual di Sekolah Menengah Pertama .....	85
F. Pembelajaran Lingkungan dalam IPA.....	90
1. Tinjauan Konten Lingkungan dalam Kurikulum 2013.....	93

2.	Tinjauan Konten Lingkungan dalam Kurikulum SDGs .....	102
3.	Tujuan ke-6 Air Bersih dan Sanitasi Layak.....	111
4.	Tujuan ke-13 Penanganan Perubahan Iklim.....	113
G.	Persepsi Komunikasi .....	116
H.	Strategi Pembelajaran IPA dengan Desain RADEC pada Tema Lingkungan di Kelas Bilingual.....	117
I.	Kerangka Pikir Penelitian.....	122
BAB III METODE PENELITIAN .....		131
A.	Desain Penelitian.....	131
1.	Subjek Penelitian.....	131
B.	Instrumen Penelitian.....	131
1.	Tahap <i>Qual Before Intervention</i> dan Tahap ADDIE .....	131
a.	Angket dan Panduan Wawancara Guru.....	134
b.	Angket, Panduan Wawancara Peserta Didik, Lembar Pengamatan, dan Tes Konseptual .....	135
c.	Tabel Analisis Kurikulum .....	137
d.	Analisis <i>Bibliometric</i> dengan <i>VOSviewer</i> .....	137
e.	Catatan Perbaikan Rancangan Pembelajaran .....	140
f.	Lembar Penilaian Ahli .....	140
g.	Tabel Keterlaksanaan Pembelajaran .....	144
h.	<i>The Teaching for Creativity Observation Form (TCOF)</i> .....	146
i.	Rubrik Penilaian Produk Kreatif .....	149
j.	Angket Penggunaan EMI dalam Pembelajaran IPA.....	150
2.	Tahap <i>Intervention</i> dan <i>Qual during Intervention</i> .....	153
a.	Soal Penguasaan Konsep.....	153
b.	Soal Keterampilan Berpikir Kreatif .....	154
c.	Validasi Empiris Soal Penguasaan Konsep dan Keterampilan Berpikir Kreatif Peserta didik .....	157
d.	Angket Kebiasaan Membaca.....	161
3.	Tahap <i>Qual After Intervention</i> .....	162
C.	Pengumpulan dan Pengolahan Data .....	164
1.	Desain Pembelajaran RADEC yang Mengembangkan Kreativitas di Kelas IPA Bilingual.....	168
2.	Penguasaan Konsep dan Kreativitas Peserta Didik melalui Pembelajaran IPA dengan Desain RADEC di Kelas Bilingual .....	173
a.	N-Gain Penguasaan Konsep dan Kreativitas Peserta didik.....	173
b.	Ukuran Efek Pembelajaran RADEC terhadap Kebiasaan Membaca.....	173
c.	Uji Signifikansi Peningkatan Pengetahuan Konsep dan Kreativitas	

Peserta Didik .....	173
d. Kontribusi Pertanyaan Prapembelajaran terhadap Penguasaan Konsep dan Kreativitas Peserta Didik.....	174
e. Identifikasi Produk Kreatif Peserta didik .....	174
3. Persepsi Komunikasi Peserta didik dalam Membangun Kreativitas IPA melalui Model RADEC secara Bilingual .....	175
a. Ukuran Efek dari Implementasi Pembelajaran RADEC dengan EMI terhadap Persepsi Komunikasi Peserta Didik .....	175
b. Uji Signifikansi Peningkatan Profil Komunikasi Peserta Didik.....	175
c. Analisis SWOT ( <i>Strengths- Weaknesses- Opportunities- Threats</i> ) ...	176
D. Prosedur Penelitian.....	176
1. Tahap <i>Qual Before Intervention</i> .....	177
2. Tahap ADDIE.....	177
3. Tahap <i>Intervention</i> dan <i>Qual during Intervention</i> .....	179
4. Tahap <i>Qual After Intervention</i> .....	179
<b>BAB IV HASIL DAN PEMBAHASAN.....</b>	<b>185</b>
A. Desain Pembelajaran RADEC pada Tema Lingkungan untuk Mengembangkan Kreativitas dan Membangun Persepsi Komunikasi Peserta Didik di Kelas IPA Bilingual .....	185
1. Analisis Kebutuhan Guru dan Peserta Didik .....	188
2. Perancangan Desain Pembelajaran RADEC di Kelas Bilingual.....	205
3. Tahap Pengembangan dan Validasi Desain Pembelajaran .....	214
4. Implementasi Desain Pembelajaran.....	217
a. Pengujian Konsistensi Observer.....	217
b. Keterlaksanaan Pembelajaran .....	219
5. Evaluasi Desain Pembelajaran RADEC di Kelas IPA Bilingual.....	243
B. Penguasaan Konsep Peserta Didik pada Materi Lingkungan .....	252
1. N-Gain Penguasaan Konsep Peserta Didik pada Materi Lingkungan .....	253
2. Pengaruh Desain Pembelajaran RADEC di Kelas Bilingual terhadap Pengetahuan Konsep Peserta Didik untuk Setiap Indikator.....	258
3. Kontribusi Pertanyaan Prapembelajaran terhadap Penguasaan Konsep Peserta Didik .....	263
C. Kreativitas Peserta Didik pada Materi Lingkungan .....	265
1. N-Gain Kreativitas Peserta Didik pada Materi Lingkungan.....	265
2. Pengaruh Desain Pembelajaran RADEC di Kelas Bilingual terhadap Keterampilan Berpikir Kreatif Peserta Didik.....	267
3. Kontribusi Pertanyaan Prapembelajaran terhadap Keterampilan Berpikir Kreatif Peserta Didik.....	270

4. Produk Kreatif Peserta Didik terkait Solusi Masalah Lingkungan.....	271
D. Persepsi Komunikasi Peserta Didik dalam Mengembangkan Penguasaan Konsep dan Kreativitas dengan EMI ( <i>English as Medium Instruction</i> ) ...	272
BAB V KESIMPULAN, IMPLIKASI, DAN REKOMENDASI .....	295
A. Kesimpulan Penelitian.....	295
B. Implikasi Penelitian .....	297
C. Rekomendasi Penelitian .....	297
DAFTAR PUSTAKA .....	299
LAMPIRAN .....	330
RIWAYAT HIDUP.....	396

**Rendi Restiana Sukardi, 2023**

**DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN  
PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA  
BILINGUAL**

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

## DAFTAR GAMBAR

Gambar 2.1	Hubungan <i>Actual Development Level</i> dengan ZPD.....	26
Gambar 2.2	Sintaks Model Pembelajaran RADEC.....	38
Gambar 2.3	Sintaks Model Pembelajaran RADEC moda Luring.....	45
Gambar 2.4	Sintaks Model Pembelajaran RADEC moda Daring.....	46
Gambar 2.5	Sintaks Model Pembelajaran RADEC Moda Campuran.....	47
Gambar 2.6	Proses Pergerakan Arus Air Laut.. ..	61
Gambar 2.7	Migrasi Pencemaran Air Laut .....	62
Gambar 2.8	Proses Pencemaran Air Permukaan.....	95
Gambar 2.9	Proses Pencemaran Air Tanah.....	97
Gambar 2.10	Efek Rumah Kaca.....	99
Gambar 2.11	Proses Pemanasan Global.....	100
Gambar 2.12	Tujuan Pembangunan Berkelanjutan.....	103
Gambar 2.13	Kerangka Pikir Penelitian.....	124
Gambar 2.14	Kerangka Penelitian Khusus Desain Pembelajaran RADEC ...	125
Gambar 3.1	Desain Penelitian <i>Embedded Experimental Mode</i> .....	127
Gambar 3.2	Analisis Data Peserta didik terkait Kebutuhan EMI dalam Pembelajaran IPA.....	135
Gambar 3.3	Langkah Literatur Review IPK, KBK, dan RPK .....	169
Gambar 3.4	Pengembangan Desain Pembelajaran RADEC dengan Model ADDIE.....	178
Gambar 4.1	Pilihan Guru IPA terkait Keterampilan Abad 21 .....	183
Gambar 4.2	Strategi Pembelajaran IPA Pilihan Guru.....	184
Gambar 4.3	Visualisasi Jejaring Kata Kunci Berpikir Kreatif.....	185
Gambar 4.4	Pilihan Guru IPA tentang Assesmen Berpikir Kreatif.....	187
Gambar 4.5	Visualisasi Jejaring Kata Kunci EMI dan Kelas IPA.....	190
Gambar 4.6	Perbesaran Visualisasi Jejaring Kata Kunci EMI dan Kelas IPA	191
Gambar 4.7	Infografis Kebutuhan Guru dalam Membangun Penguasaan Konsep dan Kreativitas Peserta didik .....	193
Gambar 4.8	Jawaban Peserta Didik tentang Pertanyaan Konsep IPA .....	199

Gambar 4.9	Langkah-Langkah Desain Pembelajaran RADEC dengan Moda Full Daring .....	207
Gambar 4.10	Desain Pembelajaran RADEC secara Bilingual.....	214
Gambar 4.11	Keterlaksanaan RPP Tema Pencemaran Air .....	220
Gambar 4.12	Keterlaksanaan RPP Tema Pencemaran Udara .....	222
Gambar 4.13	Hasil Observasi TCOF pada Pertemuan 1 Tema Pencemaran Air .....	226
Gambar 4.14	TCOF pada Pertemuan 1 Tema Pencemaran Udara .....	230
Gambar 4.15	Poster Selamatkan Bumi.....	233
Gambar 4.16	Pembuatan Alat Penyaring Air.....	234
Gambar 4.17	Pembuatan Kompor Matahari.....	235
Gambar 4.18	Aktifitas Diskusi Peserta Didik dalam Merencanakan Proyek.	238
Gambar 4.19	Infografis Respon Peserta Didik terhadap Pembelajaran tema Lingkungan.....	243
Gambar 4.20	Hasil Uji N-Gain di Kelas RADEC dan non-RADEC secara Bilingual .....	254
Gambar 4.21	Hasil Uji N-Gain di Kelas Kontrol dan Eksperimen untuk Keterampilan Berpikir Kreatif.....	266
Gambar 4.22	Peserta Didik Membuat Es dengan Memanfaatkan Sifat Koligatif Larutan di Kelas RADEC .....	276
Gambar 4.23	Peserta Didik Mempresentasikan Karya Alat Pembuat Es di Kelas RADEC.....	277
Gambar 4.24	Sintaks Desain Pembelajaran RADEC di Kelas Bilingual untuk Pengembangan Kreativitas Peserta Didik .....	285

## DAFTAR TABEL

Tabel 2.1	Keterampilan Berpikir Kreatif beserta Indikatornya.....	71
Tabel 2.2	Tingkat Kreativitas Produk Peserta didik .....	75
Tabel 2.3	Rubrik Kreativitas dan Inovasi untuk Kelas 6-8 .....	76
Tabel 2.4	Kompetensi Dasar 3.8 dan 4.8 Mata Pelajaran IPA Sekolah Menengah Pertama .....	94
Tabel 2.5	Kompetensi Dasar 3.9 dan 4.9 Mata Pelajaran IPA Sekolah Menengah Pertama .....	98
Tabel 2.6	6 Indikator <i>Framework</i> SDGs terkait Manusia dan Lingkungan pada Jenjang Sekolah Menengah Pertama .....	108
Tabel 2.7	Indikator <i>Framework</i> SDGs pada Tujuan ke-6 Air Bersih dan Sanitasi Layak di Sekolah Menengah Pertama .....	113
Tabel 2.8	Indikator <i>Framework</i> SDGs pada Tujuan ke-13 Penanganan Perubahan Iklim di Sekolah Menengah Pertama .....	115
Tabel 3.1	Instrumen dalam Tahap Pengembangan Desain Pembelajaran dengan Model ADDIE.....	132
Tabel 3.2	Contoh Tabel Analisis Kesesuaian Kurikulum.....	137
Tabel 3.3	Contoh Tabel Catatan Perbaikan .....	140
Tabel 3.4	Lembar Penilaian Kelengkapan Komponen Perangkat Pembelajaran .....	141
Tabel 3.5	Lembar Penilaian Bahasa.....	143
Tabel 3.6	Contoh Tabel Keterlaksanaan Pembelajaran .....	144
Tabel 3.7	<i>The Teaching for Creativity Observation Form</i> .....	147
Tabel 3.8	Rubrik Penilaian Produk Kreatif.....	149
Tabel 3.9	Komposisi Pertanyaan Persepsi Komunikasi Peserta Didik .....	150
Tabel 3.10	Pertanyaan Profil Komunikasi Peserta Didik di Kelas IPA .....	151
Tabel 3.11	Indikator Penguasaan Konsep.....	153
Tabel 3.12	Indikator Keterampilan Berpikir Kreatif .....	154
Tabel 3.13	Rubrik Penilaian Keterampilan Berpikir Kreatif .....	156
Tabel 3.14	Hasil Uji Korelasi <i>Rho Spearman</i> untuk Penguasaan Konsep Pencemaran Air .....	158

