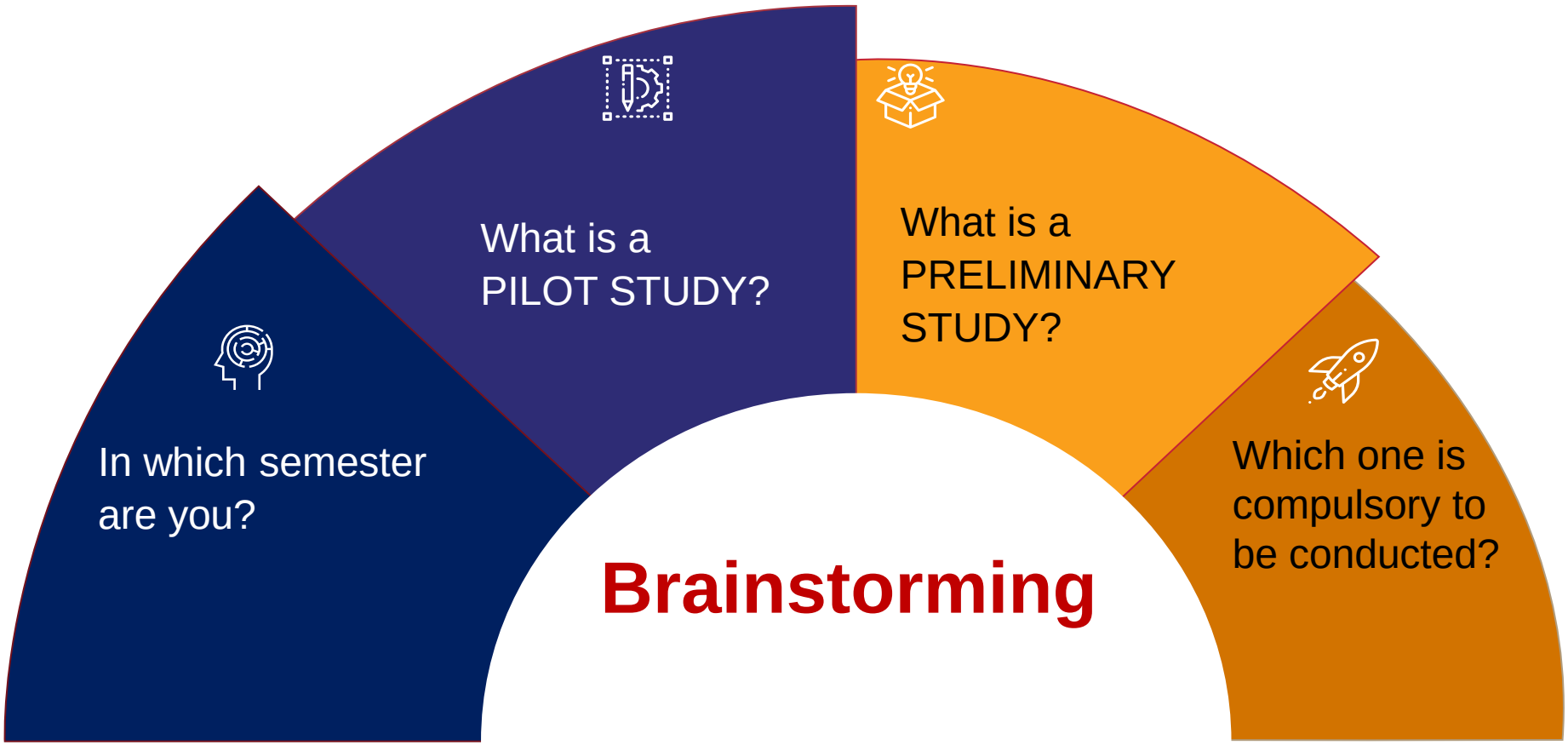
EduTech PG Boot Camp

7/2/2023 | Wednesday

Pilot Study :
Procedure to Validate an Instrument

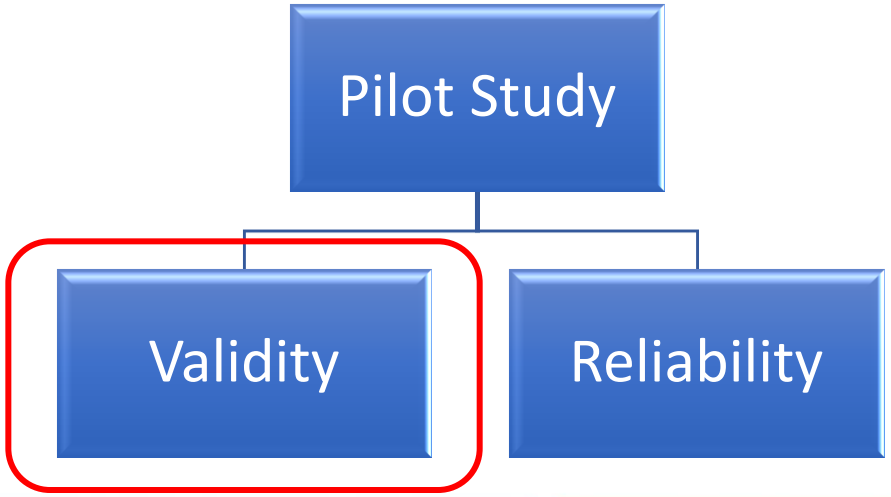
Noor Dayana Abd Halim
School of Education
Faculty of Social Sciences and Humanities

https://utm.webex.com/meet/noordayana


What is a PILOT STUDY?
What is a PRELIMINARY STUDY?
In which semester are you?
Which one is compulsory to be conducted?
Brainstorming

What is a Pilot Study?

- **Pilot study** - mini versions of a full-scale study (also called *'feasibility'* studies), as well as the specific pre-testing of a particular research instrument.
- fulfil a range of important functions and can provide valuable insights
- Involve **validity** and **reliability**



Validity and Realibility

- **Validity** and **Reliability** are both about **how well a method measures something**:

- **Validity** refers to the accuracy of a measure (**whether the results really do represent what they are supposed to measure**).

- **Reliability** refers to the consistency of a measure (**whether the results can be reproduced under the same conditions**).

