



### PROTEKSI ISI LAPORAN AKHIR PENELITIAN

Dilarang menyalin, menyimpan, memperbanyak sebagian atau seluruh isi laporan ini dalam bentuk apapun kecuali oleh peneliti dan pengelola administrasi penelitian

## LAPORAN AKHIR PENELITIAN TAHUN TUNGGAL

ID Proposal: f87c3f53-b82e-4216-b46e-ea8c0f952d54  
Laporan Akhir Penelitian: tahun ke-1 dari 1 tahun

### 1. IDENTITAS PENELITIAN

#### A. JUDUL PENELITIAN

PENGEMBANGAN MEDIA PEMBELAJARAN LUDO UNTUK MENINGKATKAN MOTIVASI DAN KOMPETENSI BELAJAR MATEMATIKA SISWA KELAS III SEKOLAH DASAR

#### B. BIDANG, TEMA, TOPIK, DAN RUMPUN BIDANG ILMU

Bidang Fokus RIRN / Bidang Unggulan Perguruan Tinggi	Tema	Topik (jika ada)	Rumpun Bidang Ilmu
Sosial Humaniora, Seni Budaya, Pendidikan Penelitian Lapangan Dalam Negeri (Kecil)	Pendidikan	Teknologi pendidikan dan pembelajaran	Pendidikan Matematika

#### C. KATEGORI, SKEMA, SBK, TARGET TKT DAN LAMA PENELITIAN

Kategori (Kompetitif Nasional/ Desentralisasi/ Penugasan)	Skema Penelitian	Strata (Dasar/ Terapan/ Pengembangan)	SBK (Dasar, Terapan, Pengembangan)	Target Akhir TKT	Lama Penelitian (Tahun)
Penelitian Kompetitif Nasional	Penelitian Dosen Pemula	SBK Riset Pembinaan/Kapasitas	SBK Riset Pembinaan/Kapasitas	3	1

### 2. IDENTITAS PENGUSUL

Nama, Peran	Perguruan Tinggi/ Institusi	Program Studi/ Bagian	Bidang Tugas	ID Sinta	H-Index
MISHBAH ULHUSNA Ketua Pengusul	Universitas Putra Indonesia Yptk Padang	Teknik Informatika		6176717	0
SRI DIANA PUTRI S.Pd, M.Pd Anggota Pengusul 1	Universitas Putra Indonesia Yptk Padang	Teknik Informatika		6658437	0

### 3. MITRA KERJASAMA PENELITIAN (JIKA ADA)

Pelaksanaan penelitian dapat melibatkan mitra kerjasama, yaitu mitra kerjasama dalam melaksanakan penelitian, mitra sebagai calon pengguna hasil penelitian, atau mitra investor

Mitra	Nama Mitra
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#### 4. LUARAN DAN TARGET CAPAIAN

##### Luaran Wajib

Tahun Luaran	Jenis Luaran	Status target capaian ( <i>accepted, published, terdaftar atau granted, atau status lainnya</i> )	Keterangan ( <i>url dan nama jurnal, penerbit, url paten, keterangan sejenis lainnya</i> )
1	Prosiding dalam pertemuan ilmiah Internasional	sudah terbit/sudah dilaksanakan	ICELSI/ICSS/ICSTI

##### Luaran Tambahan

Tahun Luaran	Jenis Luaran	Status target capaian ( <i>accepted, published, terdaftar atau granted, atau status lainnya</i> )	Keterangan ( <i>url dan nama jurnal, penerbit, url paten, keterangan sejenis lainnya</i> )
1	Publikasi Ilmiah Jurnal Internasional	accepted/published	IJEPC
1	Prosiding dalam pertemuan ilmiah Internasional	sudah terbit/sudah dilaksanakan	-
1	Prosiding dalam pertemuan ilmiah Internasional	sudah terbit/sudah dilaksanakan	-
1	Purwarupa/Prototipe	penerapan	-

#### 5. ANGGARAN

Rencana anggaran biaya penelitian mengacu pada PMK yang berlaku dengan besaran minimum dan maksimum sebagaimana diatur pada buku Panduan Penelitian dan Pengabdian kepada Masyarakat Edisi 12.

**Total RAB 1 Tahun Rp. 13,325,000**

**Tahun 1 Total Rp. 13,325,000**

Jenis Pembelanjaan	Item	Satuan	Vol.	Biaya Satuan	Total
Analisis Data	Biaya analisis sampel	Unit	1	500,000	500,000
Analisis Data	HR Pengolah Data	P (penelitian)	6	150,000	900,000
Bahan	ATK	Paket	1	2,325,000	2,325,000
Bahan	Bahan Penelitian (Habis Pakai)	Unit	1	1,650,000	1,650,000
Pelaporan, Luaran Wajib, dan Luaran Tambahan	Biaya seminar internasional	Paket	1	1,000,000	1,000,000
Pelaporan, Luaran Wajib, dan Luaran Tambahan	Publikasi artikel di Jurnal Internasional	Paket	1	3,000,000	3,000,000
Pengumpulan Data	HR Pembantu Peneliti	OJ	2	150,000	300,000
Pengumpulan Data	HR Petugas Survei	OH/OR	2	150,000	300,000
Pengumpulan Data	Biaya konsumsi	OH	4	150,000	600,000
Pengumpulan Data	HR Pembantu Lapangan	OH	4	150,000	600,000

Jenis Pembelanjaan	Item	Satuan	Vol.	Biaya Satuan	Total
Sewa Peralatan	Peralatan penelitian	Unit	2	1,075,000	2,150,000

## 6. HASIL PENELITIAN

**A. RINGKASAN:** Tuliskan secara ringkas latar belakang penelitian, tujuan dan tahapan metode penelitian, luaran yang ditargetkan, serta uraian TKT penelitian.

Motivasi berkaitan dengan keinginan seseorang melakukan sesuatu. Tanpa motivasi, tidak akan ada usaha seseorang untuk melakukan perubahan dalam dirinya. Dalam pembelajaran, motivasi dapat berupa kemauan siswa untuk ikut serta berpartisipasi aktif agar dapat memahami materi pelajaran dengan baik. Membangun motivasi belajar siswa dalam pembelajaran matematika di sekolah dasar sangat diperlukan, karena motivasi ikut mempengaruhi hasil belajar siswa. Motivasi siswa dapat tumbuh dengan adanya beberapa langkah kreatif yang diambil guru seperti penggunaan media, bahan ajar yang bervariasi ataupun strategi pembelajaran. Fakta yang ditemukan di lapangan, usaha guru untuk membangun motivasi belajar siswa masih rendah. Hal ini terlihat dari kurang bervariasinya penggunaan sumber belajar. Tujuan dari penelitian ini adalah menghasilkan sebuah media pembelajaran matematika yang valid, praktis dan efektif berupa permainan ludo untuk meningkatkan motivasi dan hasil belajar matematika siswa kelas III sekolah dasar. Jenis penelitian ini adalah penelitian pengembangan, dengan model pengembangan yang dipilih adalah 4D (define, design, develop, disseminate). Luaran dari penelitian ini adalah menerbitkan prosiding dalam skala internasional serta luaran tambahan yang diharapkan dapat menerbitkan jurnal internasional terindeks.

**B. KATA KUNCI:** Tuliskan maksimal 5 kata kunci.

Media Pembelajaran; Ludo; Motivasi; Kompetensi Belajar Matematika

Pengisian poin C sampai dengan poin H mengikuti template berikut dan tidak dibatasi jumlah kata atau halaman namun disarankan sesingkat mungkin. Dilarang menghapus/memodifikasi template ataupun menghapus penjelasan di setiap poin.

**C. HASIL PELAKSANAAN PENELITIAN:** Tuliskan secara ringkas hasil pelaksanaan penelitian yang telah dicapai sesuai tahun pelaksanaan penelitian. Penyajian dapat berupa data, hasil analisis, dan capaian luaran (wajib dan atau tambahan). Seluruh hasil atau capaian yang dilaporkan harus berkaitan dengan tahapan pelaksanaan penelitian sebagaimana direncanakan pada proposal. Penyajian data dapat berupa gambar, tabel, grafik, dan sejenisnya, serta analisis didukung dengan sumber pustaka primer yang relevan dan terkini.

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Hasil yang diperoleh selama penelitian adalah: 1) prototype media pembelajaran Ludo, 2) Analisis data hasil uji validitas serta saran yang dikemukakan oleh pakar (validator), uji praktikalitas dan uji efektifitas dari penggunaan media pembelajaran Ludo Media pembelajaran Ludo telah melewati empat tahap pengembangan berdasarkan model 4D [1], yaitu:

#### 1. Tahap Penentuan (Define)

Pada tahap ini, dilakukan analisis kebutuhan mengenai media yang dibutuhkan guru untuk meningkatkan motivasi dan kompetensi belajar matematika siswa di Sekolah Dasar. Adapun langkah-langkah pada tahap ini adalah sebagai berikut.

##### a. Analisis Kurikulum

Analisis kurikulum bertujuan untuk melihat kesesuaian materi yang digunakan.

##### b. Analisis Materi

Tujuan dari analisis materi adalah untuk mengidentifikasi, merinci dan menyusun secara sistematis materi-materi utama yang akan dipelajari oleh siswa.

