

**FAKULTAS PSIKOLOGI**  
 Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234  
 Telp. (024) 8441555, 8505003 (hunting) Fax. (024) 8415429 - 8445265  
 e-mail: unika@unika.ac.id http://www.unika.ac.id



## SURAT TUGAS

Nomor : 1336/B.8.3/FP/III/2019

Dekan Fakultas Psikologi Universitas Katolik Soegijapranata Semarang memberikan tugas kepada yang tersebut dibawah ini :

Nama : **Dr. Augustina Sulastri, S.Psi.**

Status : Dosen Fakultas Psikologi  
 Universitas Katolik Soegijapranata Semarang

Tugas : Melakukan Pengabdian kepada Masyarakat dengan judul "Fostering Psychological And Physical Wellbeing: Brain Gym And Fish Oil Vitamine Intake"

Waktu : 15 Maret 2019 – 30 Juni 2019

Tempat : Semarang dan sekitarnya

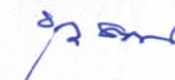
Lain – lain : Harap melaksanakan tugas dengan sebaik – baiknya dan penuh rasa tanggung jawab serta memberikan laporan setelah selesai melaksanakan tugas.

Demikian surat tugas ini dibuat untuk diketahui dan dipergunakan sebagaimana mestinya.

Semarang, 15 Maret 2019  
 Dekan  
  
 Dr. M. Sih Setija Utami, M.Kes  
 NPP.058.1.1990.068



Telah melaksanakan tugas,  
 Mengetahui :

  
 Sri Sumijeti

LEMBAR  
 HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*  
 KARYA ILMIAH : HASIL PENELITIAN ATAU PEMIKIRAN ATAU KERJASAMA INDUSTRI YANG  
 TIDAK DIPUBLIKASIKAN

Judul Penelitian : Fostering Psychological and Physical Well-Being Brain Gym Training and Oil-fish Vitamin Intake

Penulis Penelitian : Augustina Sulastri, Yuria Ekalitani, Bernadeth Lestyobudi  
 Novihartanti, Adytia Pratama, Klara Andromeda, Blacius Fandy  
 Febryan, Novandro Wilson Pattinama, Eclisisa Selfi Dian Krisnasari

Kategori Publikasi Penelitian : Laporan Penelitian Tidak Dipublikasikan

Hasil Penilaian *Peer Review* :

Komponen yang dinilai	Nilai maksimal Laporan Penelitian Tidak Dipublikasikan	Nilai Akhir yang Diperoleh
a. Kelengkapan unsur isi makalah (10%)	0,2	0,12
b. Ruang lingkup dan kedalaman pembahasan (30%)	0,6	0,36
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	0,6	0,36
d. Tidak tersimpan di perpustakaan, mendapat rekomendasi profesor/pakar di bidangnya (30%)	0,6	0,36
Total = 100%	2	1,2
Nilai Pengusul		

$60\% \times 2 = 1,2$

Catatan penilaian artikel oleh Reviewer 1 :

1. Kelengkapan dan kesesuaian unsur :
2. Ruang lingkup dan kedalaman :
3. Kecukupan dan kemutakhiran data serta metodologi :
4. Kelengkapan unsur kualitas penerbit :
5. Indikasi Plagiasi :
6. Kesesuaian Bidang Ilmu

LEMBAR  
 HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*  
 KARYA ILMIAH : HASIL PENELITIAN ATAU PEMIKIRAN ATAU KERJASAMA INDUSTRI YANG  
 TIDAK DIPUBLIKASIKAN

Judul Penelitian : Fostering Psychological and Physical Well-Being Brain Gym Training and Oil-fish Vitamin Intake

Penulis Penelitian : Augustina Sulastri, Yuria Ekalitani, Bernadeth Lestyobudi  
 Novihartanti, Adytia Pratama, Klara Andromeda, Blacius Fandy  
 Febryan, Novandro Wilson Pattinama, Eclisisa Selfi Dian Krisnasari

Kategori Publikasi Penelitian : Laporan Penelitian Tidak Dipublikasikan

Hasil Penilaian *Peer Review* :

Komponen yang dinilai	Nilai maksimal Laporan Penelitian Tidak Dipublikasikan	Nilai Akhir yang Diperoleh
a. Kelengkapan unsur isi makalah (10%)	0,2	0,108
b. Ruang lingkup dan kedalaman pembahasan (30%)	0,6	0,324
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	0,6	0,324
d. Tidak tersimpan di perpustakaan, mendapat rekomendasi profesor/pakar di bidangnya (30%)	0,6	0,324
Total = 100%	2	1,08
Nilai Pengusul		

Catatan penilaian artikel oleh Reviewer 2 :

1. Kelengkapan dan kesesuaian unsur :
2. Ruang lingkup dan kedalaman :
3. Kecukupan dan kemutakhiran data serta metodologi :
4. Kelengkapan unsur kualitas penerbit :
5. Indikasi Plagiasi :
6. Kesesuaian Bidang Ilmu

## COMMUNITY SERVICE REPORT

**Fostering Psychological and Physical Well-being:**

**Brain Gym Training and Oil-fish Vitamin Intake**



### **Team members:**

Augustina Sulastri (NPP: 058.1.2003.260)

Yuria Ekalitani (NIM: 18.E3.0049)

Bernadeth Lestyobudi Novihartanti (NIM: 18. E3. 0100)

Aditya Pratama (NIM: 15.E3.0071)

Klara Andromeda (NIM: 17.E3.0057)

Blacius Fandy Febryan (NIM: 16.E3.0009)

Novandro Wilson Pattinama (NIM: 17.E3.0005)

Eclisia Selfi Dian Krisnasari (NIM: 17.E3.0058)

**LEMBAGA PENELITIAN DAN PENGABDIAN MASYARAKAT**

**UNIVERSITAS KATOLIK SOEGIJAPRANATA**

**SEMARANG**

2019

HALAMAN PENGESAHAN  
PROGRAM PENGABDIAN KEPADA MASYARAKAT

1. Judul Pengabdian kepada masyarakat:

*“Fostering Psychological and Physical Well-being: Brain Gym and Oil-fish Vitamine intake”*

2. Ketua Tim

- |                            |   |
|----------------------------|---|
| a. Nama                    | : Dr. Augustina Sulastri  |
| b. NPP                     | : 058.1.2003.260  |
| c. Jabatan Fungsional/Gol. | : Asisten Ahli / IIIB   |
| d. Program Studi           | : Psikologi   |
| e. Bidang Keahlian         | : Psikologi Pendidikan  |
| f. Alamat e-mail/HP        | : <a href="mailto:ag.sulastri@unika.ac.id">ag.sulastri@unika.ac.id</a> /<br>0816-426-0966 |

3. Anggota Tim

- |                   |                                    |
|-------------------|------------------------------------|
| a. Jumlah anggota | : 7 mahasiswa S2 Profesi Psikologi |
|-------------------|------------------------------------|