Steps To Conduct a Validation of Instruments

1. Develop the instruments
2. Find the suitable experts according to the construct
3. Seeking permission from the expert
4. Prepare the “documents” for the experts (appointment letter, validation form , etc)
5. Give the documents to the experts and give them enough time to validate/review
6. Collect the feedback from the experts and discuss with supervisor *(do correction if necessary)*
7. Report the comments from the examiner in the thesis (usually chapter 3) and report the correction made

Steps To Conduct a Validation of Instruments

1. Develop the instruments

- What instruments need to be validated by the experts?
- The instruments are developed based on RO & RQ

2. Find the suitable experts according to the construct

- Who are the experts?
- Discuss with your supervisor to find the appropriate experts

3. Seeking permission from the experts

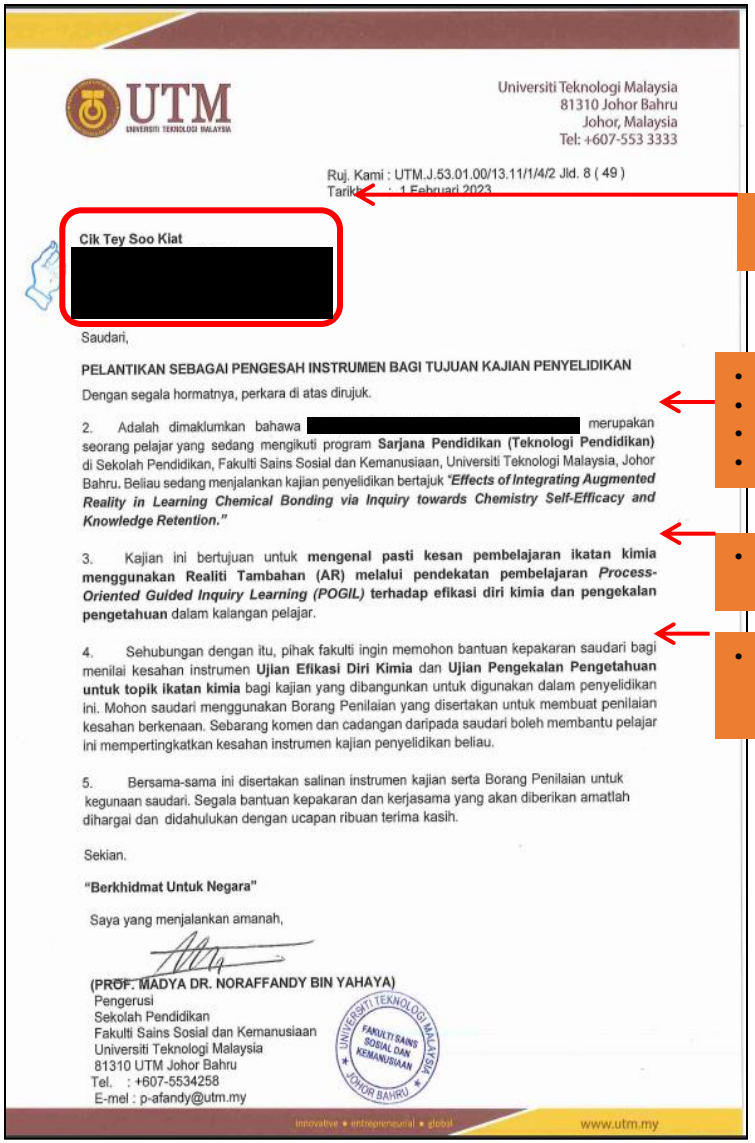
- Email or message the expert first
- Please introduce your name, program and mentioned your purpose

Steps To Conduct a Validation of Instruments

4. Prepare the “documents” for the experts (appointment letter, form , etc)

- Appointment letter (contact officer at the Academic Office)
- Verification of Students Status Letter (*if needed*)
- Validation form (to be signed and stamped by the validator)
- The instrument (provide brief description about the things that needed to be validated)

Example of Appointment Letter



Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia
Tel: +607-553 3333

Ruj. Kami : UTM.J.53.01.00/13.11/1/4/2 Jld. 8 (49)
Tarikh : 1 Februari 2023

Cik Tey Soo Kiat
[redacted]

Saudari,

PELANTIKAN SEBAGAI PENGESAH INSTRUMEN BAGI TUJUAN KAJIAN PENYELIDIKAN

Dengan segala hormatnya, perkara di atas dirujuk.

2. Adalah dimaklumkan bahawa [redacted] merupakan seorang pelajar yang sedang mengikuti program **Sarjana Pendidikan (Teknologi Pendidikan)** di Sekolah Pendidikan, Fakulti Sains Sosial dan Kemanusiaan, Universiti Teknologi Malaysia, Johor Bahru. Beliau sedang menjalankan kajian penyelidikan bertajuk ***"Effects of Integrating Augmented Reality in Learning Chemical Bonding via Inquiry towards Chemistry Self-Efficacy and Knowledge Retention."***

3. Kajian ini bertujuan untuk **mengenal pasti kesan pembelajaran ikatan kimia menggunakan Realiti Tambahan (AR) melalui pendekatan pembelajaran *Process-Oriented Guided Inquiry Learning (POGIL)* terhadap efikasi diri kimia dan pengekalan pengetahuan** dalam kalangan pelajar.

4. Sehubungan dengan itu, pihak fakulti ingin memohon bantuan kepakaran saudari bagi menilai kesahan instrumen **Ujian Efikasi Diri Kimia** dan **Ujian Pengekalan Pengetahuan untuk topik ikatan kimia** bagi kajian yang dibangunkan untuk digunakan dalam penyelidikan ini. Mohon saudari menggunakan Borang Penilaian yang disertakan untuk membuat penilaian kesahan berkenaan. Sebarang komen dan cadangan daripada saudari boleh membantu pelajar ini mempertingkatkan kesahan instrumen kajian penyelidikan beliau.

5. Bersama-sama ini disertakan salinan instrumen kajian serta Borang Penilaian untuk kegunaan saudari. Segala bantuan kepakaran dan kerjasama yang akan diberikan amatlah dihargai dan didahulukan dengan ucapan ribuan terima kasih.