##### c. Analisis Peserta Didik

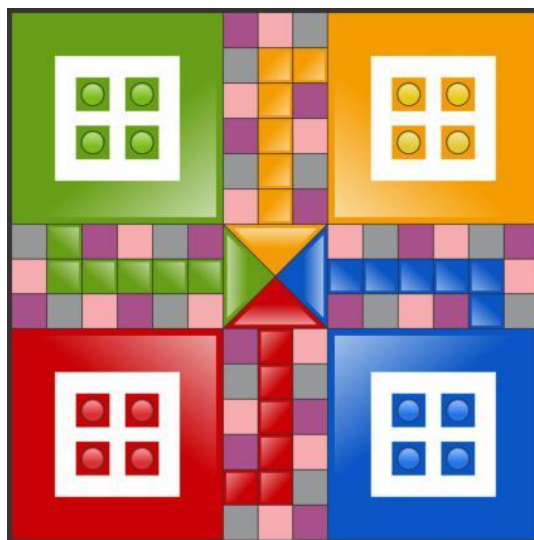
Analisis peserta didik merupakan telaah tentang karakteristik peserta didik yang sesuai dengan desain pengembangan perangkat pembelajaran. Analisis peserta didik dilakukan dengan menggunakan angket karakteristik peserta didik.

Permasalahan yang berhubungan dengan ketiga langkah di atas, diidentifikasi dengan cara melakukan observasi dan wawancara guru.

#### 2. Tahap Perancangan (Design)

Hasil observasi dan wawancara dianalisis, kemudian dibuat sebuah prototype yang cocok untuk mengatasi permasalahan. Adapun prototype yang dapat meningkatkan motivasi belajar siswa Sekolah Dasar, dan telah dipahami dengan baik oleh para siswa adalah permainan Ludo. Permainan Ludo berasal dari permainan tradisional India bernama Pachisi [2].

Media pembelajaran Ludo ini, kemudian dimodifikasi dengan tampilan sebagai berikut:



Gambar 1. Papan permainan Ludo

- menggunakan pin permainan yang dekat dengan alam, yaitu batu bertulis inisial "B" untuk mewakili zona warna biru, "M" untuk merah, "K" untuk kuning serta "H" untuk hijau,
- menggunakan kartu soal yang salah satu sisinya berisi pertanyaan, sedangkan sisi lainnya berisi instruksi yang harus dilakukan pemain,
- dan dimainkan sesuai dengan peraturan berikut:

- 1) Siswa dibagi menjadi 4 kelompok dimana setiap kelompok memilih ketua regunya yang bertindak sebagai pelempar dadu. Dadu dilempar sesuai giliran yang telah ditetapkan melalui pengambilan nomor lot (undian).
- 2) Kelompok pelempar (pemain) bisa melanjutkan permainan, jika dadu yang dilempar menunjukkan "angka 6".
- 3) Jika pemain mendapat "angka 6", maka pemain berhak melempar dadunya kembali.
- 4) Setelah dadu dilempar, angka yang tertera pada dadu hasil lemparan merupakan langkah yang harus dijalankan pemain.
- 5) Jika pemain berada pada kotak berwarna:
  - Pink, maka pemain berada pada posisi netral (artinya tidak dibebankan pertanyaan)
  - Biru, maka pemain diberi kesempatan memilih, menjawab pertanyaan yang ada di kartu soal atau berada pada posisi netral)
  - Ungu, maka pemain wajib menjawab pertanyaan yang ada di kartu soal.
- 6) Jika pemain menjawab salah, konsekuensi yang harus diterima pemain adalah "mundur 1 langkah". Jika pemain menjawab benar, konsekuensinya ikuti "instruksi dari kartu soal".
- 7) Jika saat memilih pertanyaan, pemain tidak mampu menjawab soal, maka soal dapat dilempar ke kelompok lain. Kelompok yang menjawab benar akan mendapatkan poin (ini berguna untuk menentukan juara favorit)
- 8) Lamanya permainan dibatasi oleh guru sebagai wasit permainan.
- 9) Saat waktu permainan telah habis atau kartu soal telah dibacakan semua atau telah ada pemain yang mencapai zona "home", maka permainan dinyatakan selesai. Jika tidak ada pemain yang mencapai zona "home", maka pemenangnya adalah pemain yang mendekati zona "home".
- 10) Jika ada pertanyaan mengenai tata cara permainan, dapat ditanyakan langsung kepada guru.

### 3. Tahap Pengembangan (Develop)

Tahap ini merupakan tahap untuk menghasilkan bentuk akhir media pembelajaran setelah melalui revisi berdasarkan masukan para pakar ahli/praktisi dan data hasil uji coba. Adapun media yang dibuat harus valid. Validasi adalah proses kegiatan untuk menilai produk yang dikembangkan. Validasi dilakukan oleh pakar yang digunakan sebagai landasan penyempurnaan media pembelajaran Ludo.

Penskoran kategori menggunakan skala likert 1 – 5, dengan ketentuan seperti tabel 1 [3].

Tabel 1. Penskoran menggunakan Skala Likert

Skor	Kategori	Presentasi Ketercapaian Indikator
1	Sangat Tidak Setuju (STS)	0 – 20
2	Tidak Setuju (TS)	21 – 40
3	Ragu-ragu (R)	41 – 60
4	Setuju (S)	61 – 80
5	Sangat Setuju (SS)	81 - 100

Penghitungan data nilai akhir hasil validasi menggunakan persamaan 1:

$$V = \frac{X}{Y} \times 100\% \dots \dots \dots (1)$$

Keterangan:

- V = nilai validitas
- X = skor yang diperoleh
- Y = skor maksimum

Sedangkan kriteria validitas ditetapkan berdasarkan tabel 2 [3].

Tabel 2. Kategori Validitas Perangkat Pembelajaran

Interval (%)	Kategori
0 – 20	Tidak valid
21 – 40	Kurang valid
41 – 60	Cukup valid
61 – 80	Valid
81 – 100	Sangat valid

Media yang dikembangkan divalidasi oleh dua orang pakar. Adapun hasil validasi dari media tersebut dapat dilihat pada tabel 3.

Tabel 3. Hasil Penilaian Instrumen Validasi Media Pembelajaran Ludo

No	Validator	Hasil Penilaian (%)
1	Z	90
2	F	88,333
Rata-rata		89,16

Hasil penilaian instrumen validasi yang diperoleh, sesuai dengan kategori validitas. Dimana rentang tersebut berada pada interval 81 – 100 dengan kategori sangat valid. Sehingga dapat digunakan untuk memvalidasi media pembelajaran Ludo selanjutnya. Dari hasil penilaian instrument validasi terdapat beberapa saran dari validator untuk menyempurnakan media pembelajaran Ludo. Adapun saran dari validator dapat dilihat pada tabel 4.

Tabel 4. Saran Validator terhadap Media Pembelajaran Ludo

No	Validator	Saran
1	Z	Tampilan pendukung seperti pin Ludo dipercantik/ditingkatkan estetikanya
2	F	Manajemen waktu diperjelas dalam aturan permainan

Tahap evaluasi digunakan untuk menguji prototype melalui uji praktikalitas dan uji efektifitas. Praktikalitas media pembelajaran Ludo berhubungan dengan kemudahan siswa maupun guru menggunakan media ini untuk pembelajaran. Kepraktisan media juga dapat dilihat dari angket respon guru dan angket respon siswa. Produk dikatakan praktis apabila dapat digunakan dengan mudah untuk menyampaikan materi matematika saat pembelajaran berlangsung.

Jenis penelitian ini adalah quasi eksperimen dengan melibatkan 22 siswa kelas III SDN 19 Nan Sabaris yang terdaftar pada tahun ajaran 2018/2019 sebagai sampel penelitian. Teknik sampling yang digunakan adalah purposive sampling karena keterbatasan kelas yang tersedia dalam tempat penelitian. Instrumen pengumpulan data dalam penelitian ini adalah angket yang bertujuan untuk menilai minat dan motivasi siswa dalam pembelajaran matematika. Kesimpulan penelitian diambil dengan membandingkan hasil analisis data menggunakan uji paired sample t-test serta temuan-temuan yang didapat selama kegiatan penelitian.

Sebelum kesimpulan penelitian diambil, dilakukan analisis data dengan menggunakan persamaan uji paired sample t-test. Untuk melakukan uji paired sample t-test terlebih dahulu dilakukan uji prasyarat yaitu uji normalitas dan homogenitas.

Table 5. One-Sample Kolmogorov-Smirnov Test

Class Condition		Before
Normal Parameters <sup>a</sup>	Mean	2.36
	Std. Deviation	0.848
Most Extreme Differences	Absolute	0.257
	Positive	0.257
	Negative	- 0.198
Asymp. Sig. (2-tailed)		0.110
a. Test distribution is Normal.		

Berdasarkan data diatas, terlihat bahwa nilai sig 2. Tailed pada kelas sebelum diberikan perlakuan lebih besar dari nilai  $\alpha$  yaitu 0.05. Hal ini menunjukkan bahwa nilai keseluruhan siswa pada kelas III sebelum diberikan perlakuan terdistribusi normal. Dengan kesimpulan ini, uji pertama sebagai prasyarat dilaksanakannya uji paired sample t-test telah terpenuhi. Selanjutnya dilakukan analisis untuk data kelompok kelas setelah diberikan perlakuan.

