

Mathematics Self-Efficacy Scale Based on Computer

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Abstract

The results of the PISA (Program for International Student Assessment) survey in 2012-2015 on the achievement of mathematical competencies of Indonesian students showed a significant increase, but the overall achievement was still below the average of the countries belonging to the Organization for Economic Co-operation and Development (OECD). Furthermore, the results of the Trends in International Mathematics and Science Study (TIMSS) report showed that many students like and feel good about mathematics, but their confidence in their mathematical abilities was quite low. Many studies reveal the close association of Mathematics Self-Efficacy (MSE) with the performance/achievement of students' mathematical competencies. In 2015, the PISA survey was done using computerization except in 15 countries, one of them was in Indonesia. Therefore, the results of this study are to produce the first computer-based MSE scale developed in Indonesia.

Keywords: competencies, computerization, mathematical abilities, survey

INTRODUCTION

The level of mathematics mastery is one benchmark of the progress of a nation (Sukoco & Mahmudi, 2016). Based on the results of international surveys, for example, the TIMSS (Trends in International Mathematics and Science Study) and PISA (Program for International Student Assessment), in 2015, the TIMSS survey was conducted on class IV students while PISA was for students of class IX and class X (age 15 years) in schools randomly selected throughout Indonesia (Mullis at al., 2016).

The results of the PISA survey, in 2012-2015, the achievement of mathematical competencies of Indonesian students increased significantly, but the overall achievement was still below the OECD average. In particular, more than 80% of students are only able to be at level 1, which is the lowest level in PISA assessment (OECD, 2016). In other words, the level of mathematics mastery of students is not as expected. Furthermore, based on the TIMSS report, it is known that:

- a. Sixty-six percent of Indonesian students really like and feel enjoy with math. This number is greater than the International average (45%).
- b. The confidence in their mathematical abilities is only 23%. This percentage is relatively lower than the International average (32%) [2].

The description above shows that there are two real phenomena that occur until today. First, students' mastery of mathematics is an important factor. But the reality in the school shows different things. Mastery of material is not the only factor that influences the high or low achievement of student competencies. Indeed, students with good mastery of material have more tendency to obtain good results.

The second phenomenon is that many students like and feel enjoy with mathematics, but their confidence in their mathematical abilities is quite low. Self-confidence or perceptions of individual mathematical abilities are defined as Mathematics Self-Efficacy (Sukoco, et al., 2017). This belief does not mean "the individual believes in what he is going to do" but rather "the individual believes in what he is capable of" (Sukoco & Mahmudi, 2016). Therefore, MSE is an individual belief in dealing with various types of tests, ranging from understanding concepts to solving problems or mathematical problems.

According to the OECD, MSE is closely related to performance in mathematics at almost every level of the participating countries. However, this is not the case for Indonesia, both based on PISA 2003 and PISA 2012. This means that in-depth research needs to be conducted regarding these results (Sukoco, et al., 2017).

Sukoco, et al. (2018) compiled the scale of the Mathematics Self-Efficacy for high school (Mathematics Self-Efficacy for Senior High School / MSESc) as a valid and reliable pilot project. As a follow-up, the MSESc scale was used to see the effect of MSE on the results of students' National Examinations of Mathematics (Sukoco, et al., 2017). The findings are the positive influence of MSE on the results of the Mathematics National Exam. However, the contribution of MSE in influencing the results of the Mathematics National Exam is only 4.193% while the contribution of its covariates (TO Mathematics National Exam) is 95.807%.

Furthermore, to see the effectiveness of the scale of MSESc, Sukoco & Kholifa continue the development of the scale of the Mathematics Self-Efficacy (MSE) for high school levels, the results of which are valid, reliable, and effective (Sukoco & Kholifa, 2016). Furthermore, Bonne (2016) also found the importance of the influence of the Mathematics Self-Efficacy (MSE) on the achievement of students' mathematical competencies in New Zealand. However, the MSE instrument developed is computer based.

Another issue is the 2015 PISA survey which has been computerized except in 15 countries, one of which is Indonesia (OECD, 2016). In addition, the written administration of the scale also creates its own constraints. For example, the possibility of entering data incorrectly. Therefore, the development of computer-based applications will facilitate the administration of scale and be able to reach a wider population so as to strengthen the results of previous studies, especially in Indonesia.