Sekian.

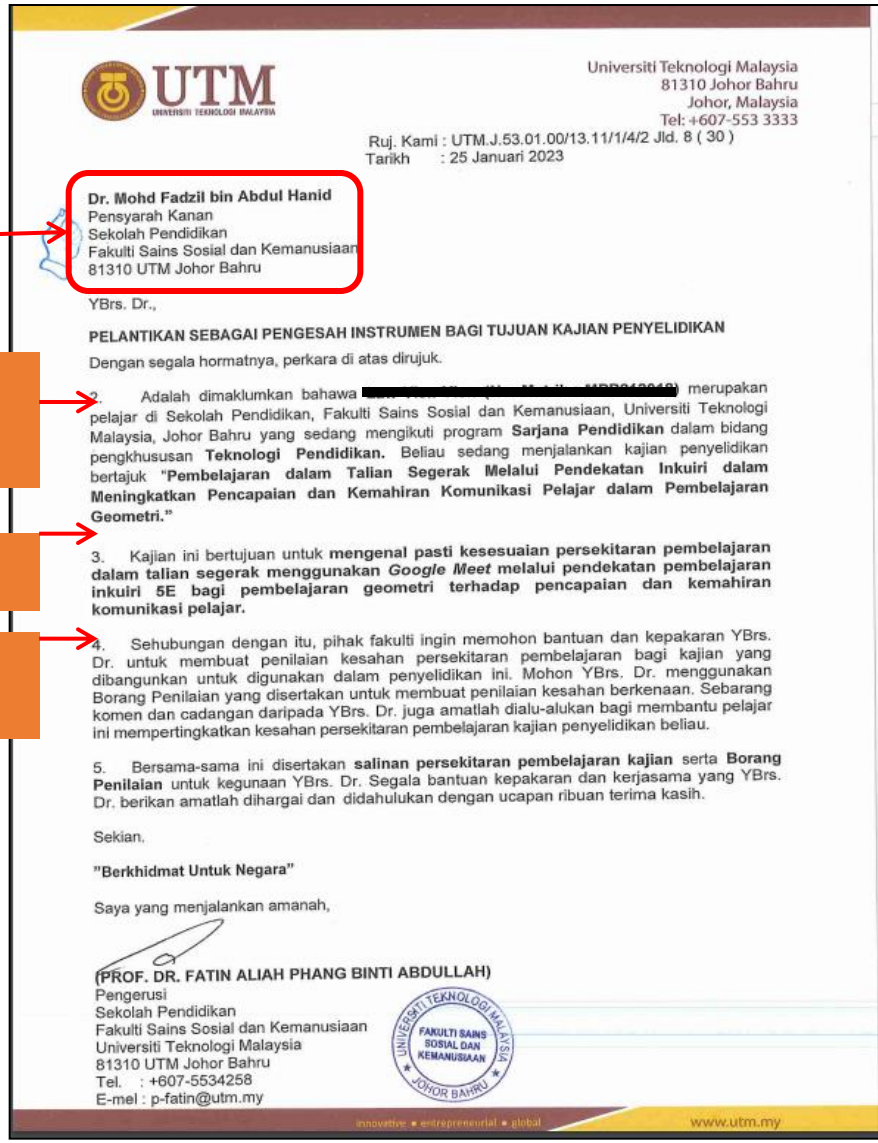
"Berkhidmat Untuk Negara"

Saya yang menjalankan amanah,

(PROF. MADYA DR. NORAFFANDY BIN YAHAYA)
Pengerusi
Sekolah Pendidikan
Fakulti Sains Sosial dan Kemanusiaan
Universiti Teknologi Malaysia
81310 UTM Johor Bahru
Tel. : +607-5534258
E-mel : p-afandy@utm.my

innovative • entrepreneurial • global www.utm.my

- **Name of validator**
- **Name of Student,**
- **Matric No,**
- **Program**
- **Title/Scope of thesis**
- **Objective of the research**
- **Name of the instruments to be validated**



Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia
Tel: +607-553 3333

Ruj. Kami : UTM.J.53.01.00/13.11/1/4/2 Jld. 8 (30)
Tarikh : 25 Januari 2023

Dr. Mohd Fadzil bin Abdul Hanid
Pensyarah Kanan
Sekolah Pendidikan
Fakulti Sains Sosial dan Kemanusiaan
81310 UTM Johor Bahru

YBrs. Dr.,

PELANTIKAN SEBAGAI PENGESAH INSTRUMEN BAGI TUJUAN KAJIAN PENYELIDIKAN

Dengan segala hormatnya, perkara di atas dirujuk.

2. Adalah dimaklumkan bahawa [redacted] merupakan pelajar di Sekolah Pendidikan, Fakulti Sains Sosial dan Kemanusiaan, Universiti Teknologi Malaysia, Johor Bahru yang sedang mengikuti program **Sarjana Pendidikan** dalam bidang pengkhususan **Teknologi Pendidikan.** Beliau sedang menjalankan kajian penyelidikan bertajuk **"Pembelajaran dalam Talian Segerak Melalui Pendekatan Inkuiri dalam Meningkatkan Pencapaian dan Kemahiran Komunikasi Pelajar dalam Pembelajaran Geometri."**

3. Kajian ini bertujuan untuk **mengenal pasti kesesuaian persekitaran pembelajaran dalam talian segerak menggunakan *Google Meet* melalui pendekatan pembelajaran inkuiri 5E bagi pembelajaran geometri terhadap pencapaian dan kemahiran komunikasi pelajar.**

4. Sehubungan dengan itu, pihak fakulti ingin memohon bantuan dan kepakaran YBrs. Dr. untuk membuat penilaian kesahan persekitaran pembelajaran bagi kajian yang dibangunkan untuk digunakan dalam penyelidikan ini. Mohon YBrs. Dr. menggunakan Borang Penilaian yang disertakan untuk membuat penilaian kesahan berkenaan. Sebarang komen dan cadangan daripada YBrs. Dr. juga amatlah dialu-alukan bagi membantu pelajar ini mempertingkatkan kesahan persekitaran pembelajaran kajian penyelidikan beliau.