Tabel 6. One-Sample Normality Test After Treatment

Class Condition		After
N		22
Normal Parameters <sup>a</sup>	Mean	3.77
	Std. Deviation	0.869
Most Extreme Differences	Absolute	0.222
	Positive	0.222
	Negative	- 0.194
Kolmogorov-Smirnov Z		1.042
Asymp. Sig. (2-tailed)		0.228
a. Test distribution is Normal.		

Mengacu kepada hasil yang ditunjukkan oleh analisis data normalitas kelompok setelah diberikannya perlakuan yaitu penerapan media permainan ludo dalam pembelajaran matematika di kelas III SDN 19 Nan Sabaris dapat disimpulkan bahwa data terdistribusi normal. Hal ini ditunjukkan oleh nilai sig 2. Tailed yang lebih besar dari nilai  $\alpha$  yaitu 0.05 sehingga dapat disimpulkan data terdistribusi normal. Uji prasyarat berikutnya adalah uji homogenitas.

Table 7. Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
0.023	1	42	0.880

Kehomogenitasan kelompok data didapatkan dengan pelaksanaan uji homogenitas menggunakan uji levene. Berdasarkan tabel 7, terlihat bahwa nilai sig2. Tailed sebesar 0.880 lebih besar dari nilai  $\alpha$  sehingga disimpulkan kedua kelompok data kelas sampel baik yang sebelum diberikan perlakuan dengan yang sudah diberikan perlakuan bersifat homogen.

Untuk menarik kesimpulan utama penelitian, analisis data dilanjutkan kepada uji paired sample t-test. Uji ini dapat dilanjutkan karena keseluruhan data memenuhi syarat yaitu terdistribusi normal dan bersifat homogen. Apabila data tidak normal dapat dilanjutkan dengan analisis menggunakan uji non parametrik dengan pilihan lanjutan analisis menggunakan uji mann whitney, friedman dan kruskal walliss.

Table 8. Paired Sample t-test

Paired Sample T-Test					
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

Dengan melihat data hasil analisis pada tabel 8, terlihat bahwa nilai sig 2.tailed sebesar 0.000 lebih kecil dari nilai  $\alpha$  yaitu 0.05 sehingga dapat disimpulkan bahwa terdapat perbedaan minat dan motivasi belajar siswa yang signifikan antara sebelum dan sesudah diberikan perlakuan yaitu berupa penerapan media ludo dalam pembelajaran matematika. Penerapan media ludo merupakan salah satu langkah yang diambil guru untuk meningkatkan rendahnya minat dan motivasi belajar siswa dalam pembelajaran matematika.

#### 4. Tahap Penyebaran (Disseminate)

Konferensi/prosiding Internasional merupakan jenis media yang dipilih untuk menyebarkan hasil penelitian.

**D. STATUS LUARAN:** Tuliskan jenis, identitas dan status ketercapaian setiap luaran wajib dan luaran tambahan (jika ada) yang dijanjikan pada tahun pelaksanaan penelitian. Jenis luaran dapat berupa publikasi, perolehan kekayaan intelektual, hasil pengujian atau luaran lainnya yang telah dijanjikan pada proposal. Uraian status luaran harus didukung dengan bukti kemajuan ketercapaian luaran sesuai dengan luaran yang dijanjikan. Lengkapi isian jenis luaran yang dijanjikan serta unggah bukti dokumen ketercapaian luaran wajib dan luaran tambahan melalui Simlitabmas mengikuti format sebagaimana terlihat pada bagian isian luaran

Luaran wajib yang dijanjikan adalah Prosiding dalam pertemuan ilmiah Internasional. Luaran ini sudah dilaksanakan, dapat dibuktikan dengan adanya LoA serta sertifikat sebagai presenter pada International Conference on Mathematics and Mathematics Education (ICM2E) pada tanggal 3 – 4 Agustus 2019 yang diadakan di Universitas Negeri Padang (UNP). Bukti luaran wajib dapat dilihat pada gambar berikut:



No. : 14/ICM2E/III/UNP/VIII/2019  
Subject : **Letter of Acceptance**

Padang, July 20, 2019

Dear MISHBAH ULHUSNA  
UPI YPTK PADANG,

Congratulation ! It is our pleasure to invite you to be a presenter during our International Conference on Mathematics and Mathematics Education (ICM2E) 2019. The conference will be held 3 – 4 August 2019 at Aula FMIPA Universitas Negeri Padang, Padang, Indonesia. We inform that your paper entitle :

**LUDO GAME IMPLEMENTATION TO IMPROVE STUDENT'S MOTIVATION AND INTEREST TO LEARN MATHEMATICS FOR 3rd GRADE IN SDN 19 NAN SABARIS**

has been accepted by the Program Committee for Paper Session of 3rd International Conference on Mathematics and Mathematics Education (ICM2E 2019).

You are invited as Paper Presenter. In order to confirm your participation, you are required to upload your full paper via our online registration portal before July 25, 2019 and completed your payment before July 31, 2019. Do not forget to read our submission system (<http://icm2e.fmipa.unp.ac.id/icm2e3/submit.php>).

The guidelines for writing the articles can be found in the Author Guidelines <http://conferenceseries.iop.org/content/authors>

This letter is not an assurance for any financial support. Any arrangement of your travel to the conference shall be borne by the speaker. All information about the conference can be found at <http://icm2e.fmipa.unp.ac.id/icm2e3>.

Thank you and we are welcome you to ICM2E 2019!

Best regards,

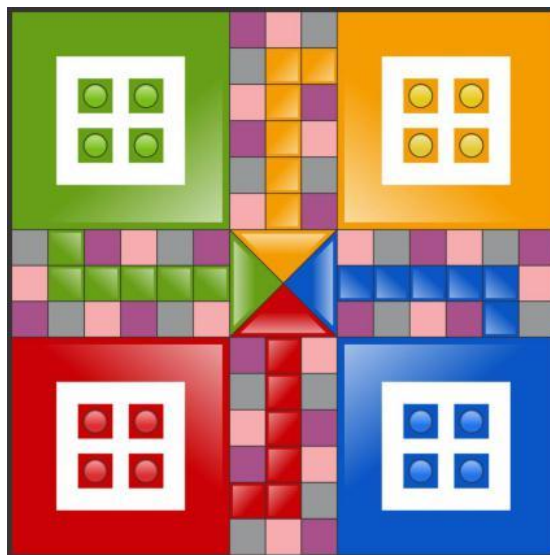
**Dr. Dony Permana, M.Si.**  
Conference Committee Chair





Luaran tambahan yang telah tercapai pada penelitian ini adalah berupa pembuatan prototype serta penerapannya pada SDN 19 Nan Sabaris. Bukti-bukti pendukung berupa prototype Ludo Games beserta foto kegiatan dapat dilihat pada gambar berikut, sedangkan video selama kegiatan berlangsung akan dilampirkan/diupload pada bukti luaran nantinya.

Prototipe media pembelajaran Ludo sebagai berikut:



- menggunakan pin permainan yang dekat dengan alam, yaitu batu bertulis inisial "B" untuk mewakili zona warna biru, "M" untuk merah, "K" untuk kuning serta "H" untuk hijau,
- menggunakan kartu soal yang salah satu sisinya berisi pertanyaan, sedangkan sisi lainnya berisi instruksi yang harus dilakukan pemain,

- dan dimainkan sesuai dengan peraturan berikut:
  - 1) Siswa dibagi menjadi 4 kelompok dimana setiap kelompok memilih ketua regunya yang bertindak sebagai pelempar dadu. Dadu dilempar sesuai giliran yang telah ditetapkan melalui pengambilan nomor lot (undian).
  - 2) Kelompok pelempar (pemain) bisa melanjutkan permainan, jika dadu yang dilempar menunjukkan "angka 6".
  - 3) Jika pemain mendapat "angka 6", maka pemain berhak melempar dadunya kembali.
  - 4) Setelah dadu dilempar, angka yang tertera pada dadu hasil lemparan merupakan langkah yang harus dijalankan pemain.
  - 5) Jika pemain berada pada kotak berwarna:
    - Pink, maka pemain berada pada posisi netral (artinya tidak dibebankan pertanyaan)
    - Biru, maka pemain diberi kesempatan memilih, menjawab pertanyaan yang ada di kartu soal atau berada pada posisi netral)
    - Ungu, maka pemain wajib menjawab pertanyaan yang ada di kartu soal.
  - 6) Jika pemain menjawab salah, konsekuensi yang harus diterima pemain adalah "mundur 1 langkah". Jika pemain menjawab benar, konsekuensinya ikuti "instruksi dari kartu soal".
  - 7) Jika saat memilih pertanyaan, pemain tidak mampu menjawab soal, maka soal dapat dilempar ke kelompok lain. Kelompok yang menjawab benar akan mendapatkan poin (ini berguna untuk menentukan juara favorit)
  - 8) Lamanya permainan dibatasi oleh guru sebagai wasit permainan.
  - 9) Saat waktu permainan telah habis atau kartu soal telah dibacakan semua atau telah ada pemain yang mencapai zona "home", maka permainan dinyatakan selesai. Jika tidak ada pemain yang mencapai zona "home", maka pemenangnya adalah pemain yang mendekati zona "home".
  - 10) Jika ada pertanyaan mengenai tata cara permainan, dapat ditanyakan langsung kepada guru.