Based on the descriptions above, it is necessary to develop a scale of computerbased Mathematics Self-Efficacy in Indonesia.

METHOD

This type of research is development research. The development design used in this study refers to the ADDIE development model by Reiser & Dempsey namely Analysis, Design, Development, Implementation, Evaluation (Reiser & Dempsey, 2007). The development produced in this research is only in the analysis and design stage.

The application of this computer-based Mathematics Self-Efficacy scale is used to process student data retrieval without using paper or commonly known as a Computer Based Test (CBT) or Computer Assisted Test (CAT). All exam processes are done through computers, starting from the making of scale items, class arrangements, user settings that can fill the scale, teacher/user settings, to data retrieval processes using web technology. The type of scale used is Likert with 4 choices.

The specifications of this application are as follows.

- a. PHP with framework: Codeigniter versi 2.x.x;
- b. JQuery Javascript, to handle javascript commands, and others;
- c. JSON data format for exchanging data between server and client, on AJAX menus;
- d. Design UI with a CSS framework, Twitter Bootstrap.

While for the user level the application can be divided into 3, namely:

- 1. Admin, is the highest level of application, can manage data: teacher/lecturer, students, scale, questions/items, and see results;
- 2. **The teacher**, has access, can manage data: questions/items, scale lists, and see results;
- 3. **Students**, have access, can take the exam/fill-in items, according to the scale chosen, which is set by the admin level, and see the results.

RESULT

The development result of computerbased Mathematics Self-Efficacy scale follows these steps.

Preparation of Local Files and Servers

The steps for preparing local files and servers are as follows.

a. Download the XAMPP server application and the CAT application

For Windows operating systems, the file needed is XAMPP for Windows. Download it at <u>http://apachefriends.org</u>.



Figure 1. XAMPP Server

Next, download the CAT application from https://github.com/akhwan90/cat

	,	♦ releases		1 contributor
Branch: cat_dua • New pull requ	ea		Find	lie Cone or dow
💕 akhwae60 error Sstatuse		Clone	with HTTPS 🛞	
🖿 cat_dua	error Sstatuse	Use Git	or checkout with SVN	I using the web URL
README.md	Update READN	(End	://github.com/akhua	n99/cat.git
🗎 db_cat_dua.sql	ubah struktur E	08		
E readme2.txt	readme2	Op	an in Desitop	Lownload 2
E README.md				

- b. Save both XAMPP and CAT files on the local PC, for example, directory D.
- c. Install XAMPP by opening and running the file: xampp-win32-7.2.7-0-VC15- installer.exe which is about 126 MB (the name and size of the file will match the latest XAMPP).

The image below is the two files that are needed (CAT and XAMPP), run the XAMPP file by double-click it or press enter.

> Local Disk (D:)	> MASTER > 2018 > CATv2			
	Name	Date modified	Туре	Size
	🦉 cat-cat_dua.zip	05/08/2018 9:41	Compressed (zipp	3.089
	🐐 xampp-win32-7.2.7-0-VC15-installer.exe	05/08/2018 9:57	Application	126.824

Figure 3. Display of CAT and XAMPP Files For Windows 10, approve access rights when the initial run, continue by pressing **NEXT** for the next process.



Figure 4. Installing the XAMPP - Step 1

We recommend that you select all files for this server (install by default) then click **NEXT**.

	<u></u>
Select the components you want to instal; c Next when you are ready to continue.	lear the components you do not want to install. Click

Figure 5. Installing the XAMPP - Step 2

Select the location of the XAMMP installation, in this example, it will be installed on D: \ xampp3, then press **NEXT**.



Figure 7. Installing the XAMPP - Step 4



Figure 8. Installing the XAMPP - Step 5

Wait for the installation process to complete.

bitnam	ni for XAN	IPP			
Bitnami for XAMPP Drupal, Joomla!, W apps on top of you	provides free insta ordPress and man r existing XAMPP ir	allers that c y other pop istallation.	an install oular open so	ource	
Learn More					
	Installi	ng			
Unpacking files				_	

Figure 9. Installing the XAMPP - Step 6

If there is a firewall notification like below, please Allow Access.