5. Bersama-sama ini disertakan **salinan persekitaran pembelajaran kajian** serta **Borang Penilaian** untuk kegunaan YBrs. Dr. Segala bantuan kepakaran dan kerjasama yang YBrs. Dr. berikan amatlah dihargai dan didahulukan dengan ucapan ribuan terima kasih.

Sekian.

"Berkhidmat Untuk Negara"

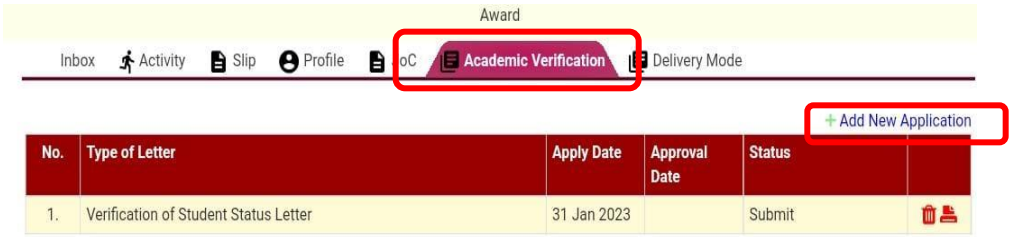
Saya yang menjalankan amanah,

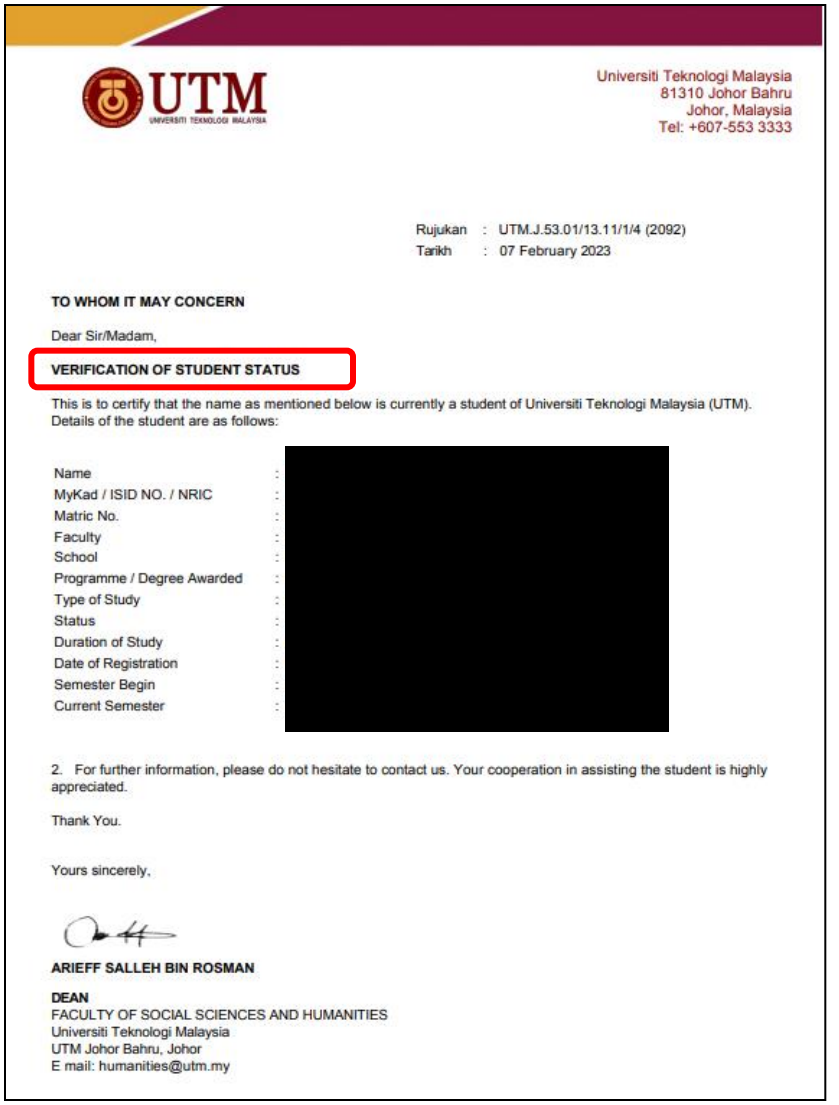
(PROF. DR. FATIN ALIAH PHANG BINTI ABDULLAH)
Pengerusi
Sekolah Pendidikan
Fakulti Sains Sosial dan Kemanusiaan
Universiti Teknologi Malaysia
81310 UTM Johor Bahru
Tel. : +607-5534258
E-mel : p-fatin@utm.my

innovative • entrepreneurial • global www.utm.my

Example of Verification of Students Status Letter

- **https://my.utm.my/login**





Universiti Teknologi Malaysia
81310 Johor Bahru
Johor, Malaysia
Tel: +607-553 3333

Rujukan : UTM.J.53.01/13.11/1/4 (2092)
Tarikh : 07 February 2023

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

VERIFICATION OF STUDENT STATUS

This is to certify that the name as mentioned below is currently a student of Universiti Teknologi Malaysia (UTM). Details of the student are as follows:

Name	[redacted]
MyKad / ISID NO. / NRIC	
Matric No.	
Faculty	
School	
Programme / Degree Awarded	
Type of Study	
Status	
Duration of Study	
Date of Registration	
Semester Begin	
Current Semester	

2. For further information, please do not hesitate to contact us. Your cooperation in assisting the student is highly appreciated.

Thank You.

Yours sincerely,

ARIEFF SALLEH BIN ROSMAN

DEAN
FACULTY OF SOCIAL SCIENCES AND HUMANITIES
Universiti Teknologi Malaysia
UTM Johor Bahru, Johor
E mail: humanities@utm.my

Example of Validation Form

BORANG PENGESAHAN PAKAR BIDANG / *EXPERT VALIDATION FORM*

Tajuk Kajian: **A BLENDED LEARNING APPROACH TO TEACH DESCRIPTIVE WRITING: USING PADLET IN PRIMARY SCHOOL ESL CLASSROOM**

Adalah disahkan bahawa instrumen kajian di atas yang telah dibina oleh [redacted] Fakulti Pendidikan, Universiti Teknologi Malaysia (UTM), Skudai telah disemak dan hasilnya adalah seperti berikut:

Sila tandakan (✓) pada kotak Ya atau Tidak bagi pernyataan berikut.
Please tick (✓) Yes or No for statements below.