Tabel 3.15	Hasil Uji Korelasi <i>Rho Spearman</i> untuk Penguasaan Konsep Pencemaran Udara.....	158
Tabel 3.16	Hasil Uji Korelasi <i>Rho Spearman</i> untuk Keterampilan Berpikir Kreatif pada Materi Pencemaran Air .....	159
Tabel 3.17	Hasil Uji Korelasi <i>Rho Spearman</i> untuk Keterampilan Berpikir Kreatif pada Materi Pencemaran Udara .....	160
Tabel 3.18	Angket Kebiasaan Membaca .....	161
Tabel 3.19	Angket Kegiatan Membaca .....	161
Tabel 3.20	Angket Opini Pembelajaran Peserta Didik.....	162
Tabel 3.21	Analisis Data Penelitian .....	164
Tabel 3.22	Klasifikasi Kappa Cohen.....	171
Tabel 3.23	Deskripsi Per Item .....	171
Tabel 3.24	<i>Rating Scale</i> Pencapaian Setiap Item .....	172
Tabel 3.25	Rubrik Penilaian Produk Kreatif .....	174
Tabel 4.1	Hubungan antara Pemahaman Peserta didik tentang Instruksi Guru, Istilah Ilmiah, dan Konsep Ilmu Pengetahuan Alam (IPA) .....	194
Tabel 4.2	Informasi Pemahaman Peserta didik tentang Instruksi Guru, Istilah Ilmiah, dan Konsep IPA .....	197
Tabel 4.3	Kebutuhan Guru terkait Strategi Pembelajaran .....	201
Tabel 4.4	Ringkasan Diskusi Perbaikan Desain Pembelajaran RADEC .....	208
Tabel 4.5	Ringkasan Perubahan IPK dalam Materi Lingkungan.....	210
Tabel 4.6	Ringkasan Perubahan KBK dalam Materi Lingkungan.....	211
Tabel 4.7	Reliabilitas Penilaian Keterlaksanaan Pembelajaran dengan.....	217
Tabel 4.8	Reliabilitas Penilaian Pengembangan Kreativitas dengan Cohen Kappa.....	218
Tabel 4.9	Ringkasan Hasil Validasi untuk Keterlaksanaan RPP .....	223
Tabel 4.10	Ide Kreatif Peserta didik pada Pembelajaran Pencemaran Air.....	227
Tabel 4.11	Ide Kreatif Peserta didik pada Pembelajaran Pencemaran Udara	239
Tabel 4.12	Hasil Analisis Deskriptif dari Persepsi Penggunaan Bahasa Inggris Peserta didik .....	247
Tabel 4.13	Hasil Uji <i>Wilcoxon</i> .....	249
Tabel 4.14	Desain Pembelajaran RADEC di Kelas IPA Bilingual.....	251



Tabel 4.15	Aktifitas Membaca Peserta Didik.....	256
Tabel 4.16	Ukuran Efek dari Pembelajaran RADEC terhadap Kebiasaan Membaca .....	256
Tabel 4.17	Hasil Uji Mann-Whitney dari Data Kebiasaan Membaca Peserta Didik kelas RADEC dan non-RADEC.....	257
Tabel 4.18	Ukuran Efek dari Desain Pembelajaran RADEC Bilingual terhadap Pengetahuan Konsep Peserta Didik .....	259
Tabel 4.19	Hasil Uji T dan <i>Mann-Whitney</i> dari Data Pengetahuan Konsep Peserta Didik untuk Kelas RADEC dan non-RADEC .....	262
Tabel 4.20	Hasil Uji Korelasi <i>Rho Spearman</i> dari Jawaban Pertanyaan Prapembelajaran dan Pengetahuan Konsep Peserta Didik .....	264
Tabel 4.21	Ukuran Efek dari Pembelajaran RADEC terhadap Berpikir Kreatif .....	267
Tabel 4.22	Hasil <i>Mann-Whitney</i> dari Data Kemampuan Berpikir Kreatif .	269
Tabel 4.23	Hasil Uji Korelasi <i>Rho Spearman</i> dari Jawaban Pertanyaan Prapembelajaran dan Berpikir Kreatif .....	271
Tabel 4.24	Ukuran Efek dari Implementasi Pembelajaran RADEC dengan EMI terhadap Persepsi Komunikasi Peserta Didik .....	273
Tabel 4.25	Deskripsi Ukuran Efek dari Implementasi Pembelajaran RADEC dengan EMI terhadap Persepsi Komunikasi Peserta Didik.....	274
Tabel 4.26	Hasil Uji Mann-Whitney dari Persepsi Komunikasi Peserta Didik .....	281
Tabel 4.27	Hasil Analisis SWOT terkait Desain Pembelajaran RADEC di Kelas IPA Bilingual.....	287



## DAFTAR PUSTAKA

- Adriana, A., Sulfasyah, S., & Rukli, R. (2022). Comparison of RADEC Learning Model and SQ3R Learning Model on Reading Interest of Elementary School Students. *Jurnal Pendidikan MIPA*, 23(3), 941-951. DOI: <http://dx.doi.org/10.23960/jpmipa/v23i3.pp941-951>
- Agustin, M., Pratama, Y. A., Sopandi, W., & Rosidah, I. (2021). Pengaruh Model Pembelajaran Radece Terhadap Keterampilan Berpikir Tingkat Tinggi Mahasiswa PGSD. *Jurnal Cakrawala Pendas*, 7(1), 140-152.
- Ainsworth, S., Prain, V., & Tytler, R. (2011). Drawing to learn in science. *Science*, 333(6046), 1096-1097
- Akaygun, S., & Adadan, E. (2021). Fostering senior primary school students' understanding of climate change in an inquiry-based learning environment. *Education* 3-13, 49(3), 330–343. <https://doi.org/10.1080/03004279.2020.1854961>
- Akpınar, E., Erol, D., & Aydoğdu, B. (2009). The role of cognitive conflict in constructivist theory: An implementation aimed at science teachers. *Procedia-Social and Behavioral Sciences*, 1(1), 2402-2407.
- Al Hosni, S. (2014). Speaking difficulties encountered by young EFL learners. *International Journal on Studies in English Language and Literature (IJSELL)*, 2(6), 22–30.
- Al-Abdali, N. S., & Al-Balushi, S. M. (2016). Teaching for Creativity by Science Teachers in Grades 5–10. *International Journal of Science and Mathematics Education*, 14(2), 251–268. <https://doi.org/10.1007/s10763-014-9612-3>
- Al-Balushi, S. M., & Al-Abdali, N. S. (2014). Teaching for creativity by science teachers in grades 5–10. *International Journal of Science and Mathematics Education*, 14, 251– 268.
- Alexopoulos, A. N., Paolucci, P., Sotiriou, S. A., Bogner, F. X., Dorigo, T., Fedi, M., Menasce, D., Michelotto, M., Paoletti, S., & Scianitti, F. (2021). The colours of the Higgs boson: A study in creativity and science motivation among high-school students in Italy. *Smart Learning Environments*, 8(1), 23. <https://doi.org/10.1186/s40561-021-00169-4>
- Ali, H. (2020). Omani students' coping strategies in an English medium engineering programme. *Arab World English Journal (AWEJ)*, 3, 3649338. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3649338](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3649338)
- Ali, N. L., & Hamid, M. O. (2018). English-medium instruction and teacher agency in higher education: A case study. In *Un(intended) Language Planning in a Globalising World: Multiple Levels of Players at Work* (2018th ed., pp. 234–

- 250). De Gruyter Open Poland. <https://doi.org/10.1515/9783110518269-013>
- Allen, M. (2014). *Misconceptions in Primary Science*. New York: Open University Press McGraw-Hill Education.
- Ananiadou, K., & Claro, M. (2009). 21st century skills and competencies for new millennium learners in OECD countries. *OECD Education Working Papers*, 41, 1– 33. <https://doi.org/10.1787/218525261154>
- Archila, P. A., & de Mejía, A.-M. T. (2017). Bilingual university science courses: A questionnaire on professors' practices and espoused beliefs. *International Journal of Bilingual Education and Bilingualism*, 23(2), 132-152. <https://doi.org/10.1080/13670050.2017.1334756>
- Arkoudis, S. (2003). Teaching English as a second language in science classes: Incommensurate epistemologies?. *Language and Education*, 17(3), 161– 173. <https://doi.org/10.1080/09500780308666846>
- Arslan, H. O., Cigdemoglu, C., & Moseley, C. (2012). A three-tier diagnostic test to assess pre-service teachers' misconceptions about global warming, greenhouse effect, ozone layer depletion, and acid rain. *International journal of science education*, 34(11), 1667-1686.
- ATEŞ, H. K. (2018). Gifted children metaphor from the perspective of teachers and parents. *Journal for the education of gifted young scientists*, 6(2), 30-41.
- Bahar, M., Özel, M., Prokop, P., & Uşak, M. (2008). Science student teachers' ideas of the heart. *Journal of Baltic Science Education*, 7(2), 78-85.
- Barrett, J. D., Vessey, W. B., Griffith, J. A., Mracek, D., & Mumford, M. D. (2014). Predicting Scientific Creativity: The Role of Adversity, Collaborations, and Work Strategies. *Creativity Research Journal*, 26(1), 39–52. <https://doi.org/10.1080/10400419.2014.873660>
- Baser, M. (2006). Fostering Conceptual Change by Cognitive Conflict Based Instruction on Students' Understanding of Heat and Temperature Concepts. *Eurasia Journal of Mathematics, Science, and Technology Education*, 2 (2), 96-114.
- Batisani, N., & Ndiane, A. (2014). Advancing grassroots climate change awareness in Botswana: BCA campus greenhouse gas baseline inventory. *International Journal of Sustainability in Higher Education*, 15(3), 304–313. <https://doi.org/10.1108/IJSHE-05-2012-0043>
- Bax, S., & Powell-Davies, P. (2010). *Researching English bilingual education in Thailand, Indonesia, and South Korea*. British Council.
- Benedek, M., Nordtvedt, N., Jauk, E., Koschmieder, C., Pretsch, J., Krammer, G., & Neubauer, A. C. (2016). Assessment of creativity evaluation skills: A

- psychometric investigation in prospective teachers. *Thinking Skills and Creativity*, 21, 75–84. <https://doi.org/10.1016/j.tsc.2016.05.007>
- Beyers, R. N. (2010). Nurturing Creativity and Innovation Through FabKids: A Case Study. *Journal of Science Education and Technology*, 19(5), 447–455. <https://doi.org/10.1007/s10956-010-9212-0>
- Bialik, M., & Fadel, C. (2015). Skills for the 21st century: What should students learn? Center for Curriculum Redesign. [https://www.researchgate.net/publication/318681750\\_Skills\\_for\\_the\\_21st\\_Century\\_What\\_Should\\_Students\\_Learn](https://www.researchgate.net/publication/318681750_Skills_for_the_21st_Century_What_Should_Students_Learn)
- Bialystok, E. (2018). Bilingual education for young children: Review of the effects and consequences. *International Journal of Bilingual Education and Bilingualism*, 21(6), 666–679. <https://doi.org/10.1080/13670050.2016.1203859>
- Blanco-Elorrieta, E., & Pylkkänen, L. (2016). Bilingual Language Control in Perception versus Action: MEG Reveals Comprehension Control Mechanisms in Anterior Cingulate Cortex and Domain-General Control of Production in Dorsolateral Prefrontal Cortex. *The Journal of Neuroscience: The Official Journal of the Society for Neuroscience*, 36(2), 290–301. <https://doi.org/10.1523/JNEUROSCI.2597-15.2016>
- Blumenfeld, H. K., & Marian, V. (2013). Parallel language activation and cognitive control during spoken word recognition in bilinguals. *Journal of Cognitive Psychology*, 25(5), 547-567.
- Bolscho, D., & Hauenschild, K. (2006). From environmental education to education for sustainable development in Germany. *Environmental Education Research*, 12(1), 7-18.
- Branzi, F. M., Della Rosa, P. A., Canini, M., Costa, A., & Abutalebi, J. (2016). Language Control in Bilinguals: Monitoring and Response Selection. *Cerebral Cortex*, 26(6), 2367–2380. <https://doi.org/10.1093/cercor/bhv052>
- Buschenhofen. (1980). Trendy Experimentation or Cultural Enrichment. *Journal of Multilingual and Multicultural Development*, 1(4), 303 - 312.
- Byun, K., Chu, H., Kim, M., Park, I., Kim, S., & Jung, J. (2011). English-medium teaching in Korean higher education: Policy debates and reality. *Higher Education*, 62, 431-449 <https://link.springer.com/content/pdf/10.1007/s10734-010-9397-4.pdf>
- Carnwell, R., & Daly, W. (2001). Strategies for the construction of a critical review of the literature. *Nurse Education in Practice*, 1(2), 57–63. <https://doi.org/10.1054/nepr.2001.0008>
- Catalina Foothills School District. (2019). Creativity And Innovation Rubric Grades 6-8. *Envision Deep Learning -CFSD*.