Figure 10. Installing the XAMPP - Step 7

The installation is complete. If the following options are checked, the server panel will appear automatically. If not, you can then open the server panel from the location of the XAMPP installation.

< Back Next > Cancel



Figure 11. Installing the XAMPP - Step 8

Running the XAMPP

Steps to run the XAMPP:

a. Open the XAMPP installation folder in *D*:*xampp3*\ and run *xampp-control.exe*;

	Name	Date modified	Туре	Size
🖈 Quick access	xampp_start.exe	30/03/2013 19:29	Application	116 KI
ConeDrive	🔀 xampp_stop.exe	30/03/2013 19:29	Application	116 KI
	☑ xampp-control.exe	14/12/2016 18:47	Application	3.289 Ki
This PC	📓 properties.ini	05/08/2018 10:20	Configuration sett	1 KI
3D Objects	ampp-control.ini	05/08/2018 10:21	Configuration sett	1 KI
Desktop	🗋 uninstall.dat	05/08/2018 10:21	DAT File	221 KI
Documents	RELEASENOTES	06/07/2018 16:41	File	3 KI
Downloads	🥁 passwords.txt	13/03/2017 18:04	TXT File	1 KI

Figure 12. Running the XAMPP - Step 1

b. Run the *Apache* and *MySQL* modules by clicking *Start*;

Name	XAMPI	Control Pa	vel v3.2.2 [Cor	npiled: Nov 12th	2015]			-		×
xampp_start.exe xampp_stop.exe	8	XA	MPP Contr	ol Panel v3	.2.2				de c	lonfig
🛛 🖸 xampp-control.exe	Service	Module	PID(s)	Port(s)	Actions				🥘 N	etstat
properties.ini		Apache			Start	Admin	Config	Logs		Shell
uninstall.dat		NySQL			Start	Admin	Config	Logs	E D	plorer
RELEASENOTES		FieZila			Start	Admin	Contg	Logs	😴 S4	rvices
g passwords.txt		Mercury			Start	Admin	Centig	Logs	9	Help
📓 readme_en.txt		Torncat			Start	Admin	Config	Logs		Qut
apache_start.bat apache_stop.bat catalina_service.bat catalina_start.bat catalina_stop.bat catalina_stop.bat	10:27:43 10:27:44 10:27:45 10:27:48 10:27:49 10:27:49 10:27:49 10:27:49	[Apache] [mysql] [mysql] [mysql] [Apache] [Apache] [Apache]	Status chi Attempting Status chi Attempting Status chi Attempting Status chi	ange detected: i g to start MySQ ange detected: i g to stop MySQ ange detected: i g to stop Apach g to stop Apach ange detected: :	unning L app unning L app itopped e (PID: 7612 e (PID: 6380 itopped	2				^

Figure 13. Running the XAMPP - Step 2

c. If *Apache* and *MySQL* are already running on the XAMPP, it will look like the image below. Then you can open the *Browser*.

ж)	XA	MPP Contr	ol Panel v3	.2.2				🤌 Config
Modules Service	Module	PID(s)	Port(s)	Actions				Netstat
	Apache	14300 14964	80, <mark>4</mark> 43	Stop	Admin	Config	Logs	Shell
	MySQL	1304	3306	Stop	Admin	Config	Logs	Explored
	FileZilla			Start	Admin	Config	Logs	🦻 Service
	Mercury			Start	Admin	Config	Logs	🕑 Help
н.	Tomcat			Start	Admin	Config	Logs	fu0

Figure 14. Running the XAMPP - Step 3

d. To test, open a web browser and type
<u>http://localhost.</u>

	Anacha	MariaDD		Dorl	
	Apache +	ManaDB	+ PHF	+ Pell	

Welcome to XAMPP for Windows 7.2.7

Figure 15. Running the XAMPP - Step 4

Installing a CAT Application on a Local Server

- a. The steps for installing a CAT application on a local server are as follows:
 - Copy the catcat_dua.zip file that was previously downloaded to the XAMPP folder at D:\xampp3\htdocs;

Local Disk (D:) > MASTER > 2018 > CATv2

Name ^	Date modified	Туре	Size
🛛 📕 cat-cat_dua.zip	05/08/2018 9:41	Compressed (zipp	3.089
🐝 xampp-win32-7.2.7-0-VC15-installer.exe	05/08/2018 9:57	Application	126.824