4. Mitra Kerja

: SD Gunung Brintik, Semarang

5. Luaran yang dihasilkan

: a. Artikel publikasi pengabdian untuk  
jurnal atau artikel Call for Paper

6. Jangka waktu pelaksanaan


: 6 bulan

7. Biaya keseluruhan

: Rp. 3.000.000,-

Semarang, 20 Juni 2019

Ketua Pengabdian kepada masyarakat



(Dr. Augustina Sulastri)  
NPP: 058.1.2003.260



**BERITA ACARA**  
**REVIEW HASIL PENGABDIAN KEPADA MASYARAKAT**

Pada hari ini *yumat* tanggal *21 Juni 2019* telah dilaksanakan review hasil pengabdian kepada masyarakat, dengan catatan sebagai berikut:  
Judul Pengabdian:

Tim Pengabdian:

1. Kesesuaian pelaksanaan dengan rencana

- *bagus.*

- *Lihat catatan dm naskah*

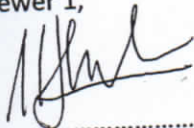
2. Ketercapaian target pengabdian

*Target kegiatan sudah tercapai, tetapi target lainnya (misal: jumlah peserta, peningkatan kemampuan belum dinyatakan)*

3. Rekomendasi untuk tindak lanjut

*Temukan*

Reviewer 1,



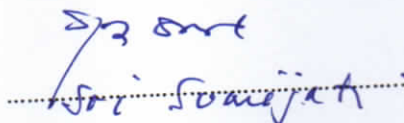
Dr. M. SIH SETIA UTAMI, M.Kn.

Reviewer 2,



Mengetahui:

Koord. Penelitian dan Pengabdian,



## LIST OF CONTENT

Executive Summary.....	1
Introduction.....	2
Literature Review.....	4
Methods.....	7
Program Execution.....	8
Conclusion and future directions.....	9
References.....	10

## EXECUTIVE SUMMARY

The current community service project is a seminal work that is designed as a multi-year community service programs. Participants of this multi-year community service programs are teachers and students from three primary schools that are located in sub-urban areas of Semarang City, namely SD Vincentius, SD Tarcisius, and SD Servatius. Programs designed to be conducted are (1) conducting Intelligence test, Vanderbilt Test, Personality Test, Neuropsychological Test for children, observation and interview as the basis of making psychological report for students ; (2) delivering seminar and workshop about application of neuroscience on education and brain-gym to the school teachers as the basis of conducting daily program exercising the brain on classes; (3) providing oil-fish tablets and nutritious food (milk) to the students to enhance students' physical well being; (4) giving group counseling and individual counseling for students who have psychological problems; and (5) giving intensive therapy for students who perform poorly at school. At this initial programs, we conducted two programs: (a) intelligence tests for 19 students of 4th grade and 18 students of 5th grade and (b) seminar and workshop to the teachers of the three schools, namely SD Servatius, SD Vincentius and SD Tarcisius Semarang.



## 1. Introduction

Parents' socioeconomic status appeared to be one of the robust reason of students' intelligence (Stumm & Plomin, 2015), and subsequently affect academic success. Higher-SES-students tend to have higher academic achievement, and lower-SES-students tend to have a greater risk for failing on obtaining good grades or even tend to be dropping out from school and become students at risk (Ormrod et al., 2006). Ormrod et al. further explained that several factors pertained to problems at school encountered by the low-SES-students are poor nutrition, less parental involvement in children's education, and lower aspirations of the students, to mention some among others.

Students from low SES' family are usually going to go to relatively low standard school where the facilities are very scarce. Students of SD Gunung Brintik Semarang are, in general, coming from very low income families. They live in very poor conditions, that is living in the cemetery park near the school. Some parents are single parent or divorced, hence many of them have very limited income that most of the time they cannot afford to pay the tuition fee. Li et al.'s meta-analysis study (2014) found that of 23 studies published between 1980 and 2012 that met the selection criteria, 21 reported significant associations between nonstandard work schedules and an adverse child developmental outcome. The associations were partially mediated through parental depressive symptoms, low quality parenting, reduced child-parent interaction and closeness, and a less supportive home environment. Because of this condition the school needs external assistance in order to sustain their existence and to give services to these poor students.

To support optimal development among students from low SES background, numerous effort has to be made. In this outreach project, we conducted some programs for teachers and

students of SD Servatius, SD Vincentius and SD Tarcisius that are located in suburban of Semarang. Initial programs that already implemented were: (1) Seminar and Workshop on Neuroscience on Education and Brain-Exercis; (2) Intelligence Assessment. We plan that on July we will start on (a) regularly giving the students fish oil (intake of Omega-3) and milk; (b) doing brain-based physical activity.

## **II. Literature Review**

### **1. Physical and psychological wellbeing**

The definition of physical wellbeing in this current project is parallel to what we call as physical exercise that involves planned, repetitive, and structured activity (Tompsonski, Davis, Miller, & Naglieri, 2008). In this project we employed specifically "brain-based" stimulation exercise. Tomporowski et al. further explained that to define psychological well-being operationally is the extent that you at least slightly lose your breath somewhat more difficult than to define exercise. The psychological well-being may be related to self-esteem, personality, mood, and positive affect such as happiness, vigor, and morale, both positive and negative affect commonly found in and negative affect such as anxiety and depression.

### **2. Oil fish intake**

Many medical, nutrition, and education professionals have long suspected that poor diet impairs the academic performance of Western schoolchildren; academic performance often improves after improved diet (Schoenthaler, Bier, Young, Nichols, & Janssens, 2000). Fish oil can be obtained from eating fish or by taking supplements. Fish that are especially rich in the beneficial oils known as omega-3 fatty acids include mackerel, herring, tuna, salmon, cod liver, whale blubber, and seal blubber. Two of the most important omega-3 fatty acids contained in fish oil are eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Make sure to see separate listings on EPA and DHA, as well as Cod Liver Oil, and Shark Liver Oil. Fish may have earned its reputation as "brain food" because some people eat fish to help with depression, bipolar disorder, psychosis, attention deficit-hyperactivity disorder (ADHD), Alzheimer's disease, developmental coordination disorder, migraine headache, epilepsy, schizophrenia, post-

traumatic stress disorder, and mental impairment. Early research shows that taking fish oil improves attention, mental function, and behavior in children 8-13 years-old with ADHD. Other research shows that taking a specific supplement containing fish oil and evening primrose oil (Eye Q, Novasel) improves mental function and behavior in children 7-12 years-old with ADHD.

### B. Brain-based stimulation exercise (brain-gym).

Brain gym also known as educational kinesiology, developed in 1970s by Dennison and Dennison, consists of a series of movements that purportedly activate the brain, promote neurological repatterning, and facilitate the whole-brain learning (Hyatt, 2007). The program is based on the notion that learning problems are caused and when different sections of the brain and body do not work in a coordinated manner, thereby blocking an individual's ability to learn. To overcome this learning block, the program recommends a variety of simple movements that are intended to improve the integration of specific brain functions with body movements (Keely & Fox, 2009).

