Prototyping PutraPacer: A Generic Differentiated Assessment Tool for Mixed Ability Classroom

GIPP 9323755

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Research Team

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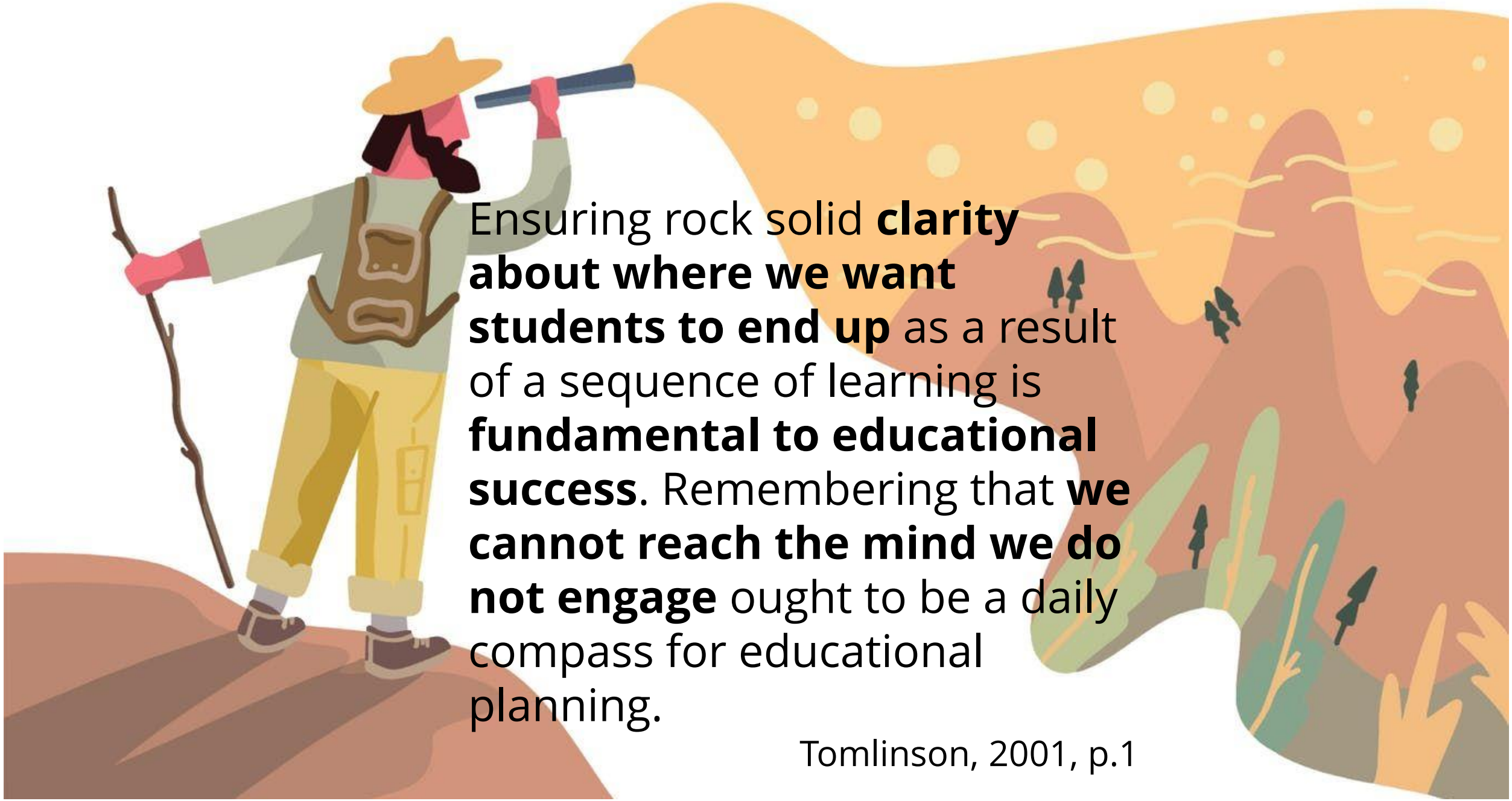


Ensuring rock solid **clarity about where we want students to end up** as a result of a sequence of learning is **fundamental to educational success**. Remembering that **we cannot reach the mind we do not engage** ought to be a daily compass for educational planning.