Figure 16. Installing a CAT - Step 1

2. Continue with right-click and select *Extract All*;

	Name ^	Date modified	Туре	Size
	dashboard	05/08/2018 10:19	File folder	
	img	05/08/2018 10:19	File folder	
	webalizer	05/08/2018 10:19	File folder	
	ampp	05/08/2018 10:19	File folder	
	ø applications.html	06/07/2018 16:30	Chrome HTML Do	4 Ki
Open	bitnami.css	27/02/2017 16:36	Cascading Style S	1 KI
Open in new window	cat-cat_dua.zip	05/08/2018 9:41	Compressed (zipp	3.089 KI
Extended All	a favicon.ico	16/07/2015 22:32	lcon	31 KI
7-Zip	> index.php	16/07/2015 22:32	PHP File	1 KI

Figure 17. Installing a CAT - Step 2

 The result of extraction will bring up the new "cat-cat_dua", To make it easier to access, rename the file into "cat" by right-clicking it then choose rename or click and select the rename menu;

Extract Compressed (Zipped) Folders	
Select a Destination and Extract Files	
Files will be extracted to this folder:	

Figure 18. Installing a CAT - Step 3

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100. # 100.00				JUCU
npp3 > htdocs	Date mo	dified	Tune	Size
cat-cat_du	ua 05/08/20	18 10:36	File folder	
	Name	Name Date mo cat-cat_dua 05/08/20 dashboard 05/08/20	Name Date modified cat-cat_dua 05/08/2018 10:36 dashboard 05/08/2018 10:19	Name Date modified Type cat-cat_dua 05/08/2018 10:36 File folder dashboard 05/08/2018 10:19 File folder

Figure 19. Installing a CAT - Step 4

As a result, the folder has been changed to "cat".

i3 > hto	iocs >			
	lame	Date modified	Туре	Size
	cat	05/08/2018 10:36	File folder	
	dashboard	05/08/2018 10:19	File folder	
	img	05/08/2018 10:19	File folder	
	webalizer	05/08/2018 10:19	File folder	
	xampp	05/08/2018 10:19	File folder	
(applications.html	06/07/2018 16:30	Chrome HTML Do	4 KE
100	bitnami.css	27/02/2017 16:36	Cascading Style S	1 KE
	cat-cat_dua.zip	05/08/2018 9:41	Compressed (zipp	3.089 KE
3	a favicon.ico	16/07/2015 22:32	lcon	31 KE
	🖌 index.php	16/07/2015 22:32	PHP File	1 KE

Figure 20. Installing a CAT - Step 5

4. Move all the contents of the file in D:\xampp3\htdocs\cat\cat-

cat_dua\cat_dua so that it is directly below D:\xampp3\htdocs\cat\ (using the cut and paste command).

	Name ^	Date modified	Туре
55		05/08/2018 10:36	File folder
	application created: 05/06/2018 10:36	05/08/2018 10:36	File folder
	system 100 - 18 MB	05/08/2018 10:36	File folder
	🔤 upload	05/08/2018 10:36	File folder
IS .	htaccess	05/08/2018 10:36	HTACCESS File
	🥁 indec.php	05/08/2018 10:36	PHP File
ts			
1			

Figure 21. Installing a CAT - Step 6

The new	file	structure	is	as	follows.
---------	------	-----------	----	----	----------

	Name ^	Date modified	Туре	Size
55	I _	05/08/2018 10:36	File folder	
	application	05/08/2018 10:36	File folder	
	cat-cat_dua	05/08/2018 10:36	File folder	
	system	05/08/2018 10:36	File folder	
S	upload	05/08/2018 10:36	File folder	
	htaccess	05/08/2018 10:36	HTACCESS File	1 KB
ıts	🥁 index.php	05/08/2018 10:36	PHP File	7 KB
ads				

Figure 22. Installing a CAT - Step 7

- b. Installing the Databases and Tables
 - Install the database by opening it in the <u>http://localhost</u> web browser and select phpMyAdmin;



Figure 23. Database Installation

2. Create 1 database with the name **cat**;

<u><u><u>A</u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	🔋 Databases 📱 SQL	🔓 Status 🔳 User acc	counts 📕 Export 📕 Imp
Recent Favorites	1		
New	Databases		
⊕-@ mysql ⊕-@ performance_schema	🔓 Create database 🧕	2	3
B→→ phpmyadmin B→→ test	cat	latin1_swedish_ci	• Create

Figure 24. Creating a Database

3. Import the database file in D:\xamp3\htdocs\cat\cat-

cat_dua\db_cat_dua.sql with the import menu;



Figure 25. Import Database Files (1)

4. Click the Go button as below;



Figure 26. Import Database Files (2)

The results of the table structure that has been stored in the MySQL database.