Examples of the influence of theories of mixed cerebral dominance, perceptual motor elements, and neurological patterning are easily found in BGI's program and activity descriptions. Some movements are as follows:

*the Cross Crawl*, the client places the right hand across the body to the raised left knee. This is then repeated with the left hand to the right knee. This exercise is assumed to improve the flow of information between the two hemispheres of the brain.

*the Hook Ups* involves the client standing or sitting with the right leg crossed over the left at the ankles, crossing the right wrist over the left wrist and linking the fingers toward to the body until they rest on the center of the chest, while breathing evenly as a way of calming the mind and improving concentration.

**Eye Eights**, a movement designed for improving visual coordination skills for reading and writing, involves tracing the figure 8 turned on its side using large arm movements in the air, while following the movement with the eyes and limited or no head movement. These movements along with the rest of the 26 activities are taught in group settings or individually, and individuals are encouraged to use them independently when they feel 'stuck' on a particular learning task.

### III. Methods

#### Participants

Participants of these seminal project of community service are students and teachers of SD Servatius, SD Vincentius and SD Tarcisius.

#### Measures and materials.

1. Seminar on the Application of Neuroscience was delivered by the principal investigator or the team leader of this community service program.

2. Workshop on Brain stimulation was conducted by one of the team members.

3. Intelligence test using Wechsler Intelligence Scale for Children (WISC) for the 4th and 5th grades of SD Servatius was administered by six team members of this community service. All the testers are graduate students of psychologist education at UNIKA Soegijapranata.

Intelligence test for other schools, SD Vincentius and SD Tarcisius, will be conducted on July 2019 after the school break.

### III. Programs Execution.

1. Seminar "Application of Neuroscience on Education" and Workshop on "Brain-based Stimulation Exercise / Brain-gym".

Seminar on the application of neuroscience on education and workshop on brain stimulation were conducted on 31st of May 2019. Participants who attended the seminar and workshop were teachers from three schools, SD Servatius, SD Vincentius, and SD Tarcisius. We delivered a seminar on the application of neuroscience on education with the aim to tap awareness among teachers on how to implement brain-based learning strategies on classes. We also trained the teachers about the brain-based stimulation exercise with the aim for personal purpose – for teachers if they regularly do the brain-based exercise it might help them avoid dementia disorder. In the next semester we plan to conduct the experiment of doing the brain-based stimulation exercise to students 5-minutes before the class begins.

2. Psychological Testing: IQ Test for 4<sup>th</sup> and 5<sup>th</sup> graders (18 – 20 June 2019).

As the part of gathering information about students' psychological condition as initial phase we conducted intelligence test using Wechsler Intelligence Scale for Children (WISC). There were 19 students and 18 students of the 4<sup>th</sup> and 5<sup>th</sup> graders respectively from SD Servatius who have undergone the intelligence test. Other intelligence tests for other schools, SD Vincentius and SD Tarcisius, will be conducted after the school break. We administered the intelligence tests for the 4<sup>th</sup> and 5<sup>th</sup> graders as the baseline assessment before doing the experiment of giving the oil-fish and milk to students on the next semester.

### **IX. Conclusion and future directions.**

As mentioned on the executive summary, the two programs that just conducted in this semester were part of a seminal project on fostering physical and psychological wellbeing of students from schools that are located in sub-urban part of Semarang city. Teachers of the three schools reported an enhanced understanding on the importance of brain-based knowledge and how to implement the theories and knowledge on the setting of classes. Because this community service programs is a seminal work therefore plan to continue the programs in the next semester. We expect that by doing such seminal project we might hinder an adverse phenomenon of "the lost talent".




## References

- Brain, K.J. (2007). Brain Gym: Building stronger brains or wishful thinking? *Remedial and special education, 28* (2), 117 – 124.
- Grady, T.J.H., & Fox, K.R. (2009). The input of physical activity and fitness on academic achievement and cognitive performance in children. *International Review of Sport and Exercise Psychology, 2* (2), 198 – 214.
- Hill, J., Johnson, S.E., Han, W., Andrews, S., Kendall, G., Strazdins, L., & Dockery, A. (2014). Parents nonstandard work schedules and child wellbeing. *The Journal of Primary Prevention, 35*, 53 - 73. doi: [10.1007/s10935-013-0318-z](https://doi.org/10.1007/s10935-013-0318-z)
- Grund, J.E., Saklofske, D.H., Schwean, V.L., Harrison, G.L., & Andrews, J.J. (2006). *Principles of Educational Psychology* (Canadian Edition). Toronto, Canada: Pearson Education, Inc.
- Kemper, S.J., Bier, I.D., Young, D., Nichols, D., & Janssens, S. (2000). The effect of vitamin-mineral supplementation on the intelligence of American school children: A randomized, double-blind placebo-controlled trial. *Journal of Alternative Complement Med, 6* (1), 19 – 29.
- Wasson, S., & Plomin. (2015). Socioeconomic status and the growth of intelligence from infancy through adolescence. *Intelligence, 48*, 30 – 36. <https://doi.org/10.1016/j.intell.2014.10.002>
- Tampewski, P.D., Davis, C., Miller, P.H., & Naglieri, J.A. (2008). Exercise and children intelligence, cognition, and academic achievement. *Educational Psychology Review, 20* (2), 111 – 131.

**APPENDIX 1**  
**SEMINAR ON**  
**“APPLICATION OF**  
**NEUROSCIENCE ON**  
**EDUCATION”**





**Selamat Datang**

PTS Pertama di Jawa Tengah  
**Akreditasi A**  
Inklusi Perguruan Tinggi

**Menerapkan Prinsip Neurosains dalam Pendidikan**

Dr. Augustina Sulastri, Psi.  
Program Penabdian kepada Masyarakat  
Semarang, 31 Mei 2019

www.unika.ac.id




**Tim Pengabdian kepada Masyarakat:**

Ketua Tim: Dr. Augustina Sulastri.  
Anggota Tim:

1. Monika W. Satyajati, S.Psi., M.Psi.
2. Anastasya Yuria Ekalitani, S.Psi.
3. Bernadeth Lestyobudi Novihartanti, S.Psi.
4. Blacius Fandy Febryan, S.Psi.
5. Aditya Pratama Putra, S.Psi.
6. Klara Andromeda, S.Psi.
7. Novandro Wilson Pattinama, S.Psi.
8. Eclisia Selfi Dian Krisnasari, S.Psi.
9. Endang Muslihatun, S.Psi.


www.unika.ac.id



**Program-program:**

1. Sudah terlaksana: Drawing Therapy → releasing ketegangan stress & trauma (2018)
2. Profil Siswa → Psikologis dan Fungsi Otak (2019)
3. Profil Psikologi → identifikasi siswa dengan kebutuhan khusus (2019)
4. Relaksasi Senam Otak → Guru dan Siswa (2019)
5. Studi eksperimental → Terapi Omega-3 & Susu (2019-2020)

www.unika.ac.id



**Materi Penerapan Neurosains dlm Pendidikan:**

1. Mengapa "kita berbeda"? → Perbedaan Individual dan Perbedaan Kelompok
2. Anatomi Otak kita semua sama
3. Proses belajar dari "Otak Belajar" (*The Learning Brain*) → Otak belajar sepanjang masa?
4. Adakah periode "Golden-age"? Nutrisi – stimulasi - plastisitas otak
5. Metode belajar dengan perspektif neurosains.