Foto kegiatan penelitian, dapat dilihat pada gambar berikut:



E. **PERAN MITRA:** Tuliskan realisasi kerjasama dan kontribusi Mitra baik *in-kind* maupun *in-cash* (jika ada). Bukti pendukung realisasi kerjasama dan realisasi kontribusi mitra dilaporkan sesuai dengan kondisi yang sebenarnya. Bukti dokumen realisasi kerjasama dengan Mitra diunggah melalui Simlitabmas mengikuti format sebagaimana terlihat pada bagian isian mitra

Pada skema Penelitian Dosen Pemula (PDP) ini, tidak ada peran mitra.

F. **KENDALA PELAKSANAAN PENELITIAN:** Tuliskan kesulitan atau hambatan yang dihadapi selama melakukan penelitian dan mencapai luaran yang dijanjikan, termasuk penjelasan jika pelaksanaan penelitian dan luaran penelitian tidak sesuai dengan yang direncanakan atau dijanjikan.

Kendala yang terjadi selama pelaksanaan penelitian adalah berubahnya tempat penelitian yang awalnya akan dilaksanakan di SDN 17 VII Koto Sungai Sarik pada bulan Februari - April 2019, berpindah tempat penelitian ke SDN 19 Nan Sabaris. Hal tersebut terjadi karena pada bulan tersebut SDN 17 VII Koto Sungai Sarik memiliki jadwal kegiatan yang sangat padat.

G. **RENCANA TINDAK LANJUT PENELITIAN:** Tuliskan dan uraikan rencana tindak lanjut penelitian selanjutnya dengan melihat hasil penelitian yang telah diperoleh. Jika ada target yang belum diselesaikan pada akhir tahun pelaksanaan penelitian, pada bagian ini dapat dituliskan rencana penyelesaian target yang belum tercapai tersebut.

Penelitian ini telah mencapai target capaian yang dijanjikan, yaitu sudah dilaksanakan/dipresentasikan sebuah artikel ilmiah pada prosiding Internasional. Adapun rencana tindak lanjut setelah penelitian ini adalah

- a. Membuat buku ajar matematika yang dipadukan dengan berbagai game yang menarik untuk digunakan di lingkungan Sekolah Dasar.
- b. Mendaftarkan produk yang awalnya berupa prototype ke Kementerian Hukum dan Hak Asasi Manusia untuk mendapatkan legalitas HKI.

H. **DAFTAR PUSTAKA:** Penyusunan Daftar Pustaka berdasarkan sistem nomor sesuai dengan urutan pengutipan. Hanya pustaka yang disitasi pada laporan akhir yang dicantumkan dalam Daftar Pustaka.

- [1] Thiagarajan, S; Semmel, D.S; dan Semmel, M.I. 1974. *Instructional Development for Training Teachers of Exceptional Children: A Sourcebook*. Indiana: Indiana University.
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Dokumen pendukung luaran Wajib #1

Luaran dijanjikan: Prosiding dalam pertemuan ilmiah Internasional

Target: sudah terbit/sudah dilaksanakan

Dicapai: Submitted

Dokumen wajib diunggah:

1. Naskah artikel
2. Bukti submit

Dokumen sudah diunggah:

1. Naskah artikel
2. Bukti submit

Dokumen belum diunggah:

-

Peran penulis: first author

Nama Konferensi/Seminar: International Conference on Mathematics and Mathematics Education

Lembaga penyelenggara: Universitas Negeri Padang

Tempat penyelenggara: Universitas Negeri Padang

Tgl penyelenggaraan mulai: 3 Agustus 2019 | Tgl selesai: 4 Agustus 2019

Lembaga pengindeks: IOPScience, Indexed in Scopus

URL website: [icm2e.fmipa.unp.ac.id](http://icm2e.fmipa.unp.ac.id)

Judul artikel: Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3rd Grade in SDN 19 Nan Sabaris

# Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3<sup>rd</sup> Grade in SDN 19 Nan Sabaris

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**Abstract.** This research is motivated by the low interest and motivation of students to learn mathematics in the third grade of SDN 19 Nan Sabaris. The purpose of this study was to see the effect of Ludo media to increase the interest and motivation of mathematics learning in third grade students of SDN 19 Nan Sabaris. This type of research is quasi-experimental with a sample of all third grade students of SDN 19 Nan Sabaris registered in the 2018/2019 school year. The research instrument used was in the form of a questionnaire to see motivation and student learning interest in mathematics in grade III of SDN 19 Nan Sabaris. The data analysis technique used is paired-sample t-test. The results of data analysis showed that there were significant differences in the results of interest in and motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This means that the use of ludo game media can significantly increase students' interest and motivation in learning about Mathematics.

**Keywords:** Media, Ludo, Student's Motivation, Student's Interest

## 1. Introduction

According to the theory of cognitive development, children at elementary school age are still at a simple level of thinking, limited to concrete things. Every teacher in designing learning activities to be carried out in the classroom must be able to pay attention to the stages of cognitive development [1]. The foundation of cognitive development is adjusted to the way of learning, learning styles and increasing student learning interests and motivation [2].

Learning mathematics at the elementary school level must be able to accommodate the creation of continuity between interests, motivations, activities and learning outcomes [3]. The teacher can choose several methods or learning models to be able to increase student activity [4]. In addition, teachers can

also be creative by creating media that can improve students' understanding in learning activities. In the concept of media is a link between the delivery of information between teachers and students [5].

The choice of learning resources also influences how students' interests, motivations and understanding in learning activities. Students will be motivated in learning activities if learning resources are designed according to their current stage and age [6]. Therefore, developing a learning media needs to pay attention to student's interest, hobbies, learning styles.

Interest is a feeling that is gained because it is related to something. This interest can be learned and can influence subsequent learning activities and influence the acceptance of new interests. So, interest in something is the result of learning and tends to support the next learning activity. Therefore interest is very influential on learning activities. If a student has a feeling of being happy about a particular lesson then there will be no sense of compulsion to learn [7].

Between interest and motivation there is a close relationship. If someone has a motivation for something, there will be interest in something. Students' interest and motivation can be improved through interesting and enjoyable learning activities [8, 9]. One of them through the planting of appropriate learning material concepts, giving chances/opportunities to students to be actively and creatively involved in learning activities and exercises continuously.

The facts found at SDN 19 Nan Sabaris show that interest in students' mathematics learning motivation is low. This can be seen from the enthusiasm of each student following the learning. several groups of students showed indications of boredom in participating in learning activities. This is supported by observation data which states that the dominant teacher uses the lecture method in mathematics learning activities. The use of the lecture method can lead to saturation in students and inhibit student-centered learning activities [10].

To overcome the problems in learning mathematics at SDN 19 Nan Sabaris, the media can be used as an effort to increase students' interest in learning. The recommended game media is Ludo. The researcher chose Ludobased on several reasons, including: Ludo is a game that has been known for a long time by each student so that indirectly students already have an understanding of the rules of the ludo game. Ludo's game is also an adaptive type of game that is easily adapted to learning needs [11]. The selection of Ludo as a medium for learning mathematics is also motivated by the principle of learning at the elementary school level, one of which is directing learning to the concept of learning while playing.

## **2. Research Methods**

This type of research is a quasi-experiment involving 22 third grade students of SDN 19 Nan Sabaris who were enrolled in the 2018/2019 school year as a research sample. The sampling technique used was purposive sampling because of the limitations of the classes available in the research area. The instrument of data collection in this study is a questionnaire that aims to assess students' interests and motivations in mathematics learning. The conclusion of the study was taken by comparing the results of data analysis using paired sample t-test and the findings obtained during the research activities.

### 3. Results and Discussion

Ludo game is one of the games designed to increase motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This media is the development of ordinary Ludo games and is modified and adapted to learning needs. This ludo media is applied to third grade mathematics learning at SDN 19 Nan Sabaris with a total sample of 22 students. Before the conclusion of the study was taken, data analysis was performed using the paired sample t-test equation. To perform a paired sample t-test, a prerequisite test is first done, namely the test for normality and homogeneity.

**Table 1.** One-Sample Kolmogorov-Smirnov test.

Class Condition	Normal Parameters <sup>a</sup>		Most Extreme Differences			Asymp. Sig. (2-tailed)
	Mean	Std. Deviation	Absolute	Positive	Negative	
Before	2.360	0.848	0.257	0.257	-0.198	0.110

<sup>a</sup> Test distribution is normal

Based on the data above, it can be seen that the value of sig 2. Tailed to the class before being given treatment is greater than the value of  $\alpha$  which is 0.05. This shows that the overall value of students in class III before being given treatment is normally distributed. With this conclusion, the first test as a prerequisite for carrying out a paired sample t-test has been fulfilled. Furthermore, analysis was carried out for class group data after treatment being given.