Figure 27. Table Structure in the MySQL Database

c. Managing the Connection Files

To connect php files with the MySQL database, you need to set the php database connection file in the application in the D:\xampp3\htdocs\cat\application\config. Edit database to **cat** according to what was made before and save it.

	Narre Narre	20 Samp27Microlant spstaterization of glandsex physical states state - - × File Edit Sector View Excepting Setting Tasks Macco Ran Plagins Window ? - - ■
	🗹 🖉 database.php	🖬 tev 1 🗵 📷 tev 15 🖾 📷 tev 15 🖾 📷 tev 15 🖾 📷 tev 16 🖾 📷 tev 3 🖾 📷 tev 3 🖾 📷 tev 4 🖄 📩 debase php 🕰 🍨
	dectypes.php	1 E <pre>if (! defined('BASEFATH')) exit('No direct script access allowed');</pre>
	oreign_chars.php	<pre>2 Sactive_group = 'default';</pre>
	M hooks.ohp	3 Sective_record = TRUE;
	index introl	<pre>s edb("defbilit")["dostiane"] = "iocalities"; 5 edb()(defbilit")["dostiane"] = "iocalities"; 5</pre>
	W minution also	6 Sdpf'default')f'reasword'] = "!;
	1 - ingeneration	7 \$db['default']['database'] = 'cat':
	a unetro	<pre>8 \$db['default']['dbdriver'] = 'mysgli';</pre>
	grables.php	<pre>9 \$db['default']['dbprefix'] = '';</pre>
Ci)	🚅 routes.php	<pre>10 \$db['default']['poonnect'] = TRUE;</pre>
	🚽 smileys.php	<pre>11 \$db['default']['db_debug'] = 1808;</pre>
(ut)	🥁 user_øgents.php	<pre>10 \$40('default')['cache on'] = fALSE;</pre>
E)		13 Schlidefaultillicher seril = inf81
		15 Sdb1'default' ['dbcollat'] = 'utf8 ceneral ci':
		16 \$db['default']['swap pre'] = '';
		<pre>17 \$db['default']['autoinit'] = TBUE;</pre>

Figure 28. Managing the Connection Files

Accessing CAT

To try to access the CAT application, use the http://localhost/cat/.

• >	C	0	lo	aho	ost/ca	t/ad	m/lo	gin						0	• ☆	۵	P		(0	m	0	Ø	())	2	9	۵	P
FTI	0		SE		tool		IM		X	2	1	-	۵	KID	BL	•	•	c	ietak	8	f	f	4	A	•	P1	Ka	sus
					1	Log	in A	pl	ika	si																		
					0	ι	lsem	am	е																			
					-	F	assv	ron	i																			
					Lo	gin																						



Enter the **Admin** username and **admin** password as the application's default password.



Figure 30. Display of CAT Applications (2)

The application is ready to be used locally.

Computer Based Mathematics Self-Efficacy Instrument

a. Guide for Students

This system is stored on the server and can be accessed via the address <u>se.umbyogya.com</u> using a web browser. For participants, log in using the Student Identification Number (NIS) as the default user account and password.



Figure 31. Front Page of Computer-Based MSE Application

After successfully logging in, participants can see the list of available tests or if needed can change the password using the Change Password menu on the top right.