www.unika.ac.id

Unika SOEGLAPRANATA

**OPTIMISLAH....**  
 siapa saja dari segala usia dapat mempelajari  
 tentang topik dan keterampilan baru...  
 (Ornrod, 2008)

Unika SOEGLAPRANATA

(1) Meskipun OPTIMIS → masing-masing siswa berbeda (?)

www.unika.ac.id

Unika SOEGLAPRANATA

**Individual Differences**

**NATURE**

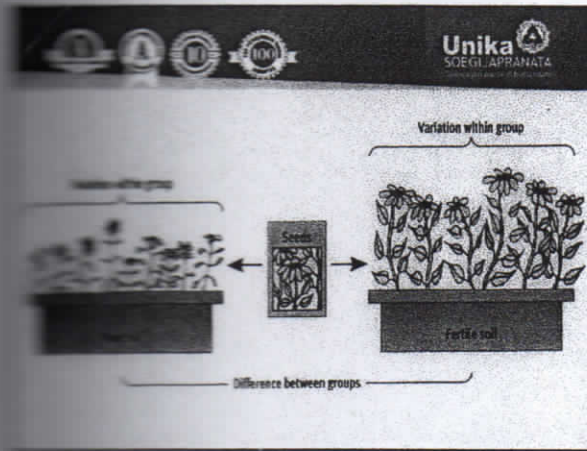
- Hereditary or genetic contributions to human development
- Physical and neurological aspects of development
- Stage of maturation in biological processes

**NURTURE**

- Environmental factors and experiences that influence human development and behavior
- Environmental influences: quality of child care setting, family economic resources, safety, siblings, etc.

**Individual Differences**

**Examples of Cultural Differences**



(2) Dari perspektif Neurosains →  
 "ANATOMI OTAK KITA SAMA"

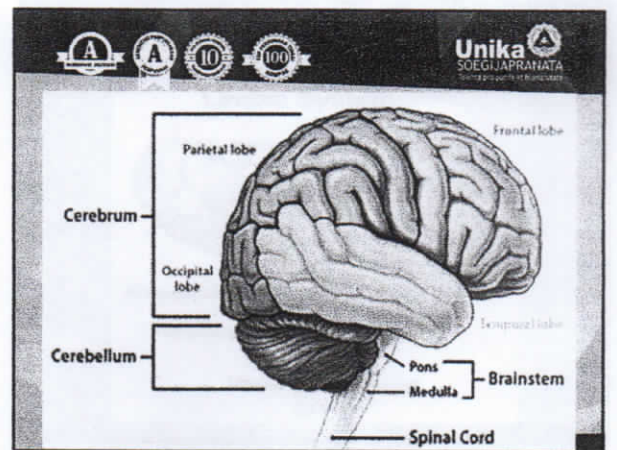
www.unika.ac.id

**OTAK MANUSIA**

Otak manusia dibagi menjadi 4 bagian, yaitu:

- Cerebrum (Otak Besar)
- Cerebellum (Otak Kecil)
- Brainstem (Batang Otak)
- Limbic System (Sistim Limbik)

www.unika.ac.id



Unika SOEGLAPRANATA

## CEREBRUM

Cerebrum dibagi menjadi 4 bagian, yang semuanya disebut lobus:

- Lobus frontal,
- Lobus parietal,
- Lobus temporal,
- Lobus occipital.

www.unika.ac.id

Unika SOEGLAPRANATA

(1) **Lobus frontal** : bagian lobus yang berada di paling depan otak besar, merupakan bagian lobus otak yang paling besar dan berkembang. Area ini bertanggung jawab dengan kepribadian, berhubungan dengan kemampuan membuat alasan, kemampuan gerak, kognisi, perencanaan, penyelesaian masalah, memberi penilaian, kreativitas, kontrol perasaan, kontrol perilaku seksual, kemampuan bahasa secara umum.

www.unika.ac.id

Unika SOEGLAPRANATA

Lobus parietal : berada di tengah, berhubungan dengan proses sensor perasaan seperti tekanan, sentuhan dan rasa sakit.

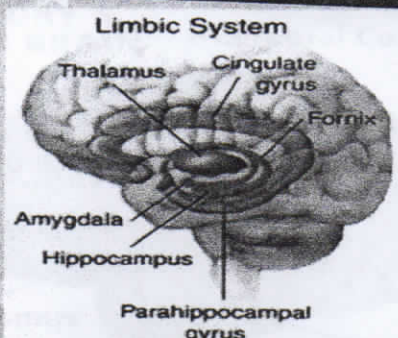
Lobus temporal : berada di bawah, berhubungan dengan pendengaran, pemaknaan kata-kata dan bahasa dalam bentuk suara.

Lobus occipital : berada di bagian paling belakang, berhubungan dengan rangsangan visual yang memungkinkan manusia mampu melakukan interpretasi terhadap objek yang ditangkap oleh retina mata.

www.unika.ac.id

Unika SOEGLAPRANATA

### Limbic System



Thalamus

Cingulate gyrus

Fornix

Amygdala

Hippocampus

Parahippocampal gyrus

www.unika.ac.id

Unika SOEGIJAPRANATA

### SISTEM LIMBIK

Merupakan bagian tengah otak, seperti kerah baju.  
 Merupakan: *hipotalamus, thalamus, amigdala, hippocampus, korteks limbik.*

Berfungsi mengatur perasaan, mengatur produksi hormon, memelihara homeostasis, rasa haus, rasa lapar, libidino seks, pusat rasa senang, metabolisme, memori jangka panjang.

*Hipotalamus* berfungsi sebagai otak emosi, mengatur rasa cinta dan kejujuran, pengharapan dan motivasi.

www.unika.ac.id

Unika SOEGIJAPRANATA

- Bagian terpenting dari sistem limbik adalah *hipotalamus*: berguna mengatur nafsu makan, sensasi lapar, mengatur siklus tidur, mood motivasi, maturasi seksual, regulasi temperatur tubuh, & fungsi hormonal.
- *HIPPOCAMPUS*: berfungsi mengatur memori yang berkaitan dengan pelajaran, daya ingat dari suatu peristiwa.
- *AMYGDALA*: berfungsi mengatur kecemasan dan ketakutan, marah dan kenyamanan dalam lingkungan social, koneksi terhadap informasi sensori penciuman dan emosi.
- *Thalamus*: berfungsi mengatur semua informasi berhubungan dengan perasaan kecuali, pintu gerbang untuk menyaring fungsi dalam mengatur arus informasi sensori yang berhubungan dengan perasaan, perilaku dan fungsi afektif.

www.unika.ac.id

Unika SOEGIJAPRANATA

### OTAK KECIL (CEREBELUM)

Merupakan bagian belakang kepala. Mengontrol sikap dan keseimbangan tubuh, mengontrol keseimbangan, koordinasi otot dan gerakan tubuh.