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

[https://www.cfsd16.org/application/files/8915/7006/9057/K12\\_Creativity\\_\\_\\_Innovation\\_2019\\_RF.pdf](https://www.cfsd16.org/application/files/8915/7006/9057/K12_Creativity___Innovation_2019_RF.pdf)

- Chairunnisa, C. C., Prihantini, P., & Sukardi, R. R. (2022). Model Read, Answer, Discuss, Explain, and Create untuk Meningkatkan Hasil Belajar IPS Siswa pada Pembelajaran Daring. *Jurnal Educatio FKIP UNMA*, 8(1), 151-156
- Chander, S. (2012). Little c creativity: A case for our science classroom: An Indian perspective. *Gifted Education International*, 28(2), 192–200. <https://doi.org/10.1177/0261429412442853>
- Chou, M.-H. (2018). Speaking Anxiety and Strategy Use for Learning English as a Foreign Language in Full and Partial English-Medium Instruction Contexts. *TESOL Quarterly*, 52(3), 611–633. <https://doi.org/10.1002/tesq.455>
- Christie-Blick, K. (2021). Opening eyes to the unequal burden of our changing climate. *The Science Teacher*, 89(1), 21–26.
- Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., & Lee, C. W. Y. (2017). 21st Century Skills Development Through Inquiry-Based Learning. *Springer Singapore*, 978-981. <https://doi.org/10.1007/978-981-10-2481-8>
- Cohen, J. D., Li, L., Wang, Y., Thoburn, C., Afsari, B., Danilova, L., ... & Papadopoulos, N. (2018). Detection and localization of surgically resectable cancers with a multi-analyte blood test. *Science*, 359(6378), 926-930.
- Coleman, H. (2010). Teaching and learning in Pakistan: The role of language in education. Islamabad: *The British Council*, 148–157.
- Coleman, H. (2016). ‘To be consulted, to encourage and to warn’: The impact and the limits of language-in-education research in the developing World. In Lawson, R., Sayers, D. (eds). *Sociolinguistic Research: Application and Impact*. London: *Routledge*. pp 215- 234.
- Coleman, H., & Capstick, T. (2012). *Language in education in Pakistan: British Council*.
- Coleman, J., Hultgren, K., Li, W., Tsui, C., & ... (2018). Forum on English-medium instruction. *Tesol QUARTERLY*, 52(3), 701-720. <https://onlinelibrary.wiley.com/doi/abs/10.1002/tesq.469>
- Cooper, R., & Heaverlo, C. (2013). Problem Solving And Creativity And Design: What Influence Do They Have On Girls’ Interest In STEM Subject Areas?. *American Journal of Engineering Education (AJEE)*, 4(1), 27–38. <https://doi.org/10.19030/ajee.v4i1.7856>
- Costa, F., & Coleman, J. (2013). A survey of English-medium instruction in Italian higher education. *International Journal of Bilingual Education and Bilingualism*, 16(1), 3-19. <https://www.tandfonline.com/doi/abs/10.1080/13670050.2012.676621>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Craik, F. I., & Bialystok, E. (2006). Cognition through the lifespan: mechanisms of change. *Trends in cognitive sciences*, 10(3), 131-138.
- Creswell, Jhon. W. (2010). *Research Design Pendekatan Kualitatif, Kuantitatif, Dan Mixed*. Pustaka Pelajar.
- Cropley, D. H., Patston, T., Marrone, R. L., & Kaufman, J. C. (2019). Essential, unexceptional and universal: Teacher implicit beliefs of creativity. *Thinking Skills and Creativity*, 34, 100604. <https://doi.org/10.1016/j.tsc.2019.100604>
- Danielraja, R. (2019). A Study of Environmental Awareness of Students at Higher Secondary Level. *Shanlax International Journal of Education*, 7(3), 6–10. <https://doi.org/10.34293/education.v7i3.480>.
- Daningsih, A., Purwianingsih, W., & Yuliani, G. (2019). Does science writing heuristic increase secondary school students' argumentation skills?. *Journal of Physics: Conference Series*, 1318(1), 012072. <https://doi.org/10.1088/1742-6596/1318/1/012072>
- Daraini, A. M., Fauziati, E., & Rochsantiningsih, D. (2021). Students' Perception of The Implementation of Content and Language Integrated Learning (CLIL) at Senior High School. *AL-ISHLAH: Jurnal Pendidikan*, 13(1), Article 1. <https://doi.org/10.35445/alishlah.v13i1.404>
- Davies, T. (2013). Incorporating creativity into teachers practice and self-concept of professional identity. *Journal of Educational Change*, 14(1), 51–71. <https://doi.org/10.1007/s10833-012-9192-3>
- Dearden, J. (2014). English as a medium of instruction – a growing global phenomenon. British Council.
- Dearden, J. (2018). The changing roles of EMI academics and English language specialists. Key Issues in *English for Specific Purposes in Higher in Higher Education*, 323-338. [https://link.springer.com/chapter/10.1007/978-3-319-70214-8\\_18](https://link.springer.com/chapter/10.1007/978-3-319-70214-8_18)
- Denchak, M. (2023, January 11). Water Pollution: Everything You Need to Know. <https://www.nrdc.org/stories/water-pollution-everything-you-need-know>
- Devetak, I., Glazar, A. S. 2009. Research Report the Influence of 16 Years Old Students' Gender, Mental Abilities, and Motivation on Their Reading and Drawing Sub-Microscopic Representation Achievements. *International Journal of Science Education*, 32 (12), 1561-1593.
- Dewi, A. (2017). English as a medium of instruction in Indonesian higher education: A study of lecturers' perceptions. *In English medium instruction in Higher Education in Asia-Pacific* (pp. 241–258). Springer. DOI: 10.1007/978-3-319-51976-0\_13.

- Dewi, L., & Fauziati, E. (2021). Pembelajaran Tematik di Sekolah Dasar dalam Pandangan Teori Konstruktivisme Vygotsky. *Jurnal Papeda: Jurnal Publikasi Pendidikan Dasar*, 3(2), 163-174.
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- Dorph, R., Cannady, M. A., & Schunn, C. (2016). How Science Learning Activation Enables Success for Youth in Science Learning. *Electronic Journal of Science Education*, 20(8), 49–85.
- Draper, J. T., Freeling, B. S., & Connell, S. D. (2021). Sparking Creativity in Science Education. *The Journal of Creative Behavior*, 55(4), 893–898. <https://doi.org/10.1002/jocb.495>
- Drubin, D. G., & Kellogg, D. R. (2012). English as the universal language of science: Opportunities and challenges. *Molecular Biology of The Cell*, 23(8), 1399. doi: 10.1091/mbc.E12-02-0108
- Ducker, N. (2019). English as a Medium of Instruction. In *The TESOL Encyclopedia of English Language Teaching* (pp. 1–7). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118784235.eelt0968>
- Duran, D., Kurhila, S., & Sert, O. (2022). Word search sequences in teacher-student interaction in an English as medium of instruction context. *International Journal of Bilingual Education and Bilingualism*, 25(2), 502–521. <https://doi.org/10.1080/13670050.2019.1703896>
- Duran, M. (2021). Perception of Preschool Children about Environmental Pollution. *Journal of Education in Science, Environment and Health*, 7(3), 200–2019. <https://doi.org/10.21891/jeseh.733800>
- Eilks, I., Moellering, J., Valanides, N. 2007. Seventh-Grade Students' Understanding of Chemical Reactions: Reflections from an Action Research Interview Study. *Eurasia Journal of Mathematics, Science and Technology Education*, 3 (4), 271-286.
- Einarsdottir, J., Dockett, S., & Perry, B. (2009). Making meaning: Children's perspectives expressed through drawings. *Early child development and care*, 179(2), 217-232.
- Ekborg, M., & Areskoug, M. (2006). How Student Teachers' Understanding of the Greenhouse Effect Develops during A Teacher Education Program. *NorDiNa*, 5, 18- 29.
- Erdem, A. R., & Adiguzel, C. D. (2019). The opinions of primary school teachers on their creative thinking skills. *Eurasian Journal of Educational Research*, 19(80), 1–14. <https://doi.org/10.14689/ejer.2019.80.2>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUSAHAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu



- Erol, R., & Saygi, E. (2021). The Effect of Using Cryptology on Understanding of Function Concept. *International Journal of Contemporary Educational Research*, 8(4), 144-167. <https://doi.org/10.33200/ijcer.881413>
- Etobro, A. B., & Banjoko, S. O. (2017). Misconceptions of genetics concepts among pre-service teachers. *Global Journal of Educational Research*, 16(2), 121-128.
- European Commission's Directorate-General Environment. (2011). In-Depth Report Plastic Waste: *Ecological and Human Health Impact* (pp. 1–44). University of the West of England.
- Fadel, C., Bialik, M., & Trilling, B. (2016). Educación en cuatro dimensiones: las competencias que los estudiantes necesitan para su realización. Ministry of Education: Santiago.
- Fay, M. P., & Proschan, M. A. (2010). Wilcoxon-Mann-Whitney or t-test? On assumptions for hypothesis tests and multiple interpretations of decision rules. *Statistics surveys*, 4, 1-12.
- Febriyanti, E., Jihad, A., Nuraida, I., & Maryono, I. (2023). Improving students' mathematical communication skills with Padlet-based RADEC model online learning. In *AIP Conference Proceedings* (Vol. 2572, No. 1, p. 050003). AIP Publishing LLC.
- Fithri, N., Fitriani, E., Wardani, K. R. N., & Makmuri, M. K. (2022). Edupreneurship Piranti Panel Surya sebagai Alternatif Sumber Energi Listrik pada Siswa SD Al-Bukhari School Kecamatan Rambutan Kabupaten Banyuasin Sumatera Selatan. *Jurnal Abdi Masyarakat Indonesia*, 2(1), 12-27. <https://doi.org/10.54082/jamsi.248>
- Fitriati, S. W. (2015). English bilingual education in an Indonesian public school. In *Educational Innovations and Contemporary Technologies* (pp. 87–102). London: Palgrave MacMillan. [https://doi.org/10.1057/9781137468611\\_6](https://doi.org/10.1057/9781137468611_6)
- Fitriyati, I., Hidayat, A., & Munzil. (2017). Pengembangan Perangkat Pembelajaran IPA untuk Meningkatkan Kemampuan Berpikir Tingkat Tinggi Dan Penalaran Ilmiah Siswa Sekolah Menengah Pertama. *Jurnal Pembelajaran Sains*, 1(1), 27–34. <http://journal2.um.ac.id/index.php/> e-ISSN:
- Fredriksson, U., Kusanagi, K. N., Gougoulakis, P., Matsuda, Y., & Kitamura, Y. (2020). A Comparative Study of Curriculums for Education for Sustainable Development (ESD) in Sweden and Japan. *Sustainability*, 12(3), 1123. <https://doi.org/10.3390/su12031123>
- Fuadi, F. N., Sopandi, W., & Sujana, A. (2021). The mastery of grade 4 of elementary school students' concepts on energy through the implementation of the RADEC learning model. *Journal of Physics: Conference Series*, 1806(1), 012140. <https://doi.org/10.1088/1742-6596/1806/1/012140>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Fung, D., & Lui, W. (2016). Individual to collaborative: Guided group work and the role of teachers in junior secondary science classrooms. *International Journal of Science Education*, 38(7), 1057–1076. <https://doi.org/10.1080/09500693.2016.1177777>
- Galloway, N., Numajiri, T., & Rees, N. (2020). The ‘internationalisation’, or ‘Englishisation’, of higher education in East Asia. *Higher Education*, 80(3), 395-414.
- Genç, M., Genç, T., Ergenç, M., & Erkuz, N. (2016). Environmental Problem Perception of 6th Grade Students. *World Journal of Environmental Research*, 6(1), 14–24. <https://doi.org/10.18844/wjer.v6i1.139>
- Gezegin, B. B. (2020). Review of World Englishes in English language teaching. *Focus on ELT Journal*, 2(2), 41-43.
- Glăveanu, V. P. (2018). Educating which creativity?. *Thinking Skills and Creativity*, 27, 25– 32. <https://doi.org/10.1016/j.tsc.2017.11.006>
- Glynn, S., & Muth, K. D. (2008). Using drawing strategically. *Science and children*, 45(9), 48-59.
- Gök, B., & Sürmeli, H. (2022). The Effect of Scientific Toy Design Activities Based on the Engineering Design Process on Secondary School Students’ Scientific Creativity. *Asian Journal of University Education*, 18(2), 692–709.
- Goodman, B. A. (2014). Implementing English as a medium of instruction in a Ukrainian University: Challenges, adjustments, and opportunities. *International Journal of Pedagogies and Learning*, 9(2), 130–141. <https://doi.org/10.1080/18334105.2014.11082026>
- Gralewski, J., & Karwowski, M. (2019). Are teachers’ ratings of students’ creativity related to students’ divergent thinking? A meta-analysis. *Thinking Skills and Creativity*, 33, 100583. <https://doi.org/10.1016/j.tsc.2019.100583>
- Green, D. W., & Abutalebi, J. (2013). Language control in bilinguals: The adaptive control hypothesis. *Journal of cognitive psychology*, 25(5), 515-530.
- Greenstone, M., & Fan, Q. (2019). Indonesia’s Worsening Air Quality and its Impact on Life Expectancy. *Air Quality Life Index*, March, 1–10.
- Gupta, P., & Sharma, Y. (2019). Nurturing scientific creativity in science classroom. *Resonance*, 24(5), 561–574. <https://doi.org/10.1007/s12045-019-0810-8>
- Ha, H., & Ha, M. (2022). Exploring Korean scientists’ perceptions of scientific creativity and education for scientific creativity. *International Journal of Science Education*, 44(11), 1767–1791. <https://doi.org/10.1080/09500693.2022.2095680>