Figure 32. Display for Students

Starting to fill the scale by clicking the Test Menu, the exams that are still available can be followed by clicking Follow Exam. Enter the correct Token and click Start Test.

	shboerd Upon					
Dafta	r Ujian / Tes					
	Nama Tae	Mapel / Guru	Jumlah Soal	Waktu	Status	Aksi
No	Hama 169					
No	SE SMA	Self Efficacy (Staff)	40	400	Waktu	1
No	SE SMA	Self Efficacy (Staff)	40	400 menit	Waktu Habis	1

Figure 33. Exam Menu (1)

inhowed Uji	85	
masi Data		
Nama	Sita	Waktu boleh mengerjakan ujian adalah
NIM	15090128	saat tombol "MULAI" berwarna hijau.!
Guru / Mapel	Staff/Self Efficacy	
Nama Ujian	SE SMA2	♥ MULAI
Jml Soal	40	
Waktu	40 menit	

Figure 34. Exam Menu (2)

al He 1	003948	Narigasi	Soal		
		L.	20	1.	
. Hasil dari $\frac{c^{12} \log 81.9 \log 16.70 \log \sqrt{125}}{c^{12} \log 72.75 \log 2} =$		4.	5	80	
A 6		1.	8	4.	
B. 12		1.	11-	12-	
C. 24		1	- H -	н.	
D. 36			П	<u>u-</u>	
E. 48			2	<u>ц</u> .	
alah kama mampu menyelesaikan soal tersebut?			8	72-	
saya tidak bisa		2.	28-	z .	
Same local latest software		1	12 -	8	
a sala milur izulu oburrola				Sel	esa
© Seja yakin mampu		-		-	

Figure 35. Exam Menu (3)

The exam number that has been or has not been done can be seen using the navigation on the right. When you have finished clicking, you can see the resume.

National Disc.
Selesa ujan
Anda telah selesu mengilari ujan ini pada . 94 Agustus 2018 0159:27
Kmhai

Figure 36. Exam Menu (4)

If the time is still there and will end the test, use the *Finish* button (marked in red).

b. Guide for Admin

Test users can be added manually or imported using the downloaded template. Here's how to add users manually.

- 1. Click Student data
- 2. Add
- 3. Fill in the required data
- 4. Save
- 5. After that, click Activate User



Figure 37. Display for Admin (1)



Figure 38. Display for Admin (2)

c. Guide for Teachers or Testing Team

The teacher or testing team can make various tests according to the time or type of test subjects and needs. The list of exams can be seen from the EXAM menu.

+ Tambah Data	Download Fernat Impert Search:	e inpet éCtai
Mapel/Guru	Analisa	Aksi
Self Efficacy Staff	Jml dipakai :20 Benar:3, Salah 17	Z Edda X Hapes
	▲ Thebiah Data Mapel/Guro Self Efficacy Staff	trabah lati terinak lati te

Figure 39. Display of Item Scale Menu (1)

\mathbf{v}		
Desilvent	in kalija.	
input Soal		
Mapel	Self Efficacy	
Jura	Statt	
Telks Soal	Choose File No file chosen	
		B I S I _x ↓ ↓ ↓ B I = ⊕ 99 St/es · Format · ?

Figure 40. Display of Item Scale Menu (2)

The teacher or the testing team can also make various tests according to the time or type of test subject as needed. The list of exams can be seen from the **EXAM** menu.

2 国					
and Sei	Van Rei Tjan				
jan / Tes					+ Ter
10 - entries				Search	
Nama Tes	Mata Pelajaran	Jumlah Soal	Waktu	Pengacakan Soal	Aksi
SE SMA2 Token : 123 C	Self Efficacy	40	31 Jul 2018 07:00:00 (40 menit)	Scel urut	🖊 Edit 🗶 Beput
SE SMA Token: 123 C	Self Efficacy	40	31 Jul 2018 07:00:00 (400 menit)	Scel urut	🖊 Edd 🗙 Hepus
	an / Tes an / Tes an / Tes an / Tes set Status SE SMA2 Token: 123 0 SE SMA2 Token: 123 0 SE SMA2 Token: 123 0	ar Jin ar	a persona de la companya de la compa	Image: Constraint of the second sec	Image: Second

Figure 41. Display of Item Scale Menu (3)

Next, the steps to add a new exam are as follows.

1. Add;

- 2. Fill in the data needed: type of lesson, number, date, limit, and randomization of questions;
- 3. The test code will be randomly generated.