Berfungsi dan melaksanakan serangkaian gerakan kompleks yang dipelajari seperti gerakan mengendarai mobil, gerakan menulis, gerakan mengunci pintu, berinteraksi dengan benar, gerakan memakai baju.

Merupakan pada otak kecil menyebabkan gangguan keseimbangan tubuh dan koordinasi gerakan otot.

www.unika.ac.id

Unika SOEGIJAPRANATA

### MEMORY & YOUR BRAIN

The diagram shows a sagittal cross-section of the human brain. Three specific regions are labeled with lines pointing to them: 'Cerebral Cortex' at the top outer layer, 'Thalamus' in the central part of the brain, and 'Hippocampus' in the lower part of the brain.



Unika SOEGIJAPRANATA

**INSPIRASI DARI "THE TWINS":**

→ Mengapa **SCRIPT** (naskah) → stimulus yang **TERDENGAR** (auditorik) dan kita **LIHAT** (visual) **berdampak** dengan dahsyat pada **otak**.

www.unika.ac.id

Unika SOEGIJAPRANATA

**NILAI PENTING PENERAPAN NEUROSAINS PALING DASAR;**

- Perbarui pola komunikasi yang **TERDENGAR** dan **TERLIHAT** pada siswa
- Optimis, baik, sabar, "you can do it"....

www.unika.ac.id

Unika SOEGIJAPRANATA

**PROSES BELAJAR OTAK PEMBELAJAR ("THE LEARNING BRAIN")**


www.unika.ac.id

Unika SOEGIJAPRANATA

Belajar dari kisah "*Alison Ross*".....

www.unika.ac.id






### SINAPSIS

Adalah hubungan khusus rangsang (stimulus) dihantarkan neuron ke sel target

Komponen sinaps :

- Membran presinaps: letak berdekatan dengan sel asal
- Impuls: mengandung penebalan padat elektron, saat stimulasi mengeluarkan neurotransmitter
- Celah sinaptik : selah berisi cairan, letaknya antara membran pre sinaps dengan membran post sinaps, merupakan media yang menghantarkan neurotransmitter ke membran post sinaps
- Membran post sinaps: merupakan membran plasma pada sel target


[www.unika.ac.id](http://www.unika.ac.id)



### (4) Adakah periode "Golden-age"?

Nutrisi – stimulasi - plastisitas otak

[www.unika.ac.id](http://www.unika.ac.id)





- Belajar dari "Elliot"....

[www.unika.ac.id](http://www.unika.ac.id)

a) Pelajaran #1 dari Elliot...





[www.unika.ac.id](http://www.unika.ac.id)

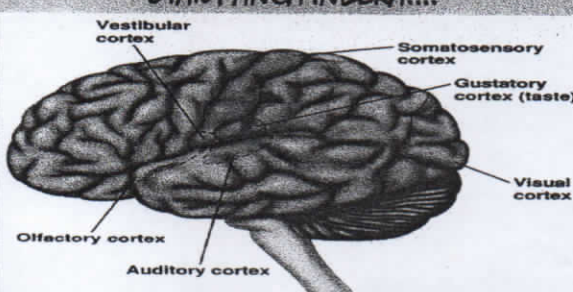
### Nutrisi OTAK:

1. Omega-3
2. Susu hewani & nabati
3. Kacang hijau
4. Sayur dan lauk nabati/hewani



www.unika.ac.id

### Pelajaran #2 dari Elliot: OTAK PANCA INDERA....





Vestibular cortex  
 Somatosensory cortex  
 Gustatory cortex (taste)  
 Visual cortex  
 Auditory cortex  
 Olfactory cortex

### Indera UTAMA belajar secara kognitif:

1. Mata – visual
2. Pendengaran – auditorik
3. + Motorik (kinestetik)


www.unika.ac.id

### Neuroplastisitas...


- Sel-sel beserta neuron-neuron di otak kita bersifat adaptif. Kunci dari "pembelajaran sepanjang hayat" (*life-long learning*)
- Fokus pada: nutrisi baik & stimulasi panca indera dengan informasi (membaca, olah raga).
- "SEMAKIN SERING DIGUNAKAN, MAKA JARINGAN ANTAR SEL SEMAKIN KUAT" (atau terpelihara),

www.unika.ac.id



(5) Metode belajar dengan perspektif neurosains.

www.unika.ac.id



**Methods of Learning:**

1. Visual Imagery & Imitation
2. Exercising the brain
3. Learning while you sleep.


www.unika.ac.id



**"Visual Imagery"**

- Prinsip: perbanyak siswa untuk "melihat" (secara sensorik)
- Apa yang dilihat (?): gunakan yang memunculkan afeksi (*amigdala* – bagian otak yang berisi emosi) karena proses dekat dengan *hippocampus* (bagian otak penyimpan memori)

www.unika.ac.id



"Visual imagery, or visualization, is the MOST POWERFUL way of learning"

"At least 2/3 of the same brain areas are activated *when you imagine an object* compared with when you actually see the same object"

www.unika.ac.id

**Saran "aktivasi":**

Mereka sudah "*melihat*" banyak dalam kehidupan → buat mereka untuk mengaktifkan amigdala dan hipocampus yang positif dengan menulis "diari" berisi refleksi positif (atau negatif).

www.unika.ac.id

**Exercising the Brain...**

→ mungkin sudah banyak dilakukan oleh guru....  
 Dengan bersekolah maka ada "*exercising the brain*": membaca, berhitung, bernyanyi, olah raga, dll.

→ Perlu "alasan" mengapa mereka perlu melakukan: orang dewasa

→ Pada kanak-kanak: lakukanlah dengan gembira...; ada permainan kecil untuk fokus di awal pelajaran (bisa dengan *brain-gym*; atau *bergerak*).

www.unika.ac.id


**"Learning while you sleep"**

1. Tidur berkualitas → kuantitas cukup pada malam hari
2. Tidur berkualitas pada siang hari → dengan meditasi, atau pengendalian pada gelombang otak "*alpha*".

www.unika.ac.id

**"Nilai penting atau informasi penting apa yang dipetik hari ini?"**

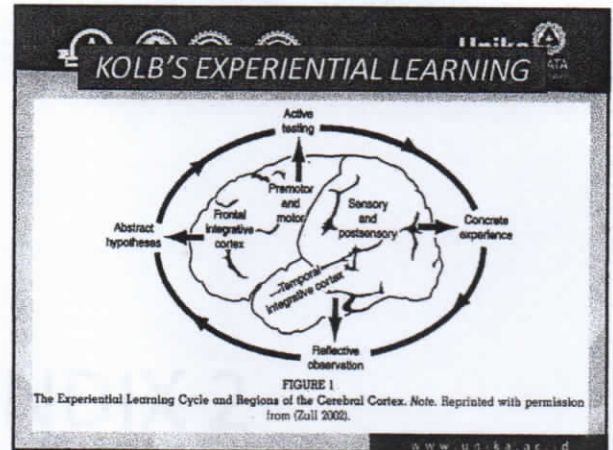
www.unika.ac.id


**Unika**  
 SOEGLIAPRANATA

**Penerapan sederhana:**

1. Ingat: kata-kata yang dilihat (VISUAL) dan didengar (AUDITORI) → memicu neuron di lobus occipital dan temporal. Lokasi dekat dengan amigdala (emosi) dan hipokampus (memori).
2. Pelatihan senam otak melatih neuron di lobus parietal (psikomotorik)
3. Menulis refleksi dan bercerita → melatih neuron di lobus frontal

www.unika.ac.id




**Unika**  
 SOEGLIAPRANATA

**Selamat Datang**


 PTS Pertama di Jawa Tengah  
**Akreditasi A**  
 Institut Perguruan Tinggi

Terima kasih...