- Hadi, D. A. P., & Syafi'ah, R. (2020). Analisis Kreativitas Siswa Kelas 3 Dalam Mengelola Sampah Plastik Pada Pelajaran PLH di SD Negeri 1 Wonokromo Kecamatan Gondang. At-Thullab: *Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 4(1), 29-37.
- Hadisantosa, N. (2010). Learning through English: Policies, challenges and prospects: insights from East Asia. Kuala Lumpur: British Council.
- Hand, B., & Choi, A. (2010). Examining the impact of student use of multiple modal representations in constructing arguments in organic chemistry laboratory classes. *Research in Science Education*, 40, 29-44.
- Handayani, H., Sopandi, W., Syaodih, E., Suhendra, I., & Hermita, N. (2019). RADEC: An Alternative Learning Of Higher Order Thinking Skills (HOTs) Students Of Elementary School on Water Cycle. *Journal of Physics: Conference Series*, 1351, 012074. <https://doi.org/10.1088/1742-6596/1351/1/012074>
- Haney, W., Russell, M., & Bebell, D. (2004). Drawing on education: Using drawings to document schooling and support change. *Harvard Educational Review*, 74(3), 241-272.
- Hanif, S., Wijaya, A. F. C., & Winarno, N. (2019). Enhancing Students' Creativity through STEM Project-Based Learning. *Journal of Science Learning*, 2(2), 50–57. <https://doi.org/10.17509/jsl.v2i2.13271>
- Hapsari, S. (2020). Creating a Class Climate to Enhance the Ability to Think Creatively. *1st International Conference on Folklore, Language, Education and Exhibition (ICOFLEX 2019)* (pp. 386-389). Atlantis Press. <https://www.atlantis-press.com/article/125950119.pdf>
- Hasnadi, H. (2021). Total Quality Management: Konsep Peningkatan Mutu Pendidikan. *SAP (Susunan Artikel Pendidikan)*, 6(2), 143-150.
- Hayati, N., & Fitriyah, L. A. (2021). A biodiverse entrepreneurship-based textbook: A media of students' entrepreneurship enthusiasm development. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 7(3), 122-149. <https://doi.org/10.22219/jpbi.v7i3.17096>
- Hayati, N., & Setiawan, D. (2022). Dampak Rendahnya kemampuan berbahasa dan bernalar terhadap kemampuan berpikir kritis siswa sekolah dasar. *Jurnal Basicedu*, 6(5), 8517-8528.
- He, J.-J., & Chiang, S.-Y. (2016). Challenges to English-medium instruction (EMI) for international students in China: A learners' perspective: English-medium education aims to accommodate international students into Chinese universities, but how well is it working? *English Today*, 32(4), 63–67. <https://doi.org/10.1017/S0266078416000390>

- Henly, J. W. (2013). *Evaluation of International Standard School in Indonesia*. Jakarta: Ministry of Education and Culture.
- Hernández-Torrano, D., & Ibrayeva, L. (2020). Creativity and education: A bibliometric mapping of the research literature (1975–2019). *Thinking Skills and Creativity*, 35, 100625. <https://doi.org/10.1016/j.tsc.2019.100625>
- Hetherington, L., Chappell, K., Keene, H. R., Wren, H., Cukurova, M., Hathaway, C., Sotiriou, S., & Bogner, F. (2020). International educators' perspectives on the purpose of science education and the relationship between school science and creativity. *Research in Science & Technological Education*, 38(1), 19–41. <https://doi.org/10.1080/02635143.2019.1575803>
- Hidayati, N. N. (2020). Bilingualisme Dan Multilingualisme: Pro Dan Kontra Pada Perkembangan Bahasa Dan Kognitif Anak. Al Hikmah: *Jurnal Studi Keislaman*, 10(1), 91-104.
- Hong, H., & Kang, S. (2015). The Development of Inquiry Teaching Strategy for the Enhancement of Divergent and Convergent Thinking Skills and the Effects of Its Applications. *Journal of the Korean Chemical Society*, 59(1), 54. <https://www.koreascience.or.kr/article/JAKO201506234293977.page>
- Hong, O., Park, M.-H., & Song, J. (2022). The assessment of science classroom creativity: *Scale development*. *International Journal of Science Education*, 44(8), 1356–1377. <https://doi.org/10.1080/09500693.2022.2077466>
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern language journal*, 70(2), 125-132.
- Huang, C.-F., & Wang, K.-C. (2019). Comparative Analysis of Different Creativity Tests for the Prediction of Students' Scientific Creativity. *Creativity Research Journal*, 31(4), 443–447. <https://doi.org/10.1080/10400419.2019.1684116>
- Huang, N., Chang, Y., & Chou, C. (2020). Effects of creative thinking, psychomotor skills, and creative self-efficacy on engineering design creativity. *Thinking Skills and Creativity*, 37, 100695. <https://www.sciencedirect.com/science/article/pii/S1871187120301693>
- Hudha, M. N., Hamidah, I., Permanasari, A., Abdullah, A. G., Rachman, I., & Matsumoto, T. (2020). Low Carbon Education: A Review and Bibliometric Analysis. *Low Carbon Education: A Review and Bibliometric Analysis*, 9(1), 319–329.
- Ilham, M., & Wijati, I. A. (2020). *Keterampilan Berbicara: Pengantar Keterampilan Berbahasa*. Lembaga Academic & Research Institute.
- Iliopoulou, I. (2018). Can young students think systemically about the environment? *The case of pollution*. *Education 3-13*, 46(3), 362–377. <https://doi.org/10.1080/03004279.2016.1266688>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Imran, M. E., Sopandi, W., Mustafa, B., & Riyana, C. (2021). Improving primary school teachers' competence in teaching multi-literacy through RADEC-based training programs. *Cypriot Journal of Educational Sciences*, 16(6), 129-148. <https://doi.org/10.18844/cjes.v16i6.6494>
- Indarta, Y., Ambiyar, A., Samala, A. D., & Watrianthos, R. (2022). Metaverse: Tantangan dan peluang dalam pendidikan. *Jurnal Basicedu*, 6(3), 3351-3363.
- Informasi Kinerja Pengelolaan Lingkungan Hidup Daerah Provinsi Jawa Timur. (2017). Laporan Utama (pp. 1–112). *Environmental Agency of East Java Province*.
- Iskandar, R., & Farida, F. (2020). Implementasi Model ASSURE untuk Mengembangkan Desain Pembelajaran di Sekolah Dasar. *Jurnal Basicedu*, 4(4), 1052-1065.
- Jakobsson, A., Markitalo, A., & Saljo, M. (2009). Conceptions of Knowledge in Research on Students' Understanding of the Greenhouse Effect: Methodological Positions and Their Consequences for Representations of Knowing. *Science Education*, 93 (6), 978-995.
- Jamin, J., & Erlangga, E. (2016). Pengaruh insektisida golongan organofosfat terhadap benih ikan nila gift (*Oreochromis niloticus*, Bleeker): Analisis histologi hati dan insang. *Acta Aquatica: Aquatic Sciences Journal*, 3(2), 46-53. <https://doi.org/10.29103/aa.v3i2.324>
- Jankowska, D. M., Gajda, A., & Karwowski, M. (2019). How children's creative visual imagination and creative thinking relate to their representation of space. *International Journal of Science Education*, 41(8), 1096–1117. <https://doi.org/10.1080/09500693.2019.1594441>
- Jegstad, K. M., Gjøtterud, S. M., & Sinnes, A. T. (2017). Science teacher education for sustainable development: A case study of a residential fieldcourse in a Norwegian pre-service teacher education programme. *Journal of Adventure Education and Outdoor Learning*, 18(2), 99–114. <https://doi.org/10.1080/14729679.2017.1374192>
- Jenkins, J. (2003). *World Englishes: A resource book for pupils*. New York: Psychology Press.
- Jenkins, J. (2019). English medium instruction in higher education: The role of English as Lingua Franca. *Second Handbook of English Language Teaching*, 91-108. [https://link.springer.com/content/pdf/10.1007/978-3-030-02899-2\\_7.pdf](https://link.springer.com/content/pdf/10.1007/978-3-030-02899-2_7.pdf)
- Kaçan, S. D. (2015). A situational study for the identification of pre-service science teachers' creative thinking and creative scientific thinking skills. *Journal of Education and Practice*, 6(27), 82–85.

- Kachru, B. B. (1992). *The other tongue: English across cultures*. Urbana, IL: University of Illinois Press.
- Kalaycı, S. (2020). Cognitive Perceptions of Pre-Service Science Teacher for Environmental Pollution. *Journal of Baltic Science Education*, 19(3), 415–428. <https://doi.org/10.33225/jbse/20.19.415>
- Kaltakci-Gurel, D., Eryilmaz, A., & McDermott, L. C. (2017). Development and application of a four-tier test to assess pre-service physics teachers' misconceptions about geometrical optics. *ReseaRch in science & Technological educaTion*, 35(2), 238-260.
- Kang, J., & Keinonen, T. (2018). The Effect of Student-Centered Approaches on Students' Interest and Achievement in Science: Relevant Topic-Based, Open and Guided Inquiry-Based, and Discussion-Based Approaches. *Research in Science Education*, 48(4), 865–885. <https://doi.org/10.1007/s11165-016-9590-2>
- Kapon, S. (2016). Doing research in school: Physics inquiry in the zone of proximal development. *Journal of Research in Science Teaching*, 53(8), 1172–1197. <https://doi.org/10.1002/tea.21325>
- Karaaslan, F. (2016). Soft classes and soft rough classes with applications in decision-making. *Mathematical problems in engineering*, 1-11.
- Karwowski, M., Gralewski, J., Patston, T., Cropley, D. H., & Kaufman, J. C. (2020). The creative student in the eyes of a teacher: A cross-cultural study. *Thinking Skills and Creativity*, 35, 100636. <https://doi.org/10.1016/j.tsc.2020.100636>
- Khasanah, U., & Herina, H. (2019, March). Membangun karakter siswa melalui literasi digital dalam menghadapi pendidikan abad 21 (revolusi industri 4.0). *In Prosiding Seminar Nasional Program Pascasarjana Universitas PGRI Palembang (Vol. 12, No. 01)*, 999-1015.
- Khasbani, I. (2019). English as a medium of instruction in Indonesian primary and secondary education: Theory and reality. *Englisia: Journal of Language, Education, and Humanities*, 6(2), 146–161. <https://doi.org/10.22373/ej.v6i2.4506>
- Khiri, F., Benbrahim, M., Rassou, K. K., Amahmid, O., Rakibi, Y., Guamri, Y. E., Itouhar, M., Mrabet, N., Yazidi, M., Razoki, B., & Badri, A. E. (2023). Water education and water culture in curricula for Primary, Middle and upper Secondary school levels. *Australian Journal of Environmental Education*, 39(1), 37–54. <https://doi.org/10.1017/ae.2022.9>
- Khoiriyah, K. (2021). Content and Language Integrated Learning (CLIL) in Indonesian Context: An Overview. *Jurnal Pendidikan Progresif*, 11(3), 587-601.