		Buat Ujian			×		
(9 8	Nama Ujian	SE SMA2				
p	lived tod	Mata Pelajaran	Self Etho	всу			
		Jumlah soal	40				
		Tgl Malai	31/07/20	8 07:00			+ had
bow	10 • entries	Waktu	40	menit	iei	rch	
No	Nama Tes	Keterlambatan	40003	menit	50	2	Aksi
	SE SMA2 Token: 123 O	Acak Scal	Soal Diur	utkan		1	🖊 Ežd 🗶 Hagos
2	SE SMA Token: 123 C			✓ Simpl	n O Tutup	1	🖊 Edit 🗶 Haput
CONT.	ng 1 to 2 of 2 entries	-	-	_	_		teviots 1 Ne

Figure 42. Exam Adds Menu

View the results of the exam using the Test Results menu for details of each click View Results.

6						
beil	sect Sal	the lastly				
lafter H	ianil Tes					
htw	10 • entries				Search	
	Nama Tes	Nama Gum	Mata Pelaiaran	Jumlah Sool	Waktu	Abri
NO		Trailer O'dra	and a conjugat		reases	ALLA
N0 1	SE SMA2	Staff	Self Efficacy	40	40 menit	Q, Libat Hasil

Figure 43. Exam Results Menu

d. Data Analysis

The data stored on the Server in the MySQL database can be retrieved by using phpMyAdmin and then exported to Excel files.



Figure 44. Data Storage Display (1)

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Figure 45. Data Storage Display (2)

🖹 Browse 🧏 Structure 📮 SQL 🔍 Search 🐉 Insert 🚍 Export 🗟 Import 🥔

Exporting rows from "tr_ikut_ujian" table

xport method:
Quick - display only the minimal options
Custom - display all possible options
iormat:
CSV for MS Excel
Go
Figure 46. Data Storage Display (3)
Browse Structure SOI Search 😹 Insert 🚍 Export 📮 Import
Exporting rows from "tr_ikut_ujian" table
Export method:
Quick - display only the minimal options
Custom - display all possible options
Format:
CSV for MS Excel
60
Figure 47. Data Storage Display (4)

The data can be processed with a Spreadsheet (Ms. Excel), the main data needed is the name/student ID and answer list column.

Α	В	C	D	E	F	G	н	1		K
id	id_tes	id_user	list_soal	list_jawaban	jml_bena	nilai	nilai_bob	tgl_mulai	tgl_selesai	status
37	91	2	1,2,3,4,5,	51:A,2:B,3:C,4:A,5:A,6:B,7:D,8	8	20.00	20.00	27/07/2018 09:18	27/07/2018 15:58	N
38	92	2	1,2,3,4,5,6	51:,2:,3:,4:,5:,6:,7:,8:,9:,10:,11:	0	0.00	0.00	27/07/2018 10:08	27/07/2018 10:48	N
39	91	- 4	1,2,3,4,5,	51:4,2:,3:,4:,5:,6:,7:,8:,9:,10:,1	0	0.00	0.00	27/07/2018 11:08	27/07/2018 17:48	Y
40	91	1	1,2,3,4,5,6	51:C,2:A,3:A,4:8,5:8,6:A,7:8,8	17	42.50	42.50	27/07/2018 11:26	27/07/2018 18:05	N
41	92	1	1,2,3,4,5,0	51:0,2:,3:,4:,5:,6:,7:,8:,9:,10:,1	1	2.50	2.50	27/07/2018 11:43	27/07/2018 12:23	N
42	92	7	1,2,3,4,5,6	51:A,2:C,3:B,4:,5:,6:,7:,8:,9:,10	0	0.00	0.00	31/07/2018 11:29	31/07/2018 12:09	Y
43	91	26	1,2,3,4,5,6	51:4,2:8,3:,4:,5:,6:,7:,8:,9:,10:,	0	0.00	0.00	02/08/2018 23:11	03/08/2018 05:51	Y
44	92	26	1,2,3,4,5,6	51:,2:,3:,4:,5:,6:,7:,8:,9:,10:,11:	0	0.00	0.00	04/08/2018 01:19	04/08/2018 01:59	N

Figure 48. Data Display in Ms. Excel (1)

To separate the data as needed, use the Text to Columns function in the Excel application.



Figure 49. Data Display in Ms. Excel (2)

The following are the results of the report in Excel.



Figure 50. Display of Report Results

CONCLUSION

Based on the results of the study, it can be concluded that the scale of computer-based Mathematics Self-Efficacy has been completed and developed. This means that the application or instrument is ready to use.

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