**Table 2.** One-sample normality test after treatment.

Class Condition	N	Normal Parameters <sup>a</sup>		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
After	22.000	3.770	0.869	0.222	0.222	-0.194	1.042	0.228

<sup>a</sup> Test distribution is normal

Referring to the results indicated by the data analysis of group normality after giving the treatment, namely the application of ludo playing media in learning mathematics in class III SDN 19 Nan Sabaris, it can be concluded that the data is normally distributed. This is indicated by the value of sig 2. Tailed which is greater than the value of  $\alpha$  which is 0.05 so that it can be concluded that the data is normally distributed. The next prerequisite test is the homogeneity test.

**Table 3.** Test of homogeneity of variances.

Levene Statistic	df1	df2	Sig.
0.023	1.000	42.000	0.880

The homogeneity of the data group was obtained by carrying out the homogeneity test using the Levene test. Based on table 3, it can be seen that the sig2 value. Tailed for 0.880 is greater than the value of  $\alpha$  so it is concluded that both groups of sample class data are good which before being treated with homogeneous treatment.

To draw the main conclusions of the study, data analysis was continued to the paired sample t-test. This test can be continued because the entire data meets the requirements, which are normally distributed and homogeneous.

**Table 4.** Paired Sample t-test.

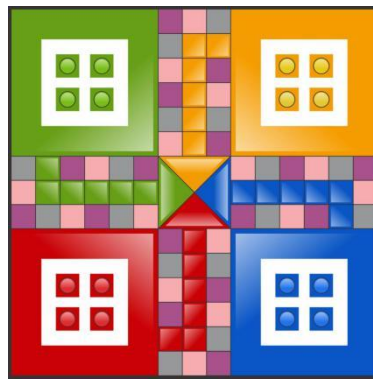
Paired Sample T-Test					
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

By looking at the analysis data in table 4, it can be seen that the sig 2.tailed value of 0.000 is smaller than the value of  $\alpha$  which is 0.05 so that it can be concluded that there are significant differences in student interest and motivation between before and after treatment is given in the form of internal media ludo mathematics learning. The application of ludo media is one of the steps taken by the teacher to increase students' low interest and motivation in learning mathematics. It cannot be denied that mathematics is one of the subjects that is often feared and categorized difficult by several groups of students [12]. Mathematics can be made fun by applying learning concepts that are appropriate for child development [13].

Learning with ludo media so that it is more directed and in accordance with the learning objectives must be bound by several regulations [14]. These rules include: the students must answer the questions given in question cards with limited time actively. All the rules above have been introduced and explained to students before the game uses ludo in mathematics learning begins.



Ludo which was developed in the form of mathematics learning media aimed at increasing students' motivation and interests. The method used in this game has some differences compared than usual Ludo games. The board is coloured with 3 colour: purple, pink and blue. The rules are the same with ordinary Ludo game. The difference is as follow: If a player get position in purple zone, that player have to answer the questions that have prepared in question card; If a player get position in pink zone, that player placed in netral position, it means that player do not have to answer the questions in question card. If a player get position in blue zone, that player given choice to answer questions or to be in netral position. Every player who get position to answer questions need to do it in one minute. The punishment will be given to player who answer question in wrong way. That player have to step backward in several steps. This is a concequence that should be done as one of rules in this Ludo game.



**Figure 1.** Modified Ludo board

Ludo game media is a media game that can be adapted not only in mathematics learning. This media can be applied in other learning as long as the characteristics of the material fit into the game flow and the agreed rules. The application of this media is proven to be able to increase motivation and interest in student learning, so that the game media is feasible to be developed on a broad scale to support and as a variation in learning activities.

Ludo learning media is said to be effective for increasing students' interest and motivation because in this game students are actively involved and increase cooperation within the team. Each student is motivated to answer questions and contribute to winning the game. The principle of game-based learning is one of the principles that is often forgotten by every teacher in designing and designing learning activities at the elementary school level. The games that were raised not only had an impact on satisfaction to the students but also indirectly influenced them to be willing and motivated in learning.

The game media which is packaged in ludo form has directed students to take part in each stage of learning [15]. The involvement of problem solving activities is one of the steps that students do not realize as an exercise to improve their understanding in mathematics learning. Students become motivated to learn and increase their active participation in each process after the implementation of this ludo-based learning media. In the future teachers are expected to be more creative in developing

learning resources for students whether in the form of media or teaching materials. Student needs for learning resources can be adjusted to the stage of growth and age of the student.

#### 4. Conclusion

Media is a link between teachers, students and learning materials. The use of ludo media in mathematics learning, especially at the elementary school level, has been shown to increase students' motivation and interest in learning. The ludo media that is applied is one of the steps of the teacher in adjusting learning patterns at the elementary school level which are still dominated by the Ludo game. Some of the things that are noted in the implementation of learning using game-based media such as ludo include: preparation of tools and materials that are quite mature and in a sufficiently long time so that the implementation process does not experience obstacles, preparation of students as pre-conditions before learning uses media ludo, as well as knowledge the beginning of students who need to be stimulated so that students are not constrained in solving questions that are the main focus of research. In the future, it is expected to be able to continue the development of activity-based media playing with other types such as snakes and ladders, monopolies or other types that are often used and close in their daily play activities.

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Padang, July 20, 2019

No. : 14/ICM2E/III/UNP/VIII/2019

Subject : **Letter of Acceptance**

Dear MISHBAH ULHUSNA  
UPI YPTK PADANG,

Congratulation ! It is our pleasure to invite you to be a presenter during our International Conference on Mathematics and Mathematics Education (ICM2E) 2019. The conference will be held 3 – 4 August 2019 at Aula FMIPA Universitas Negeri Padang, Padang, Indonesia. We inform that your paper entitle :

**LUDO GAME IMPLEMENTATION TO IMPROVE STUDENT'S MOTIVATION AND INTEREST TO LEARN MATHEMATICS FOR 3rd GRADE IN SDN 19 NAN SABARIS**

has been accepted by the Program Committee for Paper Session of 3rd International Conference on Mathematics and Mathematics Education (ICM2E 2019).

You are invited as Paper Presenter. In order to confirm your participation, you are required to upload your full paper via our online registration portal before July 25, 2019 and completed your payment before July 31, 2019. Do not forget to read our submission system (<http://icm2e.fmipa.unp.ac.id/icm2e3/submis.php>).

The guidelines for writing the articles can be found in the Author Guidelines <http://conferenceseries.iop.org/content/authors>

This letter is not an assurance for any financial support. Any arrangement of your travel to the conference shall be borne by the speaker. All information about the conference can be found at <http://icm2e.fmipa.unp.ac.id/icm2e3>.

Thank you and we are welcome you to ICM2E 2019!

Best regards,

**Dr. Dony Permana, M.Si.**  
*Conference Committee Chair*

Dokumen pendukung luaran Tambahan #1

Luaran dijanjikan: Prosiding dalam pertemuan ilmiah Internasional

Target: sudah terbit/sudah dilaksanakan

Dicapai: Submitted

Dokumen wajib diunggah:

1.

Dokumen sudah diunggah:

1. Naskah artikel

Dokumen belum diunggah:

-

Peran penulis: first author

Nama Konferensi/Seminar: International Conference on Mathematics and Mathematics Education

Lembaga penyelenggara: Universitas Negeri Padang

Tempat penyelenggara: Universitas Negeri Padang

Tgl penyelenggaraan mulai: 3 Agustus 2019 | Tgl selesai: 4 Agustus 2019

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Judul artikel: Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3rd Grade in SDN 19 Nan Sabaris

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## 1. Introduction

According to the theory of cognitive development, children at elementary school age are still at a simple level of thinking, limited to concrete things. Every teacher in designing learning activities to be carried out in the classroom must be able to pay attention to the stages of cognitive development [1]. The foundation of cognitive development is adjusted to the way of learning, learning styles and increasing student learning interests and motivation [2].

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To overcome the problems in learning mathematics at SDN 19 Nan Sabaris, the media can be used as an effort to increase students' interest in learning. The recommended game media is Ludo. The researcher chose Ludobased on several reasons, including: Ludo is a game that has been known for a long time by each student so that indirectly students already have an understanding of the rules of the ludo game. Ludo's game is also an adaptive type of game that is easily adapted to learning needs [11]. The selection of Ludo as a medium for learning mathematics is also motivated by the principle of learning at the elementary school level, one of which is directing learning to the concept of learning while playing.

## **2. Research Methods**

This type of research is a quasi-experiment involving 22 third grade students of SDN 19 Nan Sabaris who were enrolled in the 2018/2019 school year as a research sample. The sampling technique used was purposive sampling because of the limitations of the classes available in the research area. The instrument of data collection in this study is a questionnaire that aims to assess students' interests and motivations in mathematics learning. The conclusion of the study was taken by comparing the results of data analysis using paired sample t-test and the findings obtained during the research activities.

### 3. Results and Discussion

Ludo game is one of the games designed to increase motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This media is the development of ordinary Ludo games and is modified and adapted to learning needs. This ludo media is applied to third grade mathematics learning at SDN 19 Nan Sabaris with a total sample of 22 students. Before the conclusion of the study was taken, data analysis was performed using the paired sample t-test equation. To perform a paired sample t-test, a prerequisite test is first done, namely the test for normality and homogeneity.

**Table 1.** One-Sample Kolmogorov-Smirnov test.

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Based on the data above, it can be seen that the value of sig 2. Tailed to the class before being given treatment is greater than the value of  $\alpha$  which is 0.05. This shows that the overall value of students in class III before being given treatment is normally distributed. With this conclusion, the first test as a prerequisite for carrying out a paired sample t-test has been fulfilled. Furthermore, analysis was carried out for class group data after treatment being given.