No.	Pernyataan *Description*	Ya *Yes*	Tidak *No*	Ulasan (jika ada) *Comments (if any)*
1.	Format instrumen sesuai digunakan untuk mencapai objektif kajian. *Instrument is suitable to achieve research objective.*			
2.	Makna setiap item jelas. *Meaning of each item is clear.*			
3.	Arahan yang diberikan adalah jelas. *Instructions given are clear.*			
4.	Skala pengukuran adalah sesuai. *Measurement scale is appropriate.*			
5.	Petunjuk bagi skala pengukuran jelas. *Indication for measurement scale is clear.*			
6.	Format instrumen kajian adalah bersesuaian untuk tahap pelajar kumpulan sasaran. *Format of the instrument is suitable for targeted sample level.*			
7.	Tiada kesalahan tatabahasa. *There is no grammatical error.*			
8.	Tidak terdapat kesilapan ejaan. *There is no spelling error.*			
9.	Fon tulisan yang digunakan mudah dibaca. *Font used is clearly readable.*			
10.	Saiz tulisan sesuai dan mudah dibaca. *Size of the text is suitable and easily readable.*			

Space for validator to write comments if necessary

Dengan ini saya mengesahkan bahawa soal selidik "***Pendekatan Pembelajaran Teradun untuk Mengajar Penulisan Deskriptif: Menggunakan Padlet dalam Bilik Darjah ESL Sekolah Rendah***" yang telah disediakan oleh Saudari [redacted] Pendidikan, Fakulti Sains Sosial dan Kemanusiaan, Universiti Teknologi Malaysia. Ianya telah disemak dan komen umum adalah seperti berikut:

*Hereby I certify and validate that the questionnaire "**A Blended Learning Approach to Teach Descriptive Writing: Using Padlet in Primary School ESL Classroom**" prepared by [redacted] from School of Education, Faculty of Social Sciences and Humanities, Universiti Teknologi Malaysia. It has been checked and the general comments are as follows:*

Komen Umum / *General Comments*:

_____

_____

_____

_____

Terima kasih / *Thank you.*

Tandatangan / *Signature* : _____
Nama / *Name* : _____
Pengalaman Bekerja / *Work Experience* : _____ Tahun / *Years*
Kelayakan / *Qualification* : _____

Cop Institusi / *Institution Stamp* : _____ Tarikh / *Date* : ___

Space for validator sign, stamp and fill in their qualification and years of experiences

Example of Instruments to Validate (Questionnaire)

Instrument Content Validation Form:

Perception and Satisfaction Among Open and Distance Learning (ODL) Students in Universiti Teknologi Malaysia (UTM)

Dear Prof./ Assoc. Prof./ Dr./ Sir / Madam,

Brief description about the questionnaire

In UTM Johor, the ODL program have been around quite recently. Although the program is running well, however, continuous evaluation is necessary in order to improve the quality of the education program and students' learning. Therefore, the current study aims to identify perception and satisfaction among ODL students in UTM Johor. Additionally, students may provide some suggestions for program improvement as well.

With your certified knowledge and expertise, I am humbly asking your permission to validate the attached questionnaires for my study. The attached questionnaires were adapted from past studies, with some of the items have been slightly rephrased and simplified. The questionnaires consist of 4 sections;

SEC.	CONSTRUCT	DIMENSION	AUTHOR
A	Demography	N/A	N/A
B	Student's perception toward ODL	Quality of ODL	Upadhayaya et al. (2021)
		Opportunity in ODL	
		Relevancy in ODL	
		Professional development	
		Support in ODL	
		Challenges in ODL	
C	Students' satisfaction toward ODL	Learning materials	Kamarulzaman & Siew (2020)
		Lecturers	
		Assessment matters	
		Overall program structure	
D	Suggestions for program improvement	N/A	N/A

SOURCE: **List of Sources of the developed questionnaire**

Upadhayaya, P. R., Sharma, B., Gnawali, Y. P., & Belbase, S. (2021). Factors Influencing Graduate Students' Perception of Online and Distance Learning in Nepal. Turkish Online Journal of Distance Education, 22(3), 236-269.

Kamarulzaman, W., & Siew, W. H. (2020). Program Evaluation on Learning Materials, Tutors, Assessment Matters and Overall Program Structure from ODL Students' Perspective. Universal Journal of Educational Research, 8(7), 3142-3147.

STUDENT'S PERCEPTION TOWARD ODL / PERSEPSI PELAJAR TERHADAP ODL

The following items describe statement about students' perception toward ODL. Please indicate your agreement or disagreement with the following statements by circling your response using this scale: /

Item yang berikutnya adalah kenyataan mengenai persepi pelajar terhadap ODL. Sila nyatakan sama ada anda bersetuju atau tidak bersetuju dengan kenyataan tersebut dengan MEMBULATKAN nombor berdasarkan skala berikut:

1	2	3	4	5
Very Disagree / Sangat Tidak Setuju	Disagree / Tidak Setuju	Not Sure / Tidak Pasti	Agree / Setuju	Very Agree / Sangat Setuju

Factor 1: Quality of ODL

N	Item	Scale					Suitability		Comment
1	The quality of assessment in ODL is better than face to face traditional on campus exams. *Kualiti pentaksiran secara ODL adalah lebih baik berbanding peperiksaan secara bersemuka di dalam kampus.*	1	2	3	4	5	YES NO		**Space for validator to write comments if necessary**
2	The quality of assignments in ODL is better than face to face traditional on campus learning. *Kualiti tugasan secara ODL adalah lebih baik berbanding pembelajaran bersemuka di dalam kampus.*	1	2	3	4	5	YES NO		
3	The quality of learning in ODL is better than face to face traditional on campus classroom learning. *Kualiti pembelajaran - secaraODL adalah lebih efektif berbanding pembelajaran bersemuka di dalam kampus.*	1	2	3	4	5	YES NO		

Example 1 of Instruments to Validate (Test Question)

Brief description about the instrument

Research Instrument

Chemistry Creativity Test is a set of question that consists of 5 open-ended questions This test is used to assess students' scientific creativity in terms of:

i- fluency
ii- flexibility
iii- originality

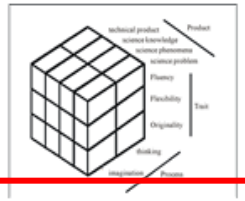
The questions in this test are adapted from the Scientific Creativity Structure Model (SCSM) by Hu and Adey (2002). The questions in this test have been adapted with the topic of Acid and Base and meet the chemistry curriculum of secondary school. This test will be used in pre-test and post -test to assess the scientific creativity among secondary school students for chemistry subjects.