- Khotimah, Y. K., & Ulfa, A. N. (2022). Permintaan Daging Sapi Pada Era Pandemic Covid-19 Di Indonesia. *Journal of Animal Center (JAC)*, 4(1), 33-39. <https://doi.org/10.36378/jac.v4i1.2190>
- Kim, J., & Kim, V. (2021). Rediscovering feedback and experiential learning in the English-medium instruction classroom. *Journal of University Teaching and Learning Practice*, 18(4), 286–305. <https://doi.org/10.53761/1.18.4.19>
- Kim, S., & Hand, B. (2015). An Analysis of Argumentation Discourse Patterns in Elementary Teachers' Science Classroom Discussions. *Journal of Science Teacher Education*, 26(3), 221–236. <https://doi.org/10.1007/s10972-014-9416-x>
- Kim, S., Choe, I., & Kaufman, J. C. (2019). The development and evaluation of the effect of creative problem-solving program on young children's creativity and character. *Thinking Skills and Creativity*, 33, 100590. <https://doi.org/10.1016/j.tsc.2019.100590>
- Kirkpatrick, A. (2012). English as an International Language in Asia: Implications for language education. In A. Kirkpatrick & R. Sussex (Eds.), *English as an International Language in Asia: Implications for Language Education* (pp. 29–44). *Springer Netherlands*. [https://doi.org/10.1007/978-94-007-4578-0\\_3](https://doi.org/10.1007/978-94-007-4578-0_3)
- KLHK. (2020). Laporan Inventarisasi GRK 2020 dan Monitoring, Pelaporan, Verifikasi (MPV). *Kementerian Lingkungan Hidup Dan Kehutanan*, 1–143.
- Kurniasih, Cahyono, B. Y., Astuti, U. P., & Suryati, N. (2023). Online Writing Instruction in Indonesia: Causes of anxiety problems and strategies of solutions. *Pegem Journal of Education and Instruction*, 13(1), 31–40. <https://doi.org/10.47750/pegegog.13.01.04>
- Kurniawan, A. D. (2013). Metode inkuiri terbimbing dalam pembuatan media pembelajaran biologi untuk meningkatkan pemahaman konsep dan kreativitas siswa SMP. *Jurnal Pendidikan IPA Indonesia*, 2(1), 8-11.
- Kurniawan, D., Maryanti, S., Sukardi, R., & Santi, D. (2021). Development of STREAM integrated astronomy as an enrichment teaching material for elementary students. *Journal of Physics: Conference Series*, 1806(1), 012214. <https://doi.org/10.1088/1742-6596/1806/1/012214>
- Kurniawati, D., & Ekayanti, A. (2020). Pentingnya berpikir kritis dalam pembelajaran matematika. *PeTeKa*, 3(2), 107-114.
- Kusumaningputri, A. R., & Fauziati, E. (2021). Model pembelajaran RADEC dalam perspektif filsafat konstruktivisme Vygotsky. *Jurnal Papeda: Jurnal Publikasi Pendidikan Dasar*, 3(2), 103-111.
- Kyeyune, R. (2003). Challenges of Using English as a Medium of Instruction in Multilingual Contexts: A View from Ugandan Classrooms. *Language*,

*Culture and Curriculum*, 16(2), 173–184.  
<https://doi.org/10.1080/07908310308666666>

- Lagrou, E., Hartsuiker, R. J., & Duyck, W. (2013). The influence of sentence context and accented speech on lexical access in second-language auditory word recognition. *Bilingualism: Language and Cognition*, 16(3), 508-517.
- Lamb, M., & Coleman, H. (2008). Literacy in English and the Transformation of Self and Society in Post-Soeharto Indonesia. *International Journal of Bilingual Education and Bilingualism*, 11(2), 189–205.  
<https://doi.org/10.2167/beb493.0>
- Lauder, A. (2008). The Status and Function of English in Indonesia: A Review of Key Factors. *Makara Human Behavior Studies in Asia*, 12(1), 9–20.  
<https://doi.org/DOI:10.7454/mssh.v12i1.128>
- Lauder, A. (2010). The status and function of English in Indonesia: A review of key factors. *Hubs-Asia*, 10(1), 9-20 <https://doi.org/10.7454/mssh.v12i1.128>
- Lawson, R., & Sayers, D. (2017). *Sociolinguistic research: Application and impact*. London: Routledge.
- Lee, C.-S., & Kolodner, J. L. (2011). Scaffolding Students' Development of Creative Design Skills: A Curriculum Reference Model. *Journal of Educational Technology & Society*, 14(1), 3–15.
- Leicht, A., Heiss, J., & Byun, W. J. (2018). Issues and trends in education for sustainable development (Vol. 5). *UNESCO publishing*.
- Lestari, H., Ali, M., Sopandi, W., & Wulan, A. R. (2021). Infusion of environment dimension of ESD into science learning through the RADEC learning model in Elementary Schools. *Jurnal Penelitian Pendidikan IPA*, 7(SpecialIssue), 205–212.
- Lestari, H., Ali, M., Sopandi, W., Wulan, A. R., & Rahmawati, I. (2022). The ESD-oriented RADEC model: To improve students' sustainability consciousness in elementary schools. *Pegem Journal of Education and Instruction*, 12(2), 113–122. <https://doi.org/10.47750/pegegog.12.02.11>
- Lestari, H., Ali, M., Sopandi, W., Wulan, A. R., & Rahmawati, I. (2022). The Impact of the RADEC Learning Model Oriented ESD on Students' Sustainability Consciousness in Elementary School. *Pegem Journal of Education and Instruction*, 12(2), 113-122.
- Lestari, H., Sopandi, W., Sa'ud, U. S., Musthafa, B., Budimansyah, D., & Sukardi, R. R. (2021). The impact of online mentoring in implementing radec learning to the elementary school teachers' competence in training students' critical thinking skills: A case study during covid-19 pandemic. *Jurnal Pendidikan IPA Indonesia*, 10(3), 346-356.  
<https://doi.org/10.15294/jpii.v10i3.28655>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu



- Leuchter, M., & Naber, B. (2019). Studying children's knowledge base of one-sided levers as force amplifiers. *Journal of Research in Science Teaching*, *56*(1), 91–112. <https://doi.org/10.1002/tea.21470>
- Lippmann, M., Danielson, R. W., Schwartz, N. H., Körndle, H., & Narciss, S. (2021). Effects of keyword tasks and biasing titles on metacognitive monitoring and recall. *Metacognition and Learning*, *16*(1), 233–253. <https://doi.org/10.1007/s11409-020-09246-4>
- Liu, Y. (2022). Exploring bilingual learners' desires in English-medium studies: Evidence from a Thai private bilingual school. *International Journal of Bilingual Education and Bilingualism*, *25*(1), 80–99. <https://doi.org/10.1080/13670050.2019.1631750>
- Long, H., Plucker, J. A., Yu, Q., Ding, Y., & Kaufman, J. C. (2014). Research Productivity and Performance of Journals in the Creativity Sciences: A Bibliometric Analysis. *Creativity Research Journal*, *26*(3), 353–360. <https://doi.org/10.1080/10400419.2014.929425>
- Lucchiari, C., Sala, P. M., & Vanutelli, M. E. (2019). The effects of a cognitive pathway to promote class creative thinking. An experimental study on Italian primary school students. *Thinking Skills and Creativity*, *31*, 156–166. <https://doi.org/10.1016/j.tsc.2018.12.002>
- Lukmannudin, Sopandi, W., Sujana, A., & Sukardi, R. (2018). Pre-service Primary School Teachers' Abilities in Explaining Water and Air Pollution Scientifically. *Journal of Physics: Conference Series*, *1013*(1). <https://doi.org/10.1088/1742-6596/1013/1/012084>
- Magdalena, I., Shodikoh, A. F., Pebrianti, A. R., Jannah, A. W., & Susilawati, I. (2021). Pentingnya Media Pembelajaran untuk Meningkatkan Minat Belajar Siswa SDN Meruya Selatan 06 pagi. *EDISI*, *3*(2), 312-325.
- Mahyoob, M. (2021). Online Learning Effectiveness During the COVID-19 Pandemic: A Case Study of Saudi Universities. *International Journal of Information and Communication Technology Education (IJICTE)*, *17*(4), 1-14.
- Maksić, S. B., & Spasenović, V. Z. (2018). Educational Science Students' Implicit Theories of Creativity. *Creativity Research Journal*, *30*(3), 287–294. <https://doi.org/10.1080/10400419.2018.1488200>
- Mandrikas, A., Stavrou, D., & Skordoulis, C. (2017). Teaching Air Pollution in an Authentic Context. *Journal of Science Education and Technology*, *26*(2), 238–251. <https://doi.org/10.1007/s10956-016-9675-8>
- Marco-Bujosa, L., Levy, A. J., & McNeill, K. (2018). A Case Study Exploring the Identity of an In-Service Elementary Science Teacher: A Language Teacher

- First. *Research in Science Education*, 50(1), 79–98.  
<https://doi.org/10.1007/s11165-017-9681-8>
- Mardhiyah, R. H., Aldriani, S. N. F., Chitta, F., & Zulfikar, M. R. (2021). Pentingnya keterampilan belajar di abad 21 sebagai tuntutan dalam pengembangan sumber daya manusia. *Lectura: Jurnal Pendidikan*, 12(1), 29-40.
- Margana. (2013). Theoretical Justification of Bilingual Education Program. FLLT conference (pp. 772 - 773). Thailand: Thammasat University.
- Margana. (2015). View of Establishing English-Indonesian Bilinguals in Indonesia: From Theory To Practice | RA Journal Of Applied Research. *RA Journal of Applied Research*, 1(10), 365–374.  
<https://doi.org/DOI:10.18535/rajar/v1i10.01>
- Marliani, N. (2015). Peningkatan kemampuan berpikir kreatif matematis siswa melalui model pembelajaran Missouri Mathematics Project (MMP). *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 5(1), 14-25.
- Marshall, H. (2019). The Sustainable Development Goals: A Guide for Teachers (2019th ed.). OXFAM.
- Martin, P. (2003). Bilingual encounters in the classroom. *Multilingual Matters*, 67–87
- Martinus, Y., Astono, W., & Hendrawan, D. (2018). Water quality study of Sunter River in Jakarta, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 106, 012022. <https://doi.org/10.1088/1755-1315/106/1/012022>
- Maruf, A., Wahyu, W., & Sopandi, W. (2020). Colloidal Learning Design using Radec Model with Stem Approach Based Google Classroom to Develop Student Creativity. *Journal of Educational Sciences*, 4(4), 758–765.  
<https://doi.org/10.31258/jes.4.4.p.758-765>
- Maulana, Y., Sopandi, W., Sujana, A., Robandi, B., Agustina, N. S., Rosmiati, I., & Fasha, L. H. (2022). Development and Validation of Student Worksheets Air Theme based on the RADEC Model and 4C Skill-oriented. *Jurnal Penelitian Pendidikan IPA*, 8(3), 1605-1611.
- Mayasari, F., Samman, F. A., Muslimin, Z., Waris, T., Dewiani, D., Salam, A. E. U., Gunadin, I. C., Areni, I. S., Akil, Y. S., Sahali, I. R., & Arief, A. B. (2022). Pengenalan Panel Surya sebagai Salah Satu Sumber Energi Terbarukan untuk Pembelajaran di SMA Negeri 1 Takalar. *JURNAL TEPAT : Teknologi Terapan untuk Pengabdian Masyarakat*, 5(2), Article 2.  
[https://doi.org/10.25042/jurnal\\_tepat.v5i2.271](https://doi.org/10.25042/jurnal_tepat.v5i2.271)
- Mazutti, J., Londero Brandli, L., Lange Salvia, A., Fritzen Gomes, B. M., Damke, L. I., Tibola da Rocha, V., & Santos Rabello, R. dos. (2020). Smart and

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- learning campus as living lab to foster education for sustainable development: An experience with air quality monitoring. *International Journal of Sustainability in Higher Education*, 21(7), 1311–1330. <https://doi.org/10.1108/IJSHE-01-2020-0016>
- McElduff, F., Cortina-Borja, M., Chan, S. K., & Wade, A. (2010). When t-tests or Wilcoxon-Mann-Whitney tests won't do. *Advances in physiology education*, 34(3), 128-133.
- McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica*, 22(3), 276-282.
- Meyer, A. A., & Lederman, N. G. (2013). Inventing Creativity: An Exploration of the Pedagogy of Ingenuity in Science Classrooms: Inventing Creativity in the Science Classroom. *School Science and Mathematics*, 113(8), 400–409. <https://doi.org/10.1111/ssm.12039>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook*. Sage.
- Miyake, A., & Friedman, N. P. (2012). The nature and organization of individual differences in executive functions: Four general conclusions. *Current directions in psychological science*, 21(1), 8-14.
- Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: A latent variable analysis. *Cognitive psychology*, 41(1), 49-100.
- Mohamad, M. M., Sulaiman, N. L., Sern, L. C., & Salleh, K. M. (2015). Measuring the validity and reliability of research instruments. *Procedia - Social and Behavioral Sciences*, 204(November), 164–171. <https://doi.org/10.1016/j.sbspro.2015.08.129>
- Mukminin, A., Haryanto, E., Sutarno, S., Sari, S. R., Marzulina, L., Hadiyanto, H., & Habibi, A. (2018). Bilingual education policy and Indonesian pupils' learning strategies. *Elementary Education Online*, 17(3), 1204-1223 <https://doi.org/10.17051/ilkonline.2018.466330>
- Mullet, D. R., Willerson, A., Lamb, K. N., & Kettler, T. (2016). Examining teacher perceptions of creativity: A systematic review of the literature. *Thinking Skills and Creativity*, 21, 9–30. <https://doi.org/10.1016/j.tsc.2016.05.001>
- Mustakim, Trisnaningsih, & Adha, M. M. (2021). The Effectiveness of Online Collaborative Learning During Covid-19 Pandemic. In *Advances in Social Science, Education and Humanities Research, volume 513 4th Sriwijaya University Learning and Education International Conference (SULE-IC 2020)* (Vol. 513, pp. 256-262). Atlantis Press SARL. <https://doi.org/10.2991/assehr.k.201230.115>