E-mail: [ag.sulastrri@unika.ac.id](mailto:ag.sulastrri@unika.ac.id)  
 HP: 0816-426-0966

www.unika.ac.id

## APPENDIX 2

# WORKSHOP ON "BRAIN-STIMULATION EXERCISE"





Tugas-tugas perkembangan anak usia sekolah dasar ( Havighurst & Erikson)	
Mempelajari keterampilan fisik yang diperlukan	
Membina sikap hidup sehat terhadap diri sendiri	
Belajar bergaul dengan teman sebaya	
Mengembangkan pengenalan diri (berlingkuk laku sesuai dengan tuntutan lingkungannya)	
Belajar bermacam-macam peran orang dalam masyarakat	
Belajar mengenal tubuh masing-masing	
Belajar menguasai keterampilan motorik halus dan kasar	
Belajar mengenal benda-benda yang ada di lingkungan, dan dapat menggunakannya secara tepat	
Belajar mengembangkan keterampilan dasar membaca, menulis, berhitung	

**Masalah-Masalah yang Sering Muncul**

Masalah motorik

- kurang lincah
- sering jatuh atau menjatuhkan barang
- tidak rapi saat mewarnai, menggunting
- dll

Masalah perilaku

- agresif
- hiperaktif
- tidak mau ke sekolah
- dll

Masalah emosi

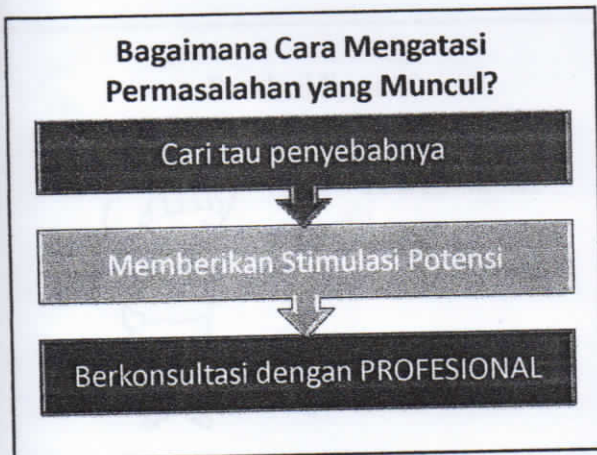
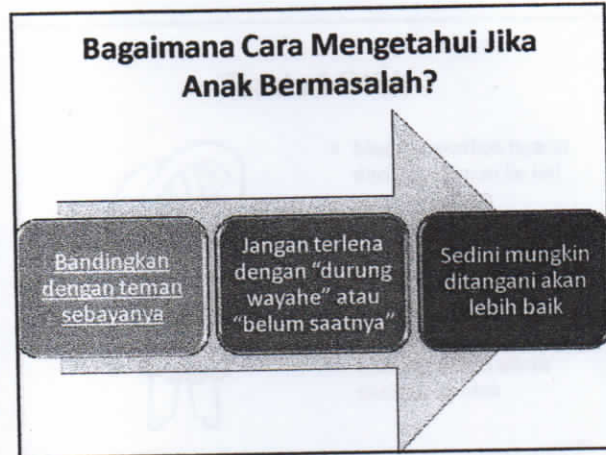
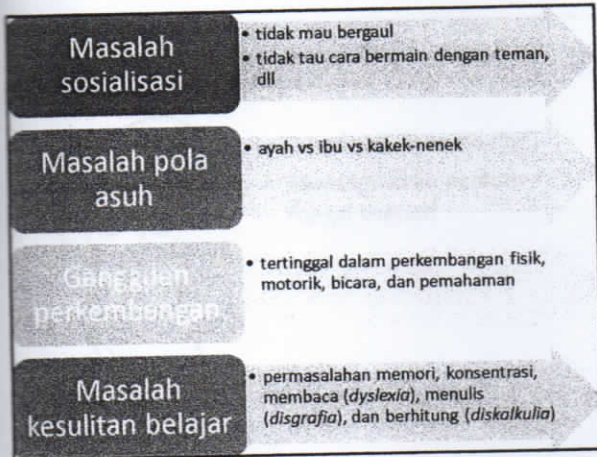
- mudah sekali marah
- pemalu
- cengeng
- temper tantrum
- dll

Masalah fisik

- penyakit bawaan
- terlambat berjalan
- gangguan pada fungsi panca indra, fungsi pencernaan
- dll

Masalah bicara dan bahasa

- terlambat bicara, sulit memahami kata-kata, tertukar dalam melabeli nama-nama benda, kebingungan bahasa karena sekolah di sekolah 2 / 3 bahasa



### Minum Air



- Air adalah "konduktor"
- Meningkatkan semua fungsi kognitif

### Tombol Otak



- Menghantarkan isyarat dari otak kanan ke kiri dan sebaliknya
- Meningkatkan kerjasama anggota tubuh bagian kanan dengan kiri
- Meningkatkan energi
- Meningkatkan aliran oksigen ke otak

### Tombol Space



- ↑ Fokus
- ↑ Minat dan Motivasi diri
- Memudahkan anak untuk mengorganisir

### Cross Crawl



- ↑ memori, kreativitas, koordinasi, stamina dan kepercayaan diri

### Double Doodle



- ↑ koordinasi mata dan tangan
- ↑ kemampuan menulis, membaca dan berhitung
- ↑ penglihatan

### Angka 8 malas



- Meningkatkan penglihatan, pemahaman, melancarkan membaca

### Calf Pump



- Integrasi bagian otak depan dan belakang
- Merangsang menulis kreatif
- Meningkatkan pemahaman membaca dan mendengar

### Hook Up



- Menenangkan emosi
- Meningkatkan atensi
- Membantu memperjelas proses mendengar dan berbicara

### Energy Yawn



- Meningkatkan fungsi mulut, mata dan telinga
- Meningkatkan kreativitas
- Melancarkan proses membaca
- Memudahkan menyampaikan ide