Guide for Instrument Validation

Here are the things that expert verification should pay attention to:

i. Experts need to ensure that the instrument of Chemistry Creativity Test meet the requirement for the traits of scientific creativity as stated by Hu ad Adey (2002).
ii. Experts are able to accept or reject instruments constructed by researchers.
iii. Comments from experts are important to assist researcher in improving the constructed instruments.
iv. There are 5 open-ended questions in this instruments that will evaluate scientific creativity of students in terms of fluency, flexibility and originality.
v. Time duration given for the students to answer the question is 1 hour.

Chemistry Creativity Test (CCT) is adapted from the Scientific Creativity Structure Model (SCSM) by Hu and Adey (2002). SCSM is a model that **focuses on 3 main dimensions**, namely, traits, products and processes. SSCM is integrated with model by Torrance (1990) who considered fluency, flexibility, and original thinking as central features of creativity. Fluency means the number of original ideas produced, flexibility is the ability to 'change tack', and not to be bound by an established approach after that approach is found no longer to work efficiently. Originality is interpreted statistically: an answer which is rare, which occurs only occasionally in a given population, is considered original. Figure 1.2 shows the Scientific Creativity Structure Model (SCSM) developed by Hu and Adey (2002).



Source of the developed instrument

Figure 1.2 Scientific Creativity Structure Model (SCSM) by Hu and Adey (2002)

In this study, the researcher focuses on the trait of scientific creativity which are fluency, flexibility and originality. The following are the definition of each trait of scientific creativity according to **Hu and Adey (2002)** and the definition of scientific creativity in the context of this study.

Traits of scientific creativity	Definition (Hu and Adey, 2002)	Definition in the context of this study
Fluency	Ability to produce numerous ideas as much as a person can	The ability of students to state numerous ideas and that ideas are evaluated when students are making hypothesis, identifying and controlling the variables, designing experiment, interpreting data defining operationally.
Flexibility	The ability to generate the idea from various categories	The ability of students to generate ideas from various categories when students are making hypothesis, identifying and controlling the variables, designing experiment, interpreting data defining operationally.
Originality	the ability to generate a unique or new idea that is rare or different from commonideas and can solve the related problems	The ability of students to give a unique idea when students are making hypothesis, identifying and controlling the variables, designing experiment, interpreting data defining operationally.

Example 1 of Instruments to Validate (Test Question)

CREATIVE THINKING TEST VALIDATION BY EXPERT:

ITEM 1

Brian is given hydrochloric acid with different molarity. He is required to investigate the pH value of each of the solutions.
Write as many variables involved in this investigation.
Brian diberi asid hidroklorik dengan molariti yang berbeza. Dia diminta untuk menyiasat nilai pH bagi setiap larutan. Tulis sebanyak mungkin pemboleh ubah yang terlibat dalam penyiasatan ini.

9

SCORING RULES

Answer	Criteria	Scoring Criteria	Score
• Manipulated variable: -The molarity of acids • Responding variable: -pH value of acids • Constant variable: -Type of acid -Volume of acid	Fluency	No relevant responses	0
		Estimation of ideas include 5%-49% from the overall ideas	1
		Estimation of ideas include 50%-99% from the overall ideas	2
		Estimation of ideas include 100% from the overall ideas	3
	Flexibility	All the ideas are in one category (one category produced)	0
		2 categories of ideas produced	1
		3-5 categories of ideas produced	2
		6 or more categories of ideas produced	3
	Originality	Estimation of ideas produced are 50% or more if compared with the overall sample	0
		Estimation of one or more ideas covered 20%-49% if compared with the overall sample	1
		Estimation of one or more ideas covered 19% or less if compared with the overall sample	2
		Estimation of one or more ideas covered 10% or less if compared with the overall sample	3

Item	Scientific Creativity Trait	Validator's comment (Please tick one (/))		
1.	Fluency	Accept		Comment (If any):
		Reject		
	Flexibility	Accept		Comment (If any):
		Reject		
	Originality	Accept		Comment (If any):
		Reject		

Space for validator to accept or reject the item according to the construct

Space for validator to write comments if necessary

Example 2 of Instruments to Validate (Test Question)

Pengenalan

Tajuk Ruang dalam bidang Sukatan dan Geometri merupakan salah satu tajuk yang perlu dipelajari oleh murid di sekolah rendah bermula dari tahun 1 lagi. Objektif utama pembelajaran dalam tajuk Ruang di tahap 1 adalah untuk membolehkan murid untuk menggunakan pengetahuan dan kemahiran, membuat penaakulan, perkaitan, perwakilan, dan berkomunikasi serta menggunakan teknologi dalam menyelesaikan masalah berkaitan ruang (KPM, 2017).

Pembelajaran tajuk Ruang di tahap 1 memerlukan murid untuk menguasai Standard Kandungan yang meliputi bentuk 2 dimensi, bentuk 3 dimensi, prisma dan bukan prisma, poligon sekata, paksi simetri dan juga penyelesaian masalah. Topik ini merupakan kemahiran asas yang perlu difahami oleh murid sebelum mereka boleh menguasai pembelajaran di tahap 2 yang melibatkan pengiraan dan penyelesaian masalah dalam topik perimeter, luas dan isipadu (Wahid dan Abu Samah, 2020). Jadual 1 di bawah menunjukkan Standard Kandungan dan Standard Pembelajaran bagi tajuk Ruang Matematik Tahun 3 berdasarkan Dokumen Standard Kurikulum dan Pentaksiran (DSKP).