- Mutmainah, S. U., Permata, A. D., Kultsum, U. W., & Prihantin, P. (2022). Implementasi Pendekatan Saintifik dalam Mengembangkan Kompetensi Abad 21 Siswa Sekolah Dasar. *Jurnal Pendidikan Sosiologi dan Humaniora*, 13(2), 443-453.
- Newman, S., & Latifi, A. (2021). Vygotsky, education, and teacher education. *Journal of Education for Teaching*, 47(1), 4-17.
- Nilawati Hadisantosa, & Johnstone, R. (2010). Learning through English: Policies, challenges and prospects : insights from East Asia. British Council.
- Noge, M. D. (2018). Penerapan model pembelajaran bilingual preview-review berbasis e-flashcard untuk meningkatkan aktivitas dan prestasi belajar bahasa Inggris siswa SMP. *Journal of Education Technology*, 2(1), 13-19. <https://doi.org/10.23887/jet.v2i1.13801>
- Nugraha, T., & Prabawanto, S. (2021). The Enhancement of Students' Mathematical Conceptual Understanding Through RADEC Learning Model. *Eduma: Mathematics Education Learning and Teaching*, 10(2), 167-177.
- Nurhayati, Y., Sopandi, W., Sumirat, F., Kusumastuti, F. A., Sukardi, R. R., Saud, U. S., & Sujana, A. (2022). Pre-Learning Questions Of Energy Sources on RADEC Learning Model: Validation And Development. *Journal of Engineering Science and Technology*, 17(2), 1028–1035.
- Nurmalasari, R. (2016). Analisis Representasi Siswa SMP pada Tema Kalor dalam Perubahan Wujud Zat. (Thesis). Post Graduate School, Universitas Pendidikan Indonesia, Bandung.
- Oluwatayo, J. A. (2012). Validity and reliability issues in educational research. *Journal of Educational and Social Research*, 2(May), 391–400. <https://doi.org/10.5901/jesr.2012.v2n2.391>
- Onwu, G. O. M., & Kyle, W. C. J. (2011). Increasing the socio-cultural relevance of science education for sustainable development. *African Journal of Research in Mathematics, Science and Technology Education*, 15(3), 5–26. <https://doi.org/10.1080/10288457.2011.10740715>
- Osman, A., Ladhani, S., Findlater, E., & McKay, V. (2017). Curriculum Framework for the Sustainable Development Goals, First Edition. Commonwealth Secretariat.
- Owu-Ewie, C., & Eshun, E. S. (2015). The Use of English as Medium of Instruction at the Upper Basic Level (Primary four to Junior High School) in Ghana: From Theory to Practice. *Journal of Education and Practice*, 6(3), 72–82.
- Park, M. (2019). An Investigation of How Students Use Information to Answer Energy Questions. *International Journal of Research in Education and Science*, 5(2), 388–399.

- Pope, R. (2005). *Creativity: Theory, history, practice*. Routledge.
- Powell, S. R., Namkung, J. M., & Lin, X. (2022). An Investigation of Using Keywords to Solve Word Problems. *The Elementary School Journal*, *122*(3), 452–473. <https://doi.org/10.1086/717888>
- Prabjandee, D., & Nilpirom, P. (2022). Pedagogy in English-Medium Instruction (EMI): Some Recommendations for EMI Teachers. *REFlections*, *29*(2), 421–434.
- Prahani, B. K., Suprpto, N., Rachmadiarti, F., Sholahuddin, A., Mahtari, S., Suyidno, & Siswanto, J. (2021). Online Scientific Creativity Learning (OSCL) in Science Education to Improve Students' Scientific Creativity in COVID-19 Pandemic. *Journal of Turkish Science Education*, *18*, 77–90.
- Pratama, Y. A., & Dewi, L. (2022). Online Learning through The RADEC Model to Increase HOTS of Elementary School Students in The Time of The Covid-19 Pandemic. *PrimaryEdu: Journal of Primary Education*, *6*(2), 172-191.
- Pratama, Y. A., Sopandi, W., & Hidayah, Y. (2019). RADEC Learning Model (Read-Answer-Discuss-Explain And Create): The Importance of Building Critical Thinking Skills In Indonesian Context. *International Journal for Educational and Vocational Studies*, *1*(2), 109-115.
- Pratama, Y. A., Sopandi, W., Hidayah, Y., & Trihatusti, M. (2020). Pengaruh model pembelajaran RADEC terhadap keterampilan berpikir tingkat tinggi siswa sekolah dasar. *JINoP (Jurnal Inovasi Pembelajaran)*, *6*(2), Article 2. <https://doi.org/10.22219/jinop.v6i2.12653>
- Prayogi, R. D., & Estetika (2020). Kecakapan abad 21: Kompetensi digital pendidik masa depan. *Manajemen Pendidikan*, *14*(2), 144-151.
- Pridmore, P., & Bendelow, G. (1995). Images of health: exploring beliefs of children using the 'draw-and-write' technique. *Health Education Journal*, *54*(4), 473-488.
- Purba, N. P. (2017, October 25). Sampah dan Solusi untuk Kesehatan Laut. *Indonesia Youth Marine Debris Summit*, Jakarta, 24-29. <https://doi.org/10.13140/RG.2.2.32905.34406>
- Putri, R. S., Purwanto, A., Pramono, R., Asbari, M., Wijayanti, L. M., & Hyun, C. C. (2020). Impact of the COVID-19 pandemic on online home learning: An explorative study of primary schools in Indonesia. *International journal of advanced science and technology*, *29*(5), 4809-4818.
- Qian, M., Plucker, J. A., & Yang, X. (2019). Is creativity domain specific or domain general? Evidence from multilevel explanatory item response theory models. *Thinking Skills and Creativity*, *33*(September 2018), 100571. <https://doi.org/10.1016/j.tsc.2019.100571>

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Quillin, K., & Thomas, S. (2015). Drawing-to-learn: a framework for using drawings to promote model-based reasoning in biology. *CBE—Life Sciences Education, 14*(1), es2, 1-16.
- Rahayu, R., Iskandar, S., & Abidin, Y. (2022). Inovasi pembelajaran abad 21 dan penerapannya di Indonesia. *Jurnal Basicedu, 6*(2), 2099-2104.
- Rahayu, W. (2019). Sosialisasi dan Workshop Implementasi Model Pembelajaran RADEC Bagi Guru-Guru Pendidikan dasar dan Menengah. *Pedagogia: Jurnal Pendidikan, 8*(1), 19-34.
- Raikes, A., Yoshikawa, H., Britto, P. R., & Iruka, I. (2017). Children, Youth and Developmental Science in the 2015-2030 Global Sustainable Development Goals. *Social Policy Report, 30*(3), 1-22.
- Ramdani, I., Sopandi, W., & Wahyu, W. (2021, November). Student's Creativity in Hydrocarbon and Crude Oils with RADEC Model-based Augmented Reality (AR). In *The 1st International Conference on Research in Social Sciences and Humanities (ICoRSH 2020)* (pp. 1045-1049). Atlantis Press.
- Rao, P. S. (2019). The importance of speaking skills in English classrooms. *Alford Council of International English & Literature Journal (ACIELJ), 2*(2), 6-18.
- Ravanis, K., Kaliampos, G., & Pantidos, P. (2021). Preschool Children Science Mental Representations: The Sound in Space. *Education Sciences, 11*(5), Article 5. <https://doi.org/10.3390/educsci11050242>
- Recepoğlu, S. (2021). Examination of Secondary School Students' Views on Environmental Issues. *International Online Journal of Education and Teaching (IOJET), 8*(4), 2701–2719.
- Reiser, B., Berland, L., & Kenyon, L. (2012). Engaging Students in the Scientific Practices of Explanation and Argumentation. *Understanding A Framework for K–12 Science Education, 49*, 6–11.
- Richards, J. C., & Pun, J. (2022a). Teacher Strategies in Implementing English Medium Instruction. *ELT Journal, 76*(2), 227–237. <https://doi.org/10.1093/elt/ccab081>
- Rido, A., Prakoso, B. H., & Kuswoyo\*, H. (2022). ‘Thank You Very Much’: Feedback Strategies in University English Literature Lecture Interaction. ‘Thank You Very Much’: Feedback Strategies in *University English Literature Lecture Interaction, 12*(1), 29–40.
- Ridwan, I. M., Kaniawati, I., Suhandi, A., Ramalis, T. R., Rizal, R., & Sujarwanto, E. (2023). Tes Kemampuan Pemecahan Masalah pada Tema Perubahan Iklim: Analisis Rasch Model. *DIFFRACTION: Journal for Physics*

*Education and Applied Physics*, 5(1), Article 1.  
<https://doi.org/10.37058/diffraction.v5i1.7738>

- Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp.39-59). UNESCO Publishing.  
<https://unesdoc.unesco.org/ark:/48223/pf0000261802>
- Riegler, G., Osman Ulusoy, A., & Geiger, A. (2017). Octnet: Learning deep 3d representations at high resolutions. In *Proceedings of the IEEE conference on computer vision and pattern recognition* (pp. 3577-3586).
- Rini, J. E. (2014). English in Indonesia. *Beyond Words*, 2/2, 19–39.  
<https://doi.org/10.33508/bw.v2i2.591>
- Rosyidah, F. N., Yulianto, B., & Pratiwi, E. Y. R. (2020). Meningkatkan Hasil Belajar Mata Pelajaran Pendidikan Lingkungan Hidup (PLH) Melalui Penerapan Model Kontekstual Berbasis Proyek Pada Siswa Sekolah Dasar. *Ed-Humanistics: Jurnal Ilmu Pendidikan*, 5(1), 603-609.
- Rosyidi, A., Muharam, A., & Sujana, A. (2022). The Implementation of the RADEC Learning Model through the WhatsApp Application to Increase the Creativity of Elementary School Students. *International Conference on Elementary Education*, 4(1), Article 1.
- Rusdiana, S. (2019). Fenomena Kebutuhan Pangan Asal Daging Dapat Dipenuhi Melalui Peningkatan Usaha Sapi Potong Di Petani. *SOCA: Jurnal Sosial, Ekonomi Pertanian*, 13(1), 61–83.  
<https://doi.org/10.24843/SOCA.2019.v13.i01.p06>
- Saeed, A., & Jarwar, A. Q. (2012). Impact of medium of instruction on achievement Level of Pupils at Higher Secondary Stages in Hyderabad Region of Sindh. *Interdisciplinary Journal of Contemporary Research in Business*, 4(4), 805–811.
- Sagala, S. (2017). Konsep dan makna pembelajaran: untuk membantu memecahkan problematika belajar dan mengajar. Bandung: Penerbit Alfabeta
- Sahabuddin, E. S. (2015). Lembaga Penelitian UNM Optimalisasi Hasil-Hasil Penelitian Dalam Menunjang Pembangunan Berkelanjutan Ruang Teater Gedung PINISI UNM. *Seminar Nasional*, 95–114.
- Santoso, D. (2006). Bilingual Education Program at Junior High school. Jakarta: Prenada Media.
- Saputra, A. S. A., & Suryandi, L. S. L. (2020). Perkembangan kognitif anak usia dini dalam perspektif Vygotsky dan implikasinya dalam pembelajaran. *PELANGI: Jurnal Pemikiran dan Penelitian Islam Anak Usia Dini*, 2(2), 198-206.