### Thinking Cap



- Meningkatkan proses pemahaman, memori, keseimbangan badan, pendengaran dan penglihatan

### The Owl



- Meningkatkan ingatan, pemahaman dan pendengaran

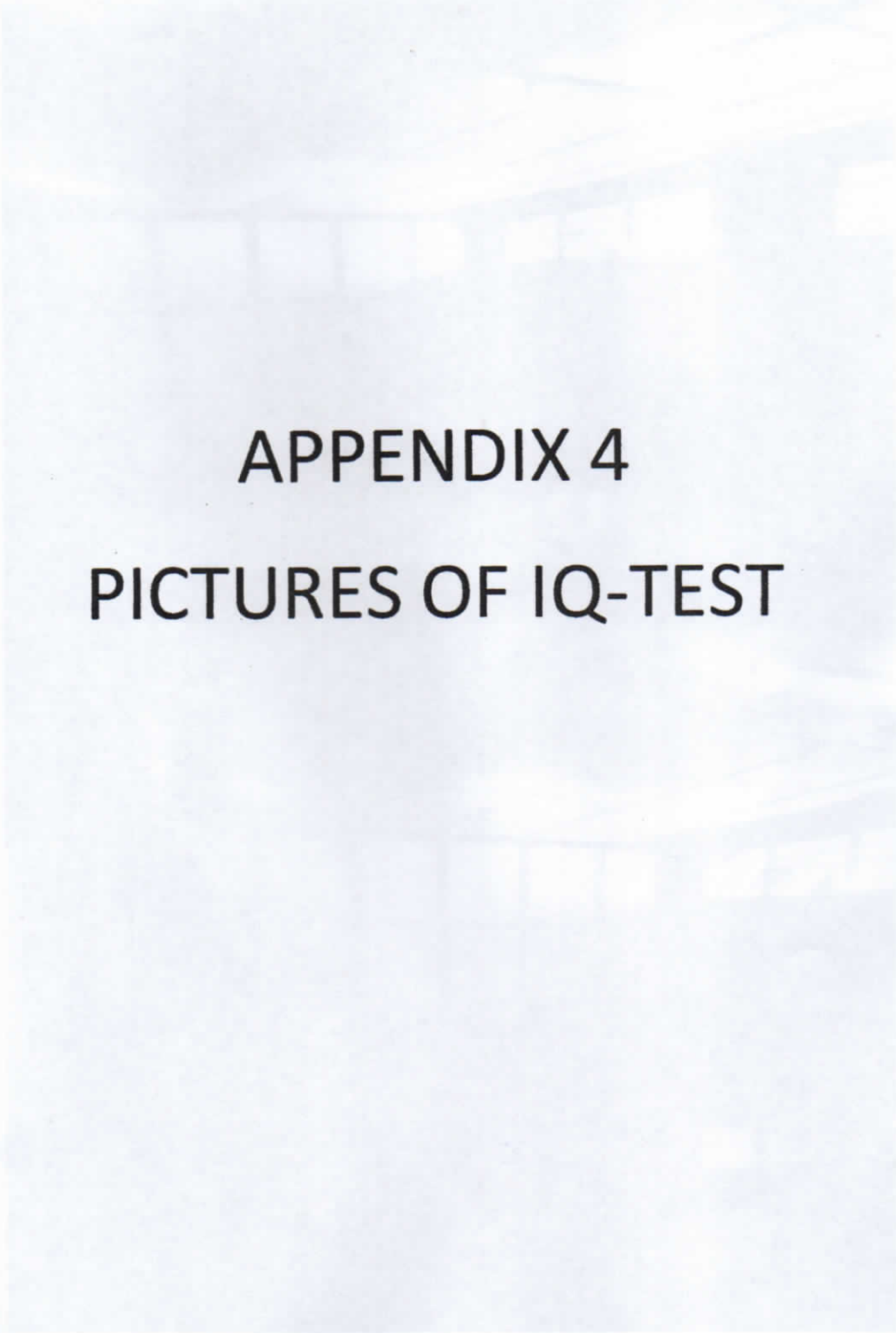
### Arm activation



- Membantu proses menulis kreatif & Menuangkan ide

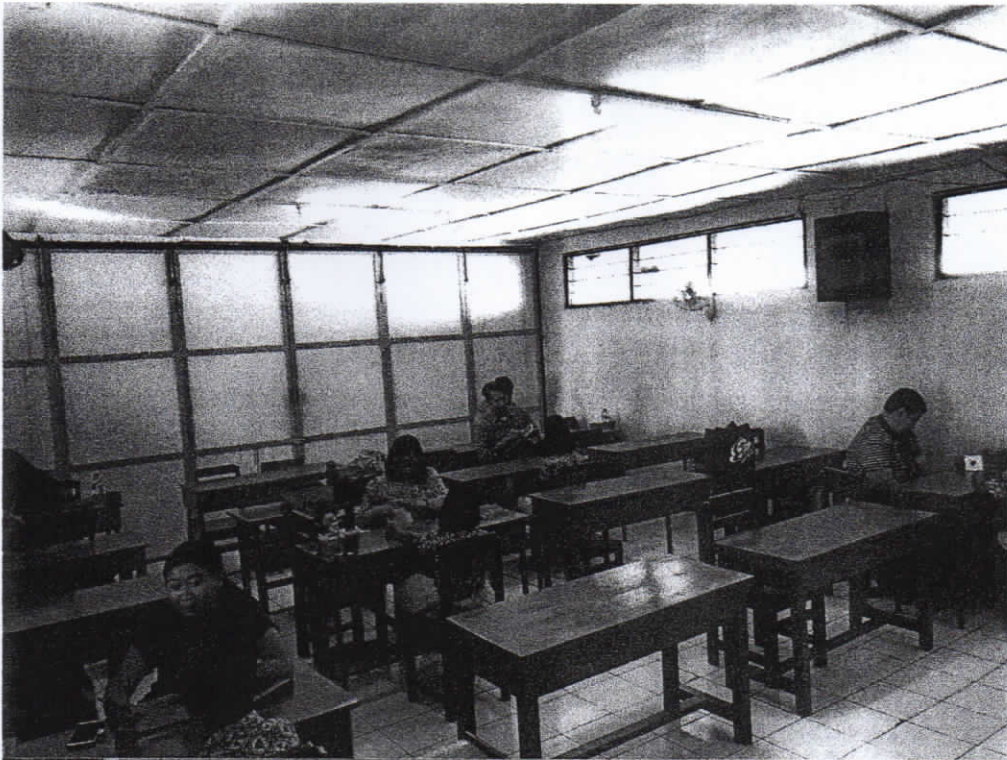






**APPENDIX 4**  
**PICTURES OF IQ-TEST**





YAYASAN PANGUDI LUNDUK  
TK-SD PL. SERVATUS GUNUNG BRINTIK

Jl. Dr. Setiawan 4, Telp. (084) 3642731, Gunung Brintik, Tapanuli Tengah

DAFTAR HADIR PESERTA WORKSHOP  
JUMAT, 31 MEI 2019

TK-SD Tercisius

NAMA

### APPENDIX 3

TANDA TANGAN

## PICTURES OF SEMINAR AND WORKSHOP

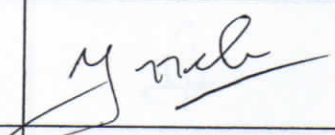
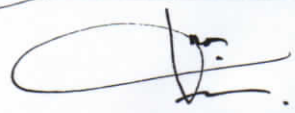
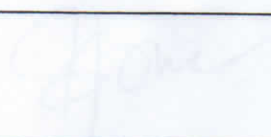
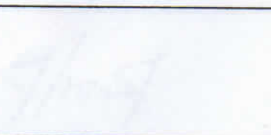
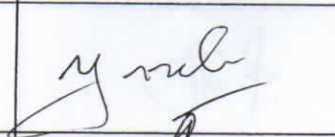