Jadual 1 Standard Kandungan dan Standard Pembelajaran Tajuk Ruang Matematik Tahun 3 (KPM, 2017)

Standard Kandungan	Standard Pembelajaran
7.1 Prisma	7.1.1 Mengenal prisma segi empat sama, segi empat tepat dan prisma segi tiga. 7.1.2 Mencirikan prisma dan melabelkan prisma segi empat sama, prisma segi empat tepat dan prisma segi tiga berdasarkan permukaan, tapak, bucu dan tepi.
7.2 Prisma dan bukan prisma	7.2.1 Membandingkan prisma dan bukan prisma berdasarkan permukaan, tapak, bucu dan tepi.
7.3 Poligon sekata	7.3.1 Mengenal pasti bentuk poligon sekata bagi pentagon, heksagon, heptagon dan oktagon. 7.3.2 Menghasilkan corak berasaskan bentuk poligon sekata.
7.4 Paksi simetri	7.4.1 Mengenal pasti dan melukis paksi simetri.

Brief description about the instrument

Ujian Pencapaian Tajuk Ruang

Mata Pelajaran : Matematik Tahun 3
Topik : Unit 7.0 Ruang
Jumlah Soalan : 24 Soalan
Jumlah Markah : 60 Markah
Masa Menjawab : 1 Jam
Adaptasi : Buku Aktiviti KPM Matematik Tahun 3

Standard Kandungan yang diuji:

7.1 Prisma
7.2 Prisma dan bukan prisma
7.3 Poligon sekata
7.4 Paksi simetri

Agihan Bilangan Soalan, Bentuk Soalan dan Markah:

Standard Kandungan	Bilangan dan Bentuk Soalan	Bilangan Markah
7.1 Prisma	6 soalan subjektif	15 markah
7.2 Prisma dan bukan prisma	4 soalan subjektif	15 markah
7.3 Poligon sekata	5 soalan subjektif	15 markah
7.4 Paksi simetri	9 soalan subjektif	15 markah

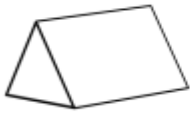
Example 2 of Instruments to Validate (Test Question)

Soalan 1

1. Tuliskan nama prisma berikut.

(3 markah) ← Allocation of marks

a)



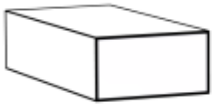
Standard Pembelajaran:	7.1.1 Mengenal prisma segi empat sama, prisma segi empat tepat dan prisma segi tiga.
Jawapan:	*prisma segi tiga*
Terima: (Ya / Tidak)	
Ulasan: Space for validator to write comments if necessary	

← Construct measured

← Suggestion of answer

Space for validator to accept or reject the item according to the construct

b)



Standard Pembelajaran:	7.1.1 Mengenal prisma segi empat sama, prisma segi empat tepat dan prisma segi tiga.
Jawapan:	*prisma segi empat tepat*
Terima: (Ya / Tidak)	
Ulasan:	

Example of Instruments to Validate (Interview Question)

VALIDATION INSTRUMENT INTERVIEW QUESTIONS

1. *Objective Research: To examine the factors causing cognitive load in online learning and Home-Based Learning (PdPR) among learners.*

Research Objective

INTRODUCTION

Cognitive load is the load imposed on an individual's working memory (Gog & Paas, 2012). Sweller et al., (2019) defined cognitive load theory as a teaching design that ensures our knowledge will grow rapidly in other human cognitive senses by providing guidance recommending educational technology that may be effective and how it should be used. In this research, cognitive load will focus on 3 type load (IL), extraneous cognitive load (EL) and germane c Sweller's study (1988). Therefore, the researcher will focus on the three types of cognitive load by identify what factors cause this cognitive load to occur when dealing with online learning and Home-based learning (PdPR) by conducting an interview session.

Brief description about the interview instrument

The following are the questions that will be used for the interview session that will be conducted by the researcher:

A. COGNITIVE LOAD = INTRINSIC COGNITIVE LOAD (IL)

Definition = Intrinsic load (IL) defined as a combined set of natural difficulties of a material learned or through an assignment in which some activities are more difficult to master than others (Leppink et al., 2013). Besides that, intrinsic load (IL) also refers to the level of difficulty of a given task which varies according to one's expertise and if one's knowledge exceed the level of difficulty of the task it will give little advantage (Bransford, Brown & Cocking, 2000).

No	Questions	ACCEPTED / COMMENTS
1.	Will online learning that does not involve the activation of prior knowledge cause students to gain cognitive load?	Accepted / Not accepted Comments:
2.	Will the use of short-form in teaching increase the cognitive load of students?	Accepted / Not accepted Comments:
3.	Will increasing the level of assignments or test questions cause the cognitive load to increase?	Accepted / Not accepted Comments:
4.	Do you feel that if students are introduced to something new in learning, this cognitive load will occur? (Topic learning)	Accepted / Not accepted Comments:
5.	Will the use of unfamiliar words cause this cognitive load to occur?	Accepted / Not accepted Comments:
6.	If you ask students to process information simultaneously, will it cause cognitive load?	Accepted / Not accepted Comments:

Space for validator to accept/reject the item and write comments if necessary

B. COGNITIVE LOAD = EXTRANEOUS COGNITIVE LOAD (EL)

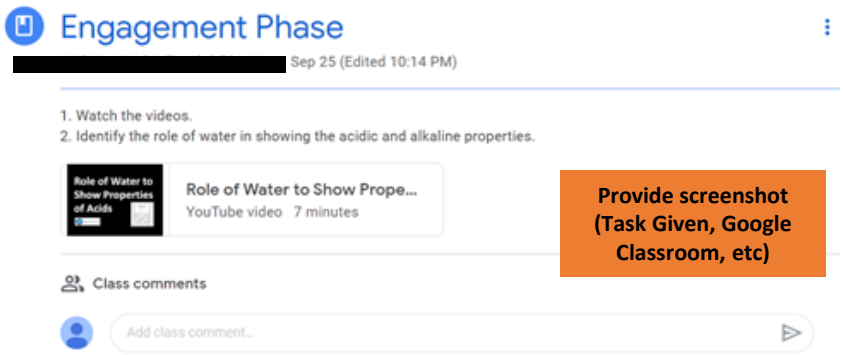
Definition = Extraneous cognitive load is defined as a teaching process or teaching procedure (Sweller, 2019). Extraneous load can also be defined as burdens imposed on students in the way they present information, where they integrate information sources and need to present that information to the public with descriptions that use visual methods or any diagrams to facilitate understanding (Merrienboer and Sweller, 2010).