**Table 2.** One-sample normality test after treatment.

Class Condition	N	Normal Parameters <sup>a</sup>		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
After	22.000	3.770	0.869	0.222	0.222	-0.194	1.042	0.228

<sup>a</sup> Test distribution is normal

Referring to the results indicated by the data analysis of group normality after giving the treatment, namely the application of ludo playing media in learning mathematics in class III SDN 19 Nan Sabaris, it can be concluded that the data is normally distributed. This is indicated by the value of sig 2. Tailed which is greater than the value of  $\alpha$  which is 0.05 so that it can be concluded that the data is normally distributed. The next prerequisite test is the homogeneity test.



**Table 3.** Test of homogeneity of variances.

Levene Statistic	df1	df2	Sig.
0.023	1.000	42.000	0.880

The homogeneity of the data group was obtained by carrying out the homogeneity test using the Levene test. Based on table 3, it can be seen that the sig2 value. Tailed for 0.880 is greater than the value of  $\alpha$  so it is concluded that both groups of sample class data are good which before being treated with homogeneous treatment.

To draw the main conclusions of the study, data analysis was continued to the paired sample t-test. This test can be continued because the entire data meets the requirements, which are normally distributed and homogeneous.

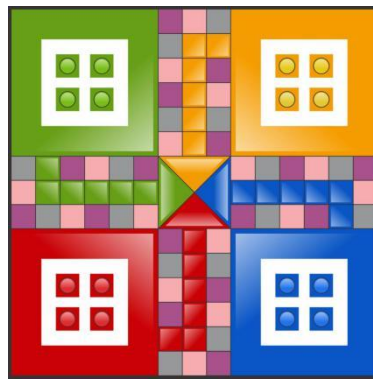
**Table 4.** Paired Sample t-test.

Paired Sample T-Test					
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

By looking at the analysis data in table 4, it can be seen that the sig 2.tailed value of 0.000 is smaller than the value of  $\alpha$  which is 0.05 so that it can be concluded that there are significant differences in student interest and motivation between before and after treatment is given in the form of internal media ludo mathematics learning. The application of ludo media is one of the steps taken by the teacher to increase students' low interest and motivation in learning mathematics. It cannot be denied that mathematics is one of the subjects that is often feared and categorized difficult by several groups of students [12]. Mathematics can be made fun by applying learning concepts that are appropriate for child development [13].

Learning with ludo media so that it is more directed and in accordance with the learning objectives must be bound by several regulations [14]. These rules include: the students must answer the questions given in question cards with limited time actively. All the rules above have been introduced and explained to students before the game uses ludo in mathematics learning begins.

Ludo which was developed in the form of mathematics learning media aimed at increasing students' motivation and interests. The method used in this game has some differences compared than usual Ludo games. The board is coloured with 3 colour: purple, pink and blue. The rules are the same with ordinary Ludo game. The difference is as follow: If a player get position in purple zone, that player have to answer the questions that have prepared in question card; If a player get position in pink zone, that player placed in netral position, it means that player do not have to answer the questions in question card. If a player get position in blue zone, that player given choice to answer questions or to be in netral position. Every player who get position to answer questions need to do it in one minute. The punishment will be given to player who answer question in wrong way. That player have to step backward in several steps. This is a concequence that should be done as one of rules in this Ludo game.



**Figure 1.** Modified Ludo board

Ludo game media is a media game that can be adapted not only in mathematics learning. This media can be applied in other learning as long as the characteristics of the material fit into the game flow and the agreed rules. The application of this media is proven to be able to increase motivation and interest in student learning, so that the game media is feasible to be developed on a broad scale to support and as a variation in learning activities.

Ludo learning media is said to be effective for increasing students' interest and motivation because in this game students are actively involved and increase cooperation within the team. Each student is motivated to answer questions and contribute to winning the game. The principle of game-based learning is one of the principles that is often forgotten by every teacher in designing and designing learning activities at the elementary school level. The games that were raised not only had an impact on satisfaction to the students but also indirectly influenced them to be willing and motivated in learning.

The game media which is packaged in ludo form has directed students to take part in each stage of learning [15]. The involvement of problem solving activities is one of the steps that students do not realize as an exercise to improve their understanding in mathematics learning. Students become motivated to learn and increase their active participation in each process after the implementation of this ludo-based learning media. In the future teachers are expected to be more creative in developing

learning resources for students whether in the form of media or teaching materials. Student needs for learning resources can be adjusted to the stage of growth and age of the student.

#### **4. Conclusion**

Media is a link between teachers, students and learning materials. The use of ludo media in mathematics learning, especially at the elementary school level, has been shown to increase students' motivation and interest in learning. The ludo media that is applied is one of the steps of the teacher in adjusting learning patterns at the elementary school level which are still dominated by the Ludo game. Some of the things that are noted in the implementation of learning using game-based media such as ludo include: preparation of tools and materials that are quite mature and in a sufficiently long time so that the implementation process does not experience obstacles, preparation of students as pre-conditions before learning uses media ludo, as well as knowledge the beginning of students who need to be stimulated so that students are not constrained in solving questions that are the main focus of research. In the future, it is expected to be able to continue the development of activity-based media playing with other types such as snakes and ladders, monopolies or other types that are often used and close in their daily play activities.

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Padang, July 20, 2019

No. : 14/ICM2E/III/UNP/VIII/2019

Subject : **Letter of Acceptance**

Dear MISHBAH ULHUSNA  
UPI YPTK PADANG,

Congratulation ! It is our pleasure to invite you to be a presenter during our International Conference on Mathematics and Mathematics Education (ICM2E) 2019. The conference will be held 3 – 4 August 2019 at Aula FMIPA Universitas Negeri Padang, Padang, Indonesia. We inform that your paper entitle :

**LUDO GAME IMPLEMENTATION TO IMPROVE STUDENT'S MOTIVATION AND INTEREST TO LEARN MATHEMATICS FOR 3rd GRADE IN SDN 19 NAN SABARIS**

has been accepted by the Program Committee for Paper Session of 3rd International Conference on Mathematics and Mathematics Education (ICM2E 2019).

You are invited as Paper Presenter. In order to confirm your participation, you are required to upload your full paper via our online registration portal before July 25, 2019 and completed your payment before July 31, 2019. Do not forget to read our submission system (<http://icm2e.fmipa.unp.ac.id/icm2e3/submis.php>).

The guidelines for writing the articles can be found in the Author Guidelines <http://conferenceseries.iop.org/content/authors>

This letter is not an assurance for any financial support. Any arrangement of your travel to the conference shall be borne by the speaker. All information about the conference can be found at <http://icm2e.fmipa.unp.ac.id/icm2e3>.

Thank you and we are welcome you to ICM2E 2019!

Best regards,

**Dr. Dony Permana, M.Si.**  
*Conference Committee Chair*

Dokumen pendukung luaran Tambahan #2

Luaran dijanjikan: Prosiding dalam pertemuan ilmiah Internasional

Target: sudah terbit/sudah dilaksanakan

Dicapai: Submitted

Dokumen wajib diunggah:

1.

Dokumen sudah diunggah:

1. Naskah artikel

Dokumen belum diunggah:

-

Peran penulis: first author

Nama Konferensi/Seminar: International Conference on Mathematics and Mathematics Education

Lembaga penyelenggara: Universitas Negeri Padang

Tempat penyelenggara: Universitas Negeri Padang

Tgl penyelenggaraan mulai: 3 Agustus 2019 | Tgl selesai: 4 Agustus 2019

Lembaga pengindeks: IOPScience, Indexed in Scopus

URL website: [icm2e.fmipa.unp.ac.id](http://icm2e.fmipa.unp.ac.id)

Judul artikel: Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3rd Grade in SDN 19 Nan Sabaris

# Ludo Game Implementation to Improve Student's Motivation and Interest to Learn Mathematics for 3<sup>rd</sup> Grade in SDN 19 Nan Sabaris

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<sup>2</sup> Informatics Engineering Department, UPI YPTK Padang, Indonesia

<sup>3</sup> Department of Education Science, Universitas Negeri Padang, Indonesia

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**Abstract.** This research is motivated by the low interest and motivation of students to learn mathematics in the third grade of SDN 19 Nan Sabaris. The purpose of this study was to see the effect of Ludo media to increase the interest and motivation of mathematics learning in third grade students of SDN 19 Nan Sabaris. This type of research is quasi-experimental with a sample of all third grade students of SDN 19 Nan Sabaris registered in the 2018/2019 school year. The research instrument used was in the form of a questionnaire to see motivation and student learning interest in mathematics in grade III of SDN 19 Nan Sabaris. The data analysis technique used is paired-sample t-test. The results of data analysis showed that there were significant differences in the results of interest in and motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This means that the use of ludo game media can significantly increase students' interest and motivation in learning about Mathematics.

**Keywords:** Media, Ludo, Student's Motivation, Student's Interest

## 1. Introduction

According to the theory of cognitive development, children at elementary school age are still at a simple level of thinking, limited to concrete things. Every teacher in designing learning activities to be carried out in the classroom must be able to pay attention to the stages of cognitive development [1]. The foundation of cognitive development is adjusted to the way of learning, learning styles and increasing student learning interests and motivation [2].