Rendi Restiana Sukardi, 2023

DESAIN PEMBELAJARAN READ-ANSWER-DISCUSS-EXPLAIN-CREATE UNTUK MENGEMBANGKAN PENGUASAAN KONSEP, KREATIVITAS, DAN PERSEPSI KOMUNIKASI PESERTA DIDIK SMP DI KELAS IPA BILINGUAL

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Sari, A. A. (2017). *Dasar-dasar public relations teori dan praktik*. Deepublish.
- Satria, E., & Sopandi, W. (2019, October). Applying RADEC model in science learning to promoting students' critical thinking in elementary school. In *Journal of Physics: Conference Series (Vol. 1321, No. 3, p. 032102)*. IOP Publishing.
- Schauss, M., & Sprenger, S. (2019). Conceptualization and evaluation of a school project on climate science in the context of education for sustainable development (ESD). *Education Sciences, 9(3)*, 217. <https://doi.org/10.3390/educsci9030217>
- Schwartz, H. M., & Seabrooke, L. (2009). Varieties of residential capitalism in the international political economy: Old welfare states and the new politics of housing. *The politics of housing booms and busts*, 1-27.
- Seikkula-Leino, J. (2007). CLIL Learning: Achievement Levels and Affective Factors. *Language and Education, 21(4)*, 328–341. <https://doi.org/10.2167/le635.0>
- Setiawan, D., Hartati, T., & Sopandi, W. (2020). Effectiveness Of Critical Multiliteration Model With Radec Model On The Ability Of Writing Explanatory Text. *EduHumaniora: Jurnal Pendidikan Dasar, 12(1)*, 1-14.
- Setiawan, D., Sopandi, W., & Hartati, T. (2020). The influence of read, answer, discuss, explain, and create (RADEC) learning model on the concept mastery of elementary school students on the water cycle topic. *Journal of Physics: Conference Series, 1521*, 042113. <https://doi.org/10.1088/1742-6596/1521/4/042113>
- Setiawan, M. E. (2014). Model Trainer Pembangkit Listrik Tenaga Surya Sebagai Media Pembelajaran Dalam Materi Ajar Pembangkit Listrik Tenaga Surya Di SMK Negeri 1 Magelang. *Edu ElektriKa Journal, 3(1)*, Article 1. <https://doi.org/10.15294/eej.v3i1.4247>
- Shabani, K., Khatib, M., & Ebadi, S. (2010). Vygotsky's zone of proximal development: Instructional implications and teachers' professional development. *English language teaching, 3(4)*, 237-248.
- Shafira, A. H., Safitri, K. A., Yuniarti, Y., & Sukardi, R. R. (2023). Profil Kemampuan Mengingat Kosakata Bahasa Inggris Siswa Menggunakan Metode Active Recall. *Teaching, Learning and Development, 1(1)*, Article 1, 69-76.
- Shepardson, D. P., Niyogi, D., Choi, S., Charusombat, U. 2011. Seventh Grade Students' Conceptions of Global Warming and Climate Change. *Climatic Change, 104 (3-4)*, 481-507



- Shimauchi, S. (2018). English-Medium Instruction in the Internationalization of Higher Education in Japan: Rationales and Issues. *Educational Studies in Japan*, 12(Maret), 77–90. <https://doi.org/10.7571/esjkyoiku.12.77>
- Shively, K., Stith, K. M., & Rubenstein, L. D. (2018). Measuring What Matters: Assessing Creativity, Critical Thinking, and the Design Process. *Gifted Child Today*, 41(3), 149–158. <https://doi.org/10.1177/1076217518768361>
- Shulla, K., Filho, W. L., Lardjane, S., Sommer, J. H., & Borgemeister, C. (2020). Sustainable development education in the context of the 2030 Agenda for sustainable development. *International Journal of Sustainable Development & World Ecology*, 27(5), 458–468. <https://doi.org/10.1080/13504509.2020.1721378>
- Simbolon, N. (2018). EMI IN INDONESIAN HIGHER EDUCATION: Stakeholdersâ€™ PERSPECTIVES. *TEFLIN Journal*, 29(1), Article 1. <https://doi.org/10.15639/teflinjournal.v29i1/108-128>
- Siregar, L. S., Wahyu, W., & Sopandi, W. (2020). Polymer learning design using Read, Answer, Discuss, Explain and Create (RADEC) model based on Google Classroom to develop student's mastery of concepts. *Journal of Physics: Conference Series*, 1469, 012078. <https://doi.org/10.1088/1742-6596/1469/1/012078>
- Skjott Linneberg, M., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, 19(3), 259–270. <https://doi.org/10.1108/QRJ-12-2018-0012>
- Smith, J. K., & Smith, L. F. (2010). Educational creativity. In *The Cambridge handbook of creativity* (pp. 250–264). Cambridge University Press. <https://doi.org/10.1017/CBO9780511763205.016>
- Snead, L. P. (2011). Difficulties Teaching Abstract Concept in Secondary Chemistry Classroom. Retrieved 7 September 2017 from [http://www.ibrarian.net/navon/paper/Loraine\\_P\\_\\_Snead\\_Difficulties\\_Teaching\\_Abstract\\_C.pdf?paperid=17617863](http://www.ibrarian.net/navon/paper/Loraine_P__Snead_Difficulties_Teaching_Abstract_C.pdf?paperid=17617863)
- Snyder, H. T., Hammond, J. A., Grohman, M. G., & Katz-Buonincontro, J. (2019). Creativity measurement in undergraduate students from 1984–2013: A systematic review. *Psychology of Aesthetics, Creativity, and the Arts*, 13(2), 133.
- So, K., & Hu, Y. (2019). Understanding creativity in an Asian school context: Korean teachers' perspectives. *Thinking Skills and Creativity*, 33, 100573. <https://doi.org/10.1016/j.tsc.2019.100573>
- Soh, K.-C. (2000). Indexing creativity fostering teacher behavior: A preliminary validation study. *The Journal of Creative Behavior*, 34(2), 118–134. <https://doi.org/10.1002/j.2162-6057.2000.tb01205.x>

- Soltis, N. A., McNeal, K. S., & Schnittka, C. G. (2021). Understanding undergraduate student conceptions about biogeochemical cycles and the earth system. *Journal of Geoscience Education*, *69*(3), 265–280. <https://doi.org/10.1080/10899995.2020.1858267>
- Sopandi, W., & Handayani, H. (2019). The Impact of Workshop on Implementation of Read-Answer-Discuss-Explain-And-Create (RADEC) Learning Model on Pedagogic Competency of Elementary School Teachers. *Advances in Social Science, Education and Humanities Research*, *7–11*. <https://doi.org/10.2991/icoie-18.2019.3>
- Sopandi, W., & Sukardi, R. R. (2020). Using Four Tier Diagnostic Tests to Understand the Conceptions Held by Pre Service Primary School Teachers about Sea Pollutant Migration. *Review of International Geographical Education Online*, *10*(2), 13–29. <https://doi.org/10.33403/rigeo.629388>.
- Sopandi, W., Imran, M. E., Handayani, H., & Anwar, C. (2020). Pengembangan kompetensi guru melalui sosialisasi dan workshop model pembelajaran RADEC berorientasi multiliterasi. *Jurnal Pengabdian Pada Masyarakat*, *5*(3), 823-831.
- Sopandi, W., Sukyadi, D., & Sukardi, R. R. (2019). The Implementation of Guided Research—Based Learning with Graduate School Students of an Elementary Education Study Program. *Pedagogika*, *134*(2), Article 2. <https://doi.org/10.15823/p.2019.134.5>
- Soruc, A., & Griffiths, C. (2018). English as a medium of instruction: Students' strategies. *ELT Journal*, *72*(1), 38–48. <https://doi.org/10.1093/elt/ccx017>
- Stone, R., Cooper, S., & Cant, R. (2013). The value of peer learning in undergraduate nursing education: a systematic review. *International Scholarly Research Notices*, *2013*, 1-10.
- Sujana, A., Sukardi, R. R., Rosbiono, M., & Sopandi, W. (2021). Fundamental concepts and chemical representations on sea pollutant migration: Can it be improved through RADEC. *Moroccan Journal of Chemistry*, *9*(2), 9–338. <https://doi.org/10.48317/IMIST.PRSM/morjchem-v9i2.27585>
- Sukardi, R. R., Sopandi, W., & Riandi, R. (2021). Can Pupils Retell Concepts in English? An Analysis of How to Use EMI in Science Class. *International Journal of Instruction*, *14*(4), 659–678. <https://doi.org/10.29333/iji.2021.14438a>
- Sukardi, R. R., Sopandi, W., & Riandi, R. (2021, March). Repackaging RADEC learning model into the online mode in science class. *In Journal of Physics: Conference Series (Vol. 1806, No. 1, p. 012142)*. IOP Publishing.

- Sukardi, R. R., Sopandi, W., & Riandi. (2021, April). How do teachers develop secondary school students' creativity in the classroom?. *In AIP Conference Proceedings (Vol. 2331, No. 1, p. 030024)*. AIP Publishing LLC.
- Sukardi, R. R., Sopandi, W., Riandi, Aila, R. V., Sriwulan, W., & Sutinah, C. (2022). What is Your Chemical Creation to Overcome Environmental pollution? Students' Creative Ideas on the RADEC Learning Model. *Moroccan Journal of Chemistry*, *10(3)*, 476–487. <https://doi.org/10.48317/IMIST.PRSM/morjchem-v10i3.33076>
- Sukardi, R. R., Sopandi, W., Riandi, Beeth, M. E., & Shidiq, A. S. (2022). What Creative Ideas Came Up about Global Warming in RADEC Online Class? *Asia Pacific Journal of Educators and Education*, *37(2)*, 51–83. <https://doi.org/10.21315/apjee2022.37.2.4>
- Sukardi, R. R., Sopandi, W., Riandi, R., & Tanuatmadja, A. P. (2022). What Is Shown by Bibliometric Analysis? A Review on Creativity Development in Science Class. *European Online Journal of Natural and Social Sciences*, *11(2)*, 370–378.
- Sukardi, R. R., Sopandi, W., Sutinah, C., Yanuar, Y., Suhendra, I., & Sujana, A. (2021). Did online coaching increase teachers' capability in implementing RADEC to stimulate pupils' creativity in the topic of mixture separation and electricity? *Journal of Engineering Science and Technology*, *16(Special Issue)*, 75–82.
- Sukardi, R. R., Wahyu, S., Riandi, Rahmawati, Y., Syifahayu, Meilinda, Rohimah, S. M., & Helsa, Y. (2022). Building Pupils' Creativity at Lower Secondary School: Science Teachers' Perspectives in Urban and Rural Areas. *International Journal of Learning, Teaching and Educational Research*, *21(7)*, 40–58. <https://doi.org/10.26803/ijlter.21.7.3>
- Sukardi, R. R., Widarti, H. R., & Nurlela, L. (2017). Primary School Students' Submicroscopic Representation Level on Greenhouse Effect at Urban Educational Area, *2*, 178–183. <https://doi.org/10.5220/0007300701780183>
- Sukardi, R. R., Widodo, A., & Sopandi, W. (2017). Describing Teachers' Pedagogic Content Knowledge about Reasoning Development and Students' Reasoning Test. *Advances in Social Science, Education and Humanities Research (ASSEHR)*, *57*, 14–20. <https://doi.org/10.2991/icmsed-16.2017.4>
- Sukardi, R., Sopandi, W., Riandi, R., Lestari, H., & Juanda, M. R. (2022). Trends of English As Medium Instruction in Science Learning: Review and Bibliometric Analysis. *Pegem Journal of Education and Instruction*, *12(3)*, 450–477.
- Sukmawati, D., Sopandi, W., & Sujana, A. (2020, March). The application of read-answer-discuss-explain-and create (radec) models to improve student learning outcomes in class v elementary school on human respiratory

- system. *In International Conference on Elementary Education (Vol. 2, No. 1, pp. 1734-1742)*
- Sukmawati, D., Sopandi, W., Sujana, A., & Muharam, A. (2021). Kemunculan Aspek Karakter Siswa SD melalui Pembelajaran RADEC dengan Menggunakan WhatsApp pada Materi Siklus Air. *Jurnal Basicedu, 5(4)*, 1787-1798.
- Sukroyanti, B. A. (2015). Pengaruh Penerapan Strategi Konflik Kognitif dalam Upaya Peningkatan Hasil Belajar. *Jurnal Kependidikan, 14 (1)*, 23-28
- Sun, S. (2011). Meta-analysis of Cohen's kappa. *Health Services and Outcomes Research Methodology, 11*, 145-163. <https://doi.org/10.1007/s10742-011-0077-3>
- Supadmini, N. K., Wisnu Budi Wijaya, I. K., & Larashanti, I. A. D. (2020). Implementasi Model Pendidikan Lingkungan UNESCO Di Sekolah Dasar. *Cetta: Jurnal Ilmu Pendidikan, 3(1)*, 77-83. <https://doi.org/10.37329/cetta.v3i1.416>.
- Suprpto, N., Prahani, B. K., & Cheng, T. H. (2021). Indonesian curriculum reform in policy and local wisdom: Perspectives from science education. *Jurnal Pendidikan IPA Indonesia, 10(1)*, 69-80.
- Surdyanto, A. (2018). A Brief View on Bilingual Schools in The Capital of Indonesia. *IJEE (Indonesian Journal of English Education), 5(1)*, 1-15. <https://doi.org/DOI: 10.15408/ijee.v5i1.8018>
- Susanti, L. (2020). Strategi pembelajaran berbasis motivasi. *Elex Media Komputindo*
- Susanto, J. P. (2005). Kualitas Udara Beberapa Kota di Asia. *J. Tek.Ling. P3TL-BPPT, 6(1)*, 324-329.
- Sutantri, N., Sopandi, W., Wahyu, W., & Latip, A. (2023). Model Pembelajaran RADEC (Read, Answer, Discuss, Explain, and Create) Ditinjau dari Perspektif Pembentukan Profil Pelajar Pancasila. *EduMatSains: Jurnal Pendidikan, Matematika dan Sains, 7(2)*, 254-269.
- Suwarno, S., Wahidin, W., & Nur, S. H. (2020). Project-based learning model assisted by worksheet: It's effect on students' creativity and learning outcomes. *JPBI (Jurnal Pendidikan Biologi Indonesia), 6(1)*, 113-122. <https://doi.org/10.22219/jpbi.v6i1.10619>
- Syahdan, F. (2017). Hubungan antara keterampilan kerja dengan produktivitas kerja. *Psikoborneo, 5(1)*, 1-10.
- Syahrin, A., Dawud, Suwignyo, H., & Priyatni, E. T. (2019). Creative Thinking Patterns In Student's Scientific Works. *Eurasian Journal of Educational Research, 19(81)*, 1-16. <https://doi.org/10.14689/ejer.2019.81.2>