No	Questions	ACCEPTED / COMMENTS
1.	Is the platform used in teaching delivery very important in controlling the cognitive load received by students?	Accepted / Not accepted Comments:
2.	Do you feel that the delivery of information is very important in controlling the cognitive	Accepted / Not accepted Comments:

Example 1 of Instruments to Validate (Learning Environment/Lesson Plan)

Asynchronous Online Learning (Via Google Classroom)

The phases included in the asynchronous online learning are engagement, exploration, explanation and evaluation.

No.	5E Instructional Model (Bybee et al., 2006)	Example of activities in Google Classroom	Learning Environment in the Google Classroom	Expert's comment (Please tick /)
1	Engagement	• Students are required to watch learning videos to draw interest about the topic to be studied. • Students can use the class comment space provided to ask the questions or give opinions regarding the learning videos.	 Provide screenshot (Task Given, Google Classroom, etc) Screen 1: Interface of the engagement phase	Accept ☐ Reject ☐ Comment:

Example 2 of Instruments to Validate (Learning Environment/Lesson Plan)

Validation of the Integration of Heutagogy-Based Learning Principles.

(Adapted from Shrogen et al, 2017 and Blaschke & Hase, 2016)

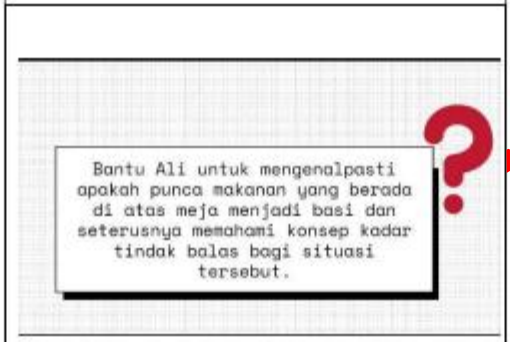
Phase	Heutagogy-based principles	Activities	Feedback	
(Lesson 1) *Setting Goals*	Learner-centred and learner-determined	1. Using a mind map, pupils identify the skills they need to complete a PowerPoint project.	Agree	Disagree
			Comments:	
	Capability	2. Pupils share the skills they already know and discuss how they can help each other in completing the project.	Agree	Disagree
			Comments:	
	Self-reflection and metacognition	3. Pupils identify which new skills they needed and discuss how they can obtain it by listing down examples of sources to learn from.	Agree	Disagree
			Comments:	
	Learner-centred	4. Pupils search for information about creating PowerPoint projects at home.	Agree	Disagree
			Comments:	

Example 3 of Instruments to Validate (Courseware/Google Classroom/Mobile Apps)

Pengelasan soalan berdasarkan ciri-ciri aplikasi

Bahagian 1

Ciri-ciri Konstruktivisme dan Model Instruksi Pembelajaran Berasaskan Masalah (Savery and Duffy, 2001)

Bil	Item	Paparan aplikasi yang berkaitan	Ya	Tidak	Komen
1	Aplikasi ini menyediakan tugasan yang persis dengan masalah sebenar dalam kehidupan.				
					

Provide interface for the application

Steps To Conduct a Validation of Instruments

5. Give the documents to the experts and give them enough time to validate/review

- Via email / face to face
- Follow up after 2 weeks

6. Collect the feedback from the experts and discuss with supervisor *(do correction if necessary)*

- Meet supervisor to discuss about the comments give by the expert
- The validation forms must be included in your thesis as an appendix

Steps To Conduct a Validation of Instruments

7. Report the comments from the examiner in the thesis (usually chapter 3) and report the correction made

- Report the validation finding in Chapter 3 - subtopic : pilot study > validation

Table 3.9 Validation of Science Process Skills Test

Question No	Comment by Expert 1 Science Teacher (Appendix B)	Comment by Expert 2 Official in State Education Department (Appendix C)
1	Expert advices to change questions directly to 'classify materials and objects given to the state of matter specified below'.	Expert advices to change questions to 'based on figure 1, classify materials and objects according to the state of matter'.
2b	Expert advices to change questions 'How can it be' converted to 'How do I do'	Expert advices to change questions 'How can the J matter state be maintained'.
2c	Expert advices to change questions 'can the state of matter K change back to the state of J converted to 'is the state of matter K able to change back to the state of J'.	Expert advices to change questions 'can the matter state K .....' changed to 'can the K matter state change to its original shape'

Table 3.3: Validation of Creativity in Integrating Multimedia Elements Rubric by Experts

Elements	Comments by Expert 1 *Senior Lecturer* (Refer to Appendix C)	Comments by Expert 2 *ICT Teacher* (Refer to Appendix D)
Text	None	Expert advice to change 'font type' to 'type face' and give a specific number of type face used for each band.
Graphics and Images	Expert commented that the phrase 'Poor use' is not explained and difficult to measure. Therefore is should be deleted.	None
Video		None
Audio		None
Animation	Delete the phrase 'poor use'. The word 'video' should be change into 'animation'	The word 'video' should be change into 'animation'

Every comments given were taken into consideration and changes were made to the Creativity in Integrating Multimedia Elements Rubric (refer to Appendix E). The final version of the rubric after corrections is used as instrument for this research.


YOU'RE SUPPOSED TO BE WRITING ME.
I KNOW!
DRAFT
LET ME JUST TAKE CARE OF THIS ONE THING FIRST.
FINE.
DRAFT
DRAFT
JORGE CHAM © 2015
I'M STILL HERE.
I KNOW!
DRAFT
WWW.PHDCOMICS.COM


in progress

Thank You

noordayana@utm.my

https://people.utm.my/noordayana/