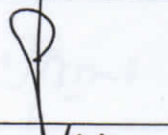

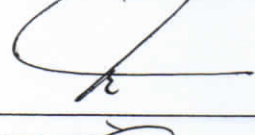

NAMA	JABATAN	TANDA TANGAN
R. D. Indra Gunawan, S. Pd	Guru Kelas I B	
Ch. Ery Indriani, S. Pd	Guru Kelas I A	
Emilia Sri Margret, S. Pd	Guru Kelas I B	
Furqan Walyasari, S. Pd	Guru Kelas II A	
R. D. Indra Gunawan, S. Pd	Guru Kelas II B	
El. Fransisco Yudi S., S. Pd	Guru Kelas III A	
Agustina Tri S., S. Pd	Guru Kelas III B	
Alaylus Yony W., S. Pd	Guru Kelas IV A	
Anasthas Wario, S. Pd	Guru Kelas IV B	
Thomas Dagiye, S. Pd	Guru Kelas V A	

**YAYASAN PANGUDI LUHUR**  
**TK - SD PL SERVATIUS GUNUNG BRINTIK**

Jln. Dr. Sutomo 4, Telp. (024) 8442701 Semarang 50244 Semarang

**DAFTAR HADIR PESERTA WORKSHOP**  
**JUMAT, 31 MEI 2019**

*Kerja : TK - SD Tarcisius*


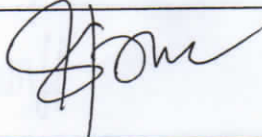
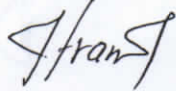

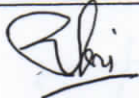
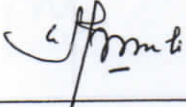

NAMA	JABATAN	TANDA TANGAN
R. B. Indra Gunawan, S. Pd	Kepala sekolah	
Ch. Erry Indriani, S. Pd	Guru Kelas I A	
Emilia Sri Mangesti, S. Pd	Guru Kelas I B	
Ferena Widyastuti, S. Pd	Guru Kelas II A	
R. B. Indra Gunawan, S. Pd	Guru Kelas II B	
B. Pramono Yudi S., S. Pd	Guru Kelas III A	
Agustinus Tri S., S. Pd	Guru Kelas III B	
Aloysius Yossy W., S. Pd	Guru Kelas IV A	
Antonius Wagino, S. Pd	Guru Kelas IV B	
Thomas Bagiyo, S. Pd	Guru Kelas V A	

**YAYASAN PANGUDI LUHUR**  
**TK - SD PL SERVATIUS GUNUNG BRINTIK**

Jln. Dr. Sutomo 4, Telp. (024) 8442701 Semarang 50244 Semarang

**DAFTAR HADIR PESERTA WORKSHOP**  
**JUMAT, 31 MEI 2019**

erja : TK - SD Tarcisius

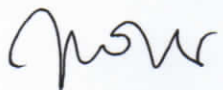



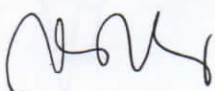





NAMA	JABATAN	TANDA TANGAN
Th. Kokok Widiartono, S. Pd	Guru Kelas V B	
Mugiyanto Albertus, S. Pd	Guru Kelas VI A	
Ivone Caroline, S. Pd	Guru Kelas VI B	
Ch. Fr. Tirani Dewi, S. Pd	Guru TK-A	
Anastasia Kiswanti, S. Pd	Guru TK-A	
Elisabeth Yuliantiningrum, S. Pd	Guru TK-A	
M. V. Dwi Pratiwi, S. Pd	Guru TK-A	
Dewi Agus Rinawati, S. Pd	Guru B. Inggris	

**YAYASAN PANGUDI LUHUR**  
**TK - SD PL SERVATIUS GUNUNG BRINTIK**

Jln. Dr. Sutomo 4, Telp. (024) 8442701 Semarang 50244 Semarang

**DAFTAR HADIR PESERTA WORKSHOP**  
**JUMAT, 31 MEI 2019**

Tempat Kerja : TK – SD Vincentius




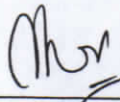

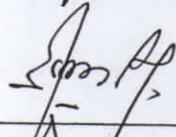

	NAMA	JABATAN	TANDA TANGAN
1	Pius Tri Joko, S. Pd	Kepala sekolah	
2	F. Lilien Kristiani, S. Pd	Guru TK-A	
3	FR. Indah Pusparini K., S. Pd	Guru TK-B	
4	A. Istriyani, S. Pd	Guru Kelas I	
5	Pius Tri Joko, S. Pd	Guru Kelas II	
6	Yohanes Sunardi, S. Pd	Guru kelas III	
7	FX. Eko Istiarno, S. Pd	Guru Kelas IV	
8	Aloysia Rani Meita, S. Pd	Guru Kelas V	
9	S.S. Cicilia Novita Susanti, S.S	Guru Kelas VI	
10	Theresia Iud Susanti, S. Pd	T. Administrasi	

**YAYASAN PANGUDI LUHUR**  
**TK - SD PL SERVATIUS GUNUNG BRINTIK**

Jln. Dr. Sutomo 4, Telp. (024) 8442701 Semarang 50244 Semarang

**DAFTAR HADIR PESERTA WORKSHOP**  
**JUMAT, 31 MEI 2019**

*Kerja : TK – SD PL Servatius Gunung Brintik*

NAMA	JABATAN	TANDA TANGAN
Agustinus Sarjan, S. Pd	Kepala sekolah	
Misrina Lidyawati, S. Psi	Guru TK-A	
Agatha Wulandari Kusuma W	Guru TK-B	Waleme.
Veronica Suharti, S. Pd	Guru Kelas I	
Alb. Teguh Joko Pitono, S. Pd	Guru Kelas II	
Th. Oktavina Ratnasari, S. Pd	Guru kelas III	
Patricius Sunardi, S. Pd	Guru Kelas IV	
Silvester Sunaryo, S. Pd	Guru Kelas V	
Helena Irene Rahma Dewi, S. Pd	Guru Kelas VI	
M. Novita Arum Mardiana	T. Administrasi	