- Szczesniak, K., & Sitter, H. (2021). To the Best of My Memory and Belief: Learning New Language Forms. *Australian Journal of Applied Linguistics*, 4(1), 1–17.
- Tai, T.-E., & Tang, C. W. (2021). The role of graduate students' learning strategies in reducing their English medium instruction avoidance: The mediation effect of language anxiety. *Asia Pacific Journal of Education*, 41(2), 368–384. <https://doi.org/10.1080/02188791.2020.1777937>
- Tajudin, M. M., Chinnapan, M. (2016). The Link between Higher Order Thinking Skills, Representation, and Concepts in Enhancing TIMSS Task. *International Journal of Instruction*, 9 (2), 199-214.
- Talaue, F. G., & Kim, M. K. (2020). Investigating the Advantages of English Medium Instruction (EMI) in the Indonesian Workplace. *LEARN Journal: Language Education and Acquisition Research Network Journal*, 13(2), 321–334.
- Tang, K. N. (2020). Challenges and Importance of Teaching English as a Medium of Instruction in Thailand International College. *English as an International Language*, 15(2), 97–118.
- Taufik, I. (2011). Pencemaran Pestisida Pada Perairan Perikanan Di Sukabumi-Jawa Barat. *Media Akuakultur*, 6(1), Article 1. <https://doi.org/10.15578/ma.6.1.2011.69-75>
- Taylor, R. (1990). Interpretation of the correlation coefficient: a basic review. *Journal of diagnostic medical sonography*, 6(1), 35-39.
- Tharp, R. G., & Gallimore, R. (1991). Rousing minds to life: Teaching, learning, and schooling in social context. Cambridge University Press.
- Thierry, G., & Sanoudaki, E. (2012). Activation syntaxique non-sélective à la langue chez le bilingue précoce. *Revue française de linguistique appliquée*, 17(2), 33-48.
- Thompson, T. (2017). Teaching Creativity Through Inquiry Science. *Gifted Child Today*, 40(1), 29–42. <https://doi.org/10.1177/1076217516675863>
- Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), 207–222. <https://doi.org/10.1111/1467-8551.00375>
- Trnova, E., & Trna, J. (2014). Implementation of creativity in science teacher training. *International Journal on New Trends in Education and Their Implications*, 5(3), 54–63

- Tulljanah, R., & Amini, R. (2021). Model Pembelajaran RADEC sebagai Alternatif dalam Meningkatkan Higher Order Thinking Skill pada Pembelajaran IPA di Sekolah Dasar: Systematic Review. *Jurnal Basicedu*, 5(6), 5508-5519.
- Turkman, B., & Runco, M. A. (2019). Discovering the creativity of written works: The keywords study. *Gifted and Talented International*, 34(1-2), 19-29. <https://doi.org/10.1080/15332276.2019.1690955>
- Ünsal, Z., Jakobson, B., Molander, B.-O., & Wickman, P.-O. (2018). Science education in a bilingual class: Problematising a translational practice. *Cultural Studies of Science Education*, 13(2), 317-340. <https://doi.org/10.1007/s11422-016-9747-3>
- Ünsal, Z., Jakobson, B., Wickman, P.-O., & Molander, B.-O. (2020). Jumping pepper and electrons in the shoe: Using physical artefacts in a multilingual science class. *International Journal of Science Education*, 42(14), 2387-2406. <https://doi.org/10.1080/09500693.2019.1650399>
- Urbańska, M., Charzyński, P., Gadsby, H., Novák, T. J., Şahin, S., & Yilmaz, M. D. (2021). Environmental Threats and Geographical Education: Students' Sustainability Awareness—Evaluation. *Education Sciences*, 12(1), 1-15. <https://doi.org/10.3390/educsci12010001>
- van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538. <https://doi.org/10.1007/s11192-009-0146-3>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020). Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review. *SAGE Open*, 10(1), 2158244019900176. <https://doi.org/10.1177/2158244019900176>
- Vithanapathirana, M., & Lakshmi, N. (2020). Improving Secondary Science Instruction through Content and Language Integrated Learning (CLIL) in Sri Lanka. *International Online Journal of Education and Teaching*, 7(1), 141-148.
- Voogt, J., Erstad, O., Dede, C., & Mishra, P. (2013). Challenges to learning and schooling in the digital networked world of the 21st century. *Journal of Computer Assisted Learning*, 29(5), 403-413. <https://doi.org/10.1111/jcal.12029>
- Vu, N., & Burns, A. (2014). English as a medium of instruction: Challenges for Vietnamese tertiary lecturers. *Journal of Asia TEFL*, 11(3), 1-23. [https://www.academia.edu/download/55086469/AsiaTEFL\\_V11\\_N3\\_Autumn\\_2014\\_English\\_as\\_a\\_Medium\\_of\\_Instruction\\_Challenges\\_for\\_Vietnamese\\_Tertiary\\_Lecturers.pdf](https://www.academia.edu/download/55086469/AsiaTEFL_V11_N3_Autumn_2014_English_as_a_Medium_of_Instruction_Challenges_for_Vietnamese_Tertiary_Lecturers.pdf)

- Waldeyer, J., & Roelle, J. (2021). The keyword effect: A conceptual replication, effects on bias, and an optimization. *Metacognition and Learning, 16*(1), 37–56. <https://doi.org/10.1007/s11409-020-09235-7>
- Waltman, L. (2016). A review of the literature on citation impact indicators. *Journal of informetrics, 10*(2), 365-391.
- Wang, A. Y. (2012). Exploring the Relationship of Creative Thinking to Reading and Writing. *Thinking Skills and Creativity, 7*(1), 38–47. <https://doi.org/10.1016/j.tsc.2011.09.001>
- Wardono, W., Waluya, B., Kartono, K., Mulyono, M., & Mariani, S. (2018, February). Literasi matematika siswa SMP pada pembelajaran problem based learning realistik edmodo schoology. In *PRISMA, Prosiding Seminar Nasional Matematika (Vol. 1, pp. 477-497)*.
- Warjiyono, W., Suryanti, E., Rousyati, R., Fatmawati, F., Tazali, I., Lisnawati, L., & Rosihyana, R. (2021). Pelatihan Aplikasi Perkantoran Untuk Meningkatkan Kualitas SDM Perangkat Desa Karangmangu. *Jurnal Abdimas BSI: Jurnal Pengabdian Kepada Masyarakat, 4*(1), 156-163.
- Werther, C., Denver, L., Jensen, C., & Mees, I. M. (2014). Using English as a medium of instruction at university level in Denmark: The lecturer's perspective. *Journal of Multilingual and Multicultural Development, 35*(5), 443–462. <https://doi.org/10.1080/01434632.2013.868901>
- Widodo, S., & Wardani, R. K. (2020). Mengajarkan keterampilan abad 21 4C (communication, collaboration, critical thinking and problem solving, creativity and innovation) di sekolah dasar. *MODELING: Jurnal Program Studi PGMI, 7*(2), 185-197.
- Williams, D. G. (2023). Trust and translanguaging in English-medium instruction. *ELT Journal, 77*(1), 23–32. <https://doi.org/10.1093/elt/ccac016>
- Winter, J. C. F. De, Gosling, S. D., & Potter, J. (2016). Supplemental material for comparing the Pearson and Spearman correlation coefficients across distributions and sample sizes: A tutorial using simulations and empirical data. *Psychological Methods, 21*(3), 273–290. <https://doi.org/10.1037/met0000079.supp>
- Winter, J. C., & Dodou, D. (2012). Factor recovery by principal axis factoring and maximum likelihood factor analysis as a function of factor pattern and sample size. *Journal of applied statistics, 39*(4), 695-710.
- Wiradana, I. W. G. (2016). Pengaruh Strategi Konflik Kognitif dan Berpikir Kritis terhadap Prestasi Belajar IPA Kelas VII SMP Negeri 1 Nusa Penida. *Jurnal Pendidikan dan Pembelajaran IPA Indonesia, 2*(2), 1-19. from <https://media.neliti.com/media/publications/120707-ID-pengaruh-strategi-konflik-kognitif-dan-b.pdf>

- Wong, B., & Kemp, P. E. J. (2018). Technical boys and creative girls: The career aspirations of digitally skilled youths. *Cambridge Journal of Education*, 48(3), 301–316. <https://doi.org/10.1080/0305764X.2017.1325443>
- Wulandari, W., Wahyu, W., & Sopandi, W. (2020). Students' Creativity in Creating Aromatherapy Candle using Petroleum Learning Design with Rade Model. *Journal of Educational Sciences*, 4(4), 813820. <https://doi.org/10.31258/jes.4.4.p.813-820>
- Wulandari, W., Wahyu, W., & Sopandi, W. (2020a). Students' Creativity in Creating Aromatherapy Candle using Petroleum Learning Design with Rade Model. *Journal of Educational Sciences*, 4(4), 813820. <https://doi.org/10.31258/jes.4.4.p.813-820>
- Xiao, A. (2018). Konsep Interaksi Sosial Dalam Komunikasi, Teknologi, Masyarakat. *Jurnal Komunika: Jurnal Komunikasi, Media Dan Informatika*, 7(2), 94-99.
- Xie, Y., & Harjono, M. (2020). A review of motor vehicle fuel demand and supply in Indonesia. *INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION*, 20, 1–8.
- Y. Azougarh, M. A., & M. Benafqir M. Ez-zahery, N. E. A. (2019). The Use Of Natural Materials For The Treatment Of Leachates Of The Agadir Dump. *Moroccan Journal of Chemistry*, 7(1), Article 1. <https://doi.org/10.48317/IMIST.PRSM/morjchem-v7i1.15243>
- Yani, A., Mulyadi, A., & Ruhimat, M. (2018). Contextualization of spatial intelligence: Correlation between spatial intelligence, spatial ability, and geography skills. *Journal of Baltic Science Education*, 17(4), 564.
- Yanuar, Y., Sopandi, W., Saud, U. S., & Riyana, C. (2022). An Empirical Approach on Online Rade Model: Does it Affect on Elementary Students' Creative Thinking Skills?. *European Online Journal of Natural and Social Sciences*, 11(4), pp-1279.
- Yao, C. W., Collins, C., Bush, T., Briscoe, K. L., & Dang, N. L. T. (2022). English as a 'double barrier': English medium instruction and student learning at Vietnamese transnational universities. *Higher Education Research & Development*, 41(4), 1372–1386. <https://doi.org/10.1080/07294360.2021.1896485>
- Yuniarti, Y., Yanthi, N., Yunansah, H., Kurniawan, D. T., & Sukardi, R. R. (2021). Introducing SFH (STEM From Home) through Webinar program: A descriptive study. *Journal of Physics: Conference Series*, 1987(1), 012050. <https://doi.org/10.1088/1742-6596/1987/1/012050>
- Yunus, M. (2008). Comparison of Cognitive Conflict and Conventional Strategy to Learning Achievement of the Student of XI IPA Class of SMA Negeri 1



- Makassar (Study at the Main Subject of Solution Stoichiometrie). *Jurnal Chemica*, 9 (2), 30-36.
- Yusuf, M. F., Toenlioe, A. J., & Wedi, A. (2017). Pengembangan Multimedia Pembelajaran Interaktif IPA Materi Atmosfer Bumi Kelas VIII SMPN 3 Tulungagung. *Edcomtech: Jurnal Kajian Teknologi Pendidikan*, 2(1), 37-40.
- Zainuddin, Z., Suyidno, S., Dewantara, D., Mahtari, S., Nur, M., Yuanita, L., & Sunarti, T. (2020). The Correlation of Scientific Knowledge-Science Process Skills and Scientific Creativity in Creative Responsibility Based Learning. *International Journal of Instruction*, 13(3), 307–316. <https://doi.org/10.29333/iji.2020.13321a>
- Zein, S., Sukyadi, D., Hamied, F. A., & Lengkanawati, N. S. (2020). English language education in Indonesia: A review of research (2011–2019). *Language Teaching*, 53(4), 491–523. <https://doi.org/10.1017/S0261444820000208>
- Zubaidah, S. (2018, October). Mengenal 4C: Learning and innovation skills untuk menghadapi era revolusi industri 4.0. In *2nd Science Education National Conference (Vol. 13, No. 2, pp. 1-18)*.
- Zubaidah, S., & Corebima, A. (2021). The Effect Size of Different Learning on Critical and Creative Thinking Skills of Biology Students. *International Journal of Instruction*, 14(3), 187-206 [http://e-iji.net/dosyalar/iji\\_2021\\_3\\_11.pdf](http://e-iji.net/dosyalar/iji_2021_3_11.pdf)
- Zubaidah, S., Fuad, N., Mahanal, S., & Suarsini, E. (2017). Improving Creative Thinking Skills of Students through Differentiated Science Inquiry Integrated with Mind Map. *Journal of Turkish Science Education*, 14(4), 77–91. <https://doi.org/10.12973/tused.10214a>