Learning mathematics at the elementary school level must be able to accommodate the creation of continuity between interests, motivations, activities and learning outcomes [3]. The teacher can choose several methods or learning models to be able to increase student activity [4]. In addition, teachers can

also be creative by creating media that can improve students' understanding in learning activities. In the concept of media is a link between the delivery of information between teachers and students [5].

The choice of learning resources also influences how students' interests, motivations and understanding in learning activities. Students will be motivated in learning activities if learning resources are designed according to their current stage and age [6]. Therefore, developing a learning media needs to pay attention to student's interest, hobbies, learning styles.

Interest is a feeling that is gained because it is related to something. This interest can be learned and can influence subsequent learning activities and influence the acceptance of new interests. So, interest in something is the result of learning and tends to support the next learning activity. Therefore interest is very influential on learning activities. If a student has a feeling of being happy about a particular lesson then there will be no sense of compulsion to learn [7].

Between interest and motivation there is a close relationship. If someone has a motivation for something, there will be interest in something. Students' interest and motivation can be improved through interesting and enjoyable learning activities [8, 9]. One of them through the planting of appropriate learning material concepts, giving chances/opportunities to students to be actively and creatively involved in learning activities and exercises continuously.

The facts found at SDN 19 Nan Sabaris show that interest in students' mathematics learning motivation is low. This can be seen from the enthusiasm of each student following the learning. several groups of students showed indications of boredom in participating in learning activities. This is supported by observation data which states that the dominant teacher uses the lecture method in mathematics learning activities. The use of the lecture method can lead to saturation in students and inhibit student-centered learning activities [10].

To overcome the problems in learning mathematics at SDN 19 Nan Sabaris, the media can be used as an effort to increase students' interest in learning. The recommended game media is Ludo. The researcher chose Ludobased on several reasons, including: Ludo is a game that has been known for a long time by each student so that indirectly students already have an understanding of the rules of the ludo game. Ludo's game is also an adaptive type of game that is easily adapted to learning needs [11]. The selection of Ludo as a medium for learning mathematics is also motivated by the principle of learning at the elementary school level, one of which is directing learning to the concept of learning while playing.

## **2. Research Methods**

This type of research is a quasi-experiment involving 22 third grade students of SDN 19 Nan Sabaris who were enrolled in the 2018/2019 school year as a research sample. The sampling technique used was purposive sampling because of the limitations of the classes available in the research area. The instrument of data collection in this study is a questionnaire that aims to assess students' interests and motivations in mathematics learning. The conclusion of the study was taken by comparing the results of data analysis using paired sample t-test and the findings obtained during the research activities.



### 3. Results and Discussion

Ludo game is one of the games designed to increase motivation to learn mathematics in third grade students at SDN 19 Nan Sabaris. This media is the development of ordinary Ludo games and is modified and adapted to learning needs. This ludo media is applied to third grade mathematics learning at SDN 19 Nan Sabaris with a total sample of 22 students. Before the conclusion of the study was taken, data analysis was performed using the paired sample t-test equation. To perform a paired sample t-test, a prerequisite test is first done, namely the test for normality and homogeneity.

**Table 1.** One-Sample Kolmogorov-Smirnov test.

Class Condition	Normal Parameters <sup>a</sup>		Most Extreme Differences			Asymp. Sig. (2-tailed)
	Mean	Std. Deviation	Absolute	Positive	Negative	
Before	2.360	0.848	0.257	0.257	-0.198	0.110

<sup>a</sup> Test distribution is normal

Based on the data above, it can be seen that the value of sig 2. Tailed to the class before being given treatment is greater than the value of  $\alpha$  which is 0.05. This shows that the overall value of students in class III before being given treatment is normally distributed. With this conclusion, the first test as a prerequisite for carrying out a paired sample t-test has been fulfilled. Furthermore, analysis was carried out for class group data after treatment being given.

**Table 2.** One-sample normality test after treatment.

Class Condition	N	Normal Parameters <sup>a</sup>		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
		Mean	Std. Deviation	Absolute	Positive	Negative		
After	22.000	3.770	0.869	0.222	0.222	-0.194	1.042	0.228

<sup>a</sup> Test distribution is normal

Referring to the results indicated by the data analysis of group normality after giving the treatment, namely the application of ludo playing media in learning mathematics in class III SDN 19 Nan Sabaris, it can be concluded that the data is normally distributed. This is indicated by the value of sig 2. Tailed which is greater than the value of  $\alpha$  which is 0.05 so that it can be concluded that the data is normally distributed. The next prerequisite test is the homogeneity test.

**Table 3.** Test of homogeneity of variances.

Levene Statistic	df1	df2	Sig.
0.023	1.000	42.000	0.880

The homogeneity of the data group was obtained by carrying out the homogeneity test using the Levene test. Based on table 3, it can be seen that the sig2 value. Tailed for 0.880 is greater than the value of  $\alpha$  so it is concluded that both groups of sample class data are good which before being treated with homogeneous treatment.

To draw the main conclusions of the study, data analysis was continued to the paired sample t-test. This test can be continued because the entire data meets the requirements, which are normally distributed and homogeneous.

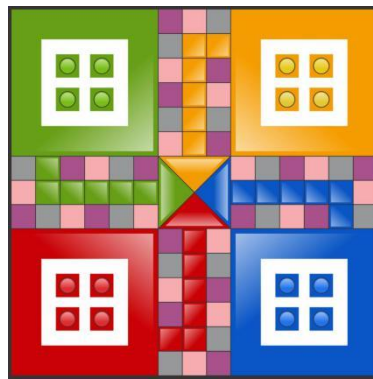
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Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Sig. (2-tailed)
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

By looking at the analysis data in table 4, it can be seen that the sig 2.tailed value of 0.000 is smaller than the value of  $\alpha$  which is 0.05 so that it can be concluded that there are significant differences in student interest and motivation between before and after treatment is given in the form of internal media ludo mathematics learning. The application of ludo media is one of the steps taken by the teacher to increase students' low interest and motivation in learning mathematics. It cannot be denied that mathematics is one of the subjects that is often feared and categorized difficult by several groups of students [12]. Mathematics can be made fun by applying learning concepts that are appropriate for child development [13].

Learning with ludo media so that it is more directed and in accordance with the learning objectives must be bound by several regulations [14]. These rules include: the students must answer the questions given in question cards with limited time actively. All the rules above have been introduced and explained to students before the game uses ludo in mathematics learning begins.

Ludo which was developed in the form of mathematics learning media aimed at increasing students' motivation and interests. The method used in this game has some differences compared than usual Ludo games. The board is coloured with 3 colour: purple, pink and blue. The rules are the same with ordinary Ludo game. The difference is as follow: If a player get position in purple zone, that player have to answer the questions that have prepared in question card; If a player get position in pink zone, that player placed in netral position, it means that player do not have to answer the questions in question card. If a player get position in blue zone, that player given choice to answer questions or to be in netral position. Every player who get position to answer questions need to do it in one minute. The punishment will be given to player who answer question in wrong way. That player have to step backward in several steps. This is a concequence that should be done as one of rules in this Ludo game.



**Figure 1.** Modified Ludo board

Ludo game media is a media game that can be adapted not only in mathematics learning. This media can be applied in other learning as long as the characteristics of the material fit into the game flow and the agreed rules. The application of this media is proven to be able to increase motivation and interest in student learning, so that the game media is feasible to be developed on a broad scale to support and as a variation in learning activities.

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The game media which is packaged in ludo form has directed students to take part in each stage of learning [15]. The involvement of problem solving activities is one of the steps that students do not realize as an exercise to improve their understanding in mathematics learning. Students become motivated to learn and increase their active participation in each process after the implementation of this ludo-based learning media. In the future teachers are expected to be more creative in developing

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Media is a link between teachers, students and learning materials. The use of ludo media in mathematics learning, especially at the elementary school level, has been shown to increase students' motivation and interest in learning. The ludo media that is applied is one of the steps of the teacher in adjusting learning patterns at the elementary school level which are still dominated by the Ludo game. Some of the things that are noted in the implementation of learning using game-based media such as ludo include: preparation of tools and materials that are quite mature and in a sufficiently long time so that the implementation process does not experience obstacles, preparation of students as pre-conditions before learning uses media ludo, as well as knowledge the beginning of students who need to be stimulated so that students are not constrained in solving questions that are the main focus of research. In the future, it is expected to be able to continue the development of activity-based media playing with other types such as snakes and ladders, monopolies or other types that are often used and close in their daily play activities.

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Chairman of Committee

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MATHEMATICS AND MATHEMATICS EDUCATION

Br. Dony Permana, M.Si

Dokumen pendukung luaran Tambahan #3

Luaran dijanjikan: Purwarupa/Prototipe

Target: penerapan

Dicapai: Penerapan

Dokumen wajib diunggah:

1. Hasil uji coba penerapan purwarupa terakhir
2. Dokumentasi (foto) pengujian penerapan purwarupa
3. Deskripsi dan spesifikasi purwarupa

Dokumen sudah diunggah:

1. Hasil uji coba penerapan purwarupa terakhir
2. Dokumentasi (foto) pengujian penerapan purwarupa
3. Deskripsi dan spesifikasi purwarupa

Dokumen belum diunggah:

-

Nama Purwarupa/Prototipe: Media Pembelajaran Ludo Game

Pemegang Purwarupa/Prototipe: Mishbah Ulhusna; Sri Diana Putri; Zakirman

Tgl Awal Periode Uji: 20 April 2019

Tgl Akhir Periode Uji: 23 April 2019

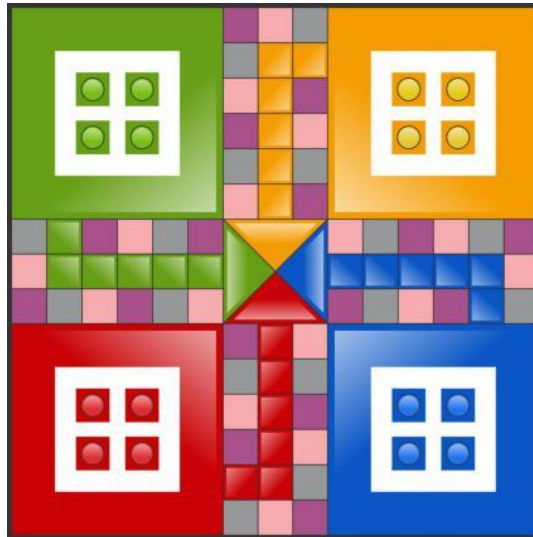
Link Video Dokumentasi Pengujian:

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## DESKRIPSI PROTOTIPE

Hasil observasi dan wawancara yang telah dilakukan di SDN 19 Nan Sabaris Pariaman, kemudian dianalisis dan dibuatkan sebuah prototipe yang cocok untuk mengatasi permasalahan yang ada. Adapun prototipe yang dapat meningkatkan motivasi belajar siswa Sekolah Dasar, dan telah dipahami dengan baik oleh para siswa adalah permainan Ludo. Permainan Ludo berasal dari permainan tradisional India bernama Pachisi [2]. Media pembelajaran Ludo ini, kemudian dimodifikasi dengan tampilan sebagai berikut:



Gambar 1. Papan permainan Ludo

- menggunakan pin permainan yang dekat dengan alam, yaitu batu bertulis inisial “B” untuk mewakili zona warna biru, “M” untuk merah, “K” untuk kuning serta “H” untuk hijau,
- menggunakan kartu soal yang salah satu sisinya berisi pertanyaan, sedangkan sisi lainnya berisi instruksi yang harus dilakukan pemain,
- dan dimainkan sesuai dengan peraturan berikut:
  - 1) Siswa dibagi menjadi 4 kelompok dimana setiap kelompok memilih ketua regunya yang bertindak sebagai pelempar dadu. Dadu dilempar sesuai giliran yang telah ditetapkan melalui pengambilan nomor lot (undian).
  - 2) Kelompok pelempar (pemain) bisa melanjutkan permainan, jika dadu yang dilempar menunjukkan “angka 6”.
  - 3) Jika pemain mendapat “angka 6”, maka pemain berhak melempar dadunya kembali.
  - 4) Setelah dadu dilempar, angka yang tertera pada dadu hasil lemparan merupakan langkah yang harus dijalankan pemain.
  - 5) Jika pemain berada pada kotak berwarna:
    - Pink, maka pemain berada pada posisi netral (artinya tidak dibebankan pertanyaan)
    - Biru, maka pemain diberi kesempatan memilih, menjawab pertanyaan yang ada di kartu soal atau berada pada posisi netral)
    - Ungu, maka pemain wajib menjawab pertanyaan yang ada di kartu soal.
  - 6) Jika pemain menjawab salah, konsekuensi yang harus diterima pemain adalah “mundur 1 langkah”. Jika pemain menjawab benar, konsekuensinya ikuti “instruksi dari kartu soal”.



- 7) Jika saat memilih pertanyaan, pemain tidak mampu menjawab soal, maka soal dapat dilempar ke kelompok lain. Kelompok yang menjawab benar akan mendapatkan poin (ini berguna untuk menentukan juara favorit)
- 8) Lamanya permainan dibatasi oleh guru sebagai wasit permainan.
- 9) Saat waktu permainan telah habis atau kartu soal telah dibacakan semua atau telah ada pemain yang mencapai zona "home", maka permainan dinyatakan selesai. Jika tidak ada pemain yang mencapai zona "home", maka pemenangnya adalah pemain yang mendekati zona "home".
- 10) Jika ada pertanyaan mengenai tata cara permainan, dapat ditanyakan langsung kepada guru.

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## HASIL UJI COBA PENERAPAN PROTOTIPE TERAKHIR

Permainan ludo merupakan salah satu permainan yang dirancang untuk meningkatkan motivasi belajar matematika siswa di kelas III SDN 19 Nan Sabaris. Media permainan ludo merupakan salah satu pengembangan dari permainan ludo dan dimodifikasi serta disesuaikan dengan kebutuhan pembelajaran. Media ludo ini diterapkan pada pembelajaran matematika kelas III SDN 19 Nan Sabaris dengan total sampel sebanyak 22 orang siswa. Sebelum kesimpulan penelitian diambil, dilakukan analisis data dengan menggunakan persamaan uji paired sample t-test. Untuk melakukan uji paired sample t-test terlebih dahulu dilakukan uji prasyarat yaitu uji normalitas dan homogenitas.

**Tabel 1. One-Sample Kolmogorov-Smirnov Test**

Class Condition		Before
Normal Parameters <sup>a</sup>	Mean	2.36
	Std. Deviation	0.848
Most Extreme Differences	Absolute	0.257
	Positive	0.257
	Negative	- 0.198
Asymp. Sig. (2-tailed)		0.110
a. Test distribution is Normal.		

Berdasarkan data diatas, terlihat bahwa nilai sig 2. Tailed pada kelas sebelum diberikan perlakuan lebih besar dari nilai  $\alpha$  yaitu 0.05. Hal ini menunjukkan bahwa nilai keseluruhan siswa pada kelas III sebelum diberikan perlakuan terdistribusi normal. Dengan kesimpulan ini, uji pertama sebagai prasyarat dilaksanakannya uji paired sample t-test telah terpenuhi. Selanjutnya dilakukan analisis untuk data kelompok kelas setelah diberikan perlakuan.

**Tabel 2. One-Sample Normality Test After Treatment**

Class Condition		After
N		22
Normal Parameters <sup>a</sup>	Mean	3.77
	Std. Deviation	0.869
Most Extreme Differences	Absolute	0.222
	Positive	0.222
	Negative	- 0.194
Kolmogorov-Smirnov Z		1.042
Asymp. Sig. (2-tailed)		0.228
a. Test distribution is Normal.		

Mengacu kepada hasil yang ditunjukkan oleh analisis data normalitas kelompok setelah diberikannya perlakuan yaitu penerapan media permainan ludo dalam pembelajaran matematika di kelas III SDN 19 Nan Sabaris dapat disimpulkan bahwa data terdistribusi normal. Hal ini ditunjukkan oleh nilai sig 2. Tailed yang lebih besar dari nilai  $\alpha$  yaitu 0.05 sehingga dapat disimpulkan data terdistribusi normal. Uji prasyarat berikutnya adalah uji homogenitas.

**Tabel 3. Test of Homogeneity of Variances**

Levene Statistic	df1	df2	Sig.
0.023	1	42	0.880

Kehomogenitasan kelompok data didapatkan dengan pelaksanaan uji homogenitas menggunakan uji levene. Berdasarkan tabel 3, terlihat bahwa nilai sig2. Tailed sebesar 0.880 lebih besar dari nilai  $\alpha$  sehingga disimpulkan kedua kelompok data kelas sampel baik yang sebelum diberikan perlakuan dengan yang sudah diberikan perlakuan bersifat homogen.

Untuk menarik kesimpulan utama penelitian, analisis data dilanjutkan kepada uji paired sample t-test. Uji ini dapat dilanjutkan karena keseluruhan data memenuhi syarat yaitu terdistribusi normal dan bersifat homogen. Apabila data tidak normal dapat dilanjutkan dengan analisis menggunakan uji non parametrik dengan pilihan lanjutan analisis menggunakan uji mann whitney, friedman dan kruskal walliss.

**Tabel 4. Paired Sample t-test**

Paired Sample T-Test				Sig. (2-tailed)	
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		
			Low	Up	
1.568	0.873	0.132	1.303	1.834	0.000

Dengan melihat data hasil analisis pada tabel 4, terlihat bahwa nilai sig 2.tailed sebesar 0.000 lebih kecil dari nilai  $\alpha$  yaitu 0.05 sehingga dapat disimpulkan bahwa terdapat perbedaan minat dan motivasi belajar siswa yang signifikan antara sebelum dan sesudah diberikan perlakuan yaitu berupa penerapan media ludo dalam pembelajaran matematika. Penerapan media ludo merupakan salah satu langkah yang diambil guru untuk meningkatkan rendahnya minat dan motivasi belajar siswa dalam pembelajaran matematika.

## DOKUMENTASI PENERAPAN PROTOTIPE LUDO GAME







Daftar capaian Luaran Tambahan belum diisi:

1. Publikasi Ilmiah Jurnal Internasional, target: accepted/published