Tomlinson, 2001, p.1

Assessment

01

Learning happens

02

Improve ***pedagogical qualities***

Nasri et al., 2010

03

better picture of ***learners' abilities***

Al-mahrooqi & Denman, 2018

04

tool to determine *engagement* with students' *minds*

Tomlinson, 2001

05

enhance ***SoTL***

06

continuous interaction ***assessment - instruction***

UPM Alternative Assessment Task Force

UPM spearheading the Alternative Assessment initiative

personalized learning

differentiated assessment

PutraPacer

a generic differentiated assessment tool for mixed-ability classroom

- Choice + Opportunities
- Taxonomy Based
- Intuitive Tool

How PutraPacer Works For Students

01

Taxonomy-Based

SIMULATION

How PutraPacer Works For Students

02

Allows do-overs

03

Allows Audio Recording

04

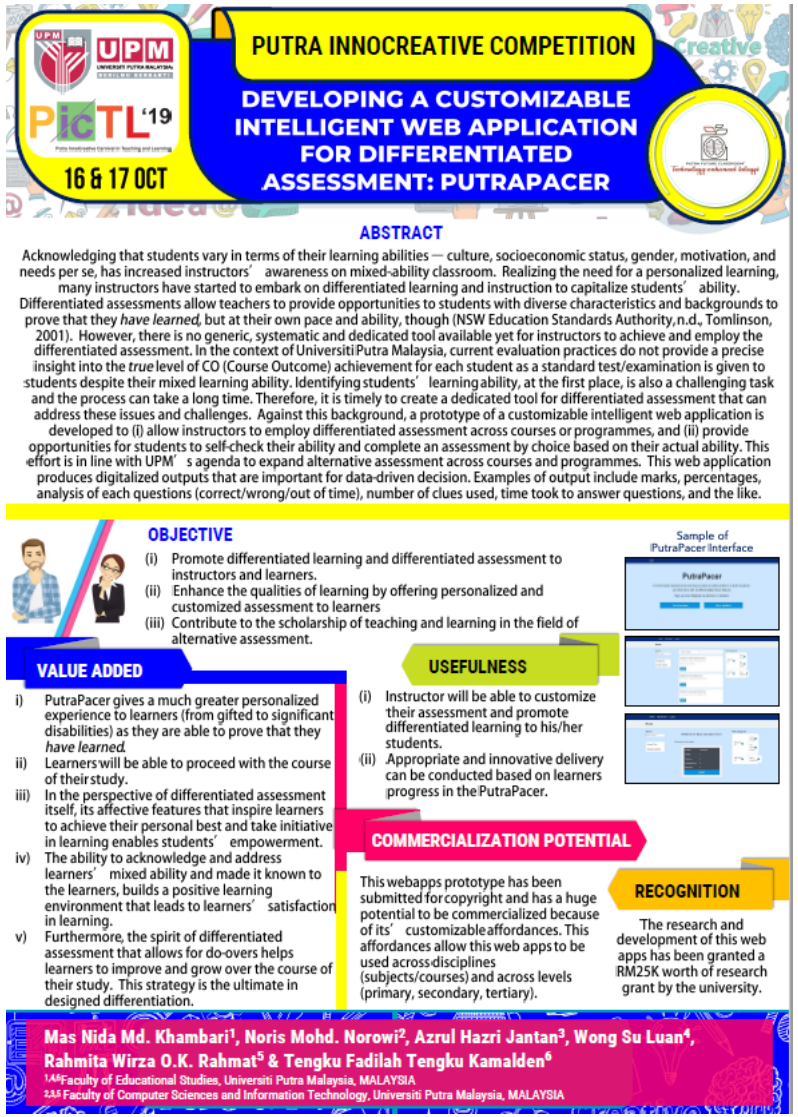
Allows Video Recording

05

Allows Picture Uploads

GIPP Activities

Presented at PicTL 2019



PUTRA INNOCREATIVE COMPETITION

PicTL '19

16 & 17 OCT

DEVELOPING A CUSTOMIZABLE INTELLIGENT WEB APPLICATION FOR DIFFERENTIATED ASSESSMENT: PUTRAPACER

ABSTRACT

Acknowledging that students vary in terms of their learning abilities — culture, socioeconomic status, gender, motivation, and needs per se, has increased instructors' awareness on mixed-ability classroom. Realizing the need for a personalized learning, many instructors have started to embark on differentiated learning and instruction to capitalize students' ability. Differentiated assessments allow teachers to provide opportunities to students with diverse characteristics and backgrounds to prove that they *have learned*, but at their own pace and ability, though (NSW Education Standards Authority, n.d., Tomlinson, 2001). However, there is no generic, systematic and dedicated tool available yet for instructors to achieve and employ the differentiated assessment. In the context of Universiti Putra Malaysia, current evaluation practices do not provide a precise insight into the *true* level of CO (Course Outcome) achievement for each student as a standard test/examination is given to students despite their mixed learning ability. Identifying students' learning ability, at the first place, is also a challenging task and the process can take a long time. Therefore, it is timely to create a dedicated tool for differentiated assessment that can address these issues and challenges. Against this background, a prototype of a customizable intelligent web application is developed to (i) allow instructors to employ differentiated assessment across courses or programmes, and (ii) provide opportunities for students to self-check their ability and complete an assessment by choice based on their actual ability. This effort is in line with UPM's agenda to expand alternative assessment across courses and programmes. This web application produces digitalized outputs that are important for data-driven decision. Examples of output include marks, percentages, analysis of each questions (correct/wrong/out of time), number of clues used, time took to answer questions, and the like.

OBJECTIVE

(i) Promote differentiated learning and differentiated assessment to instructors and learners.
(ii) Enhance the qualities of learning by offering personalized and customized assessment to learners
(iii) Contribute to the scholarship of teaching and learning in the field of alternative assessment.

Sample of iPutraPacer Interface

VALUE ADDED

i) PutraPacer gives a much greater personalized experience to learners (from gifted to significant disabilities) as they are able to prove that they *have learned*.
ii) Learners will be able to proceed with the course of their study.
iii) In the perspective of differentiated assessment itself, its affective features that inspire learners to achieve their personal best and take initiative in learning enables students' empowerment.
iv) The ability to acknowledge and address learners' mixed ability and made it known to the learners, builds a positive learning environment that leads to learners' satisfaction in learning.
v) Furthermore, the spirit of differentiated assessment that allows for do-overs helps learners to improve and grow over the course of their study. This strategy is the ultimate in designed differentiation.

USEFULNESS

(i) Instructor will be able to customize their assessment and promote differentiated learning to his/her students.
(ii) Appropriate and innovative delivery can be conducted based on learners progress in the PutraPacer.

COMMERCIALIZATION POTENTIAL

This webapps prototype has been submitted for copyright and has a huge potential to be commercialized because of its' customizable affordances. This affordances allow this web apps to be used across disciplines (subjects/courses) and across levels (primary, secondary, tertiary).

RECOGNITION

The research and development of this web apps has been granted a RM25K worth of research grant by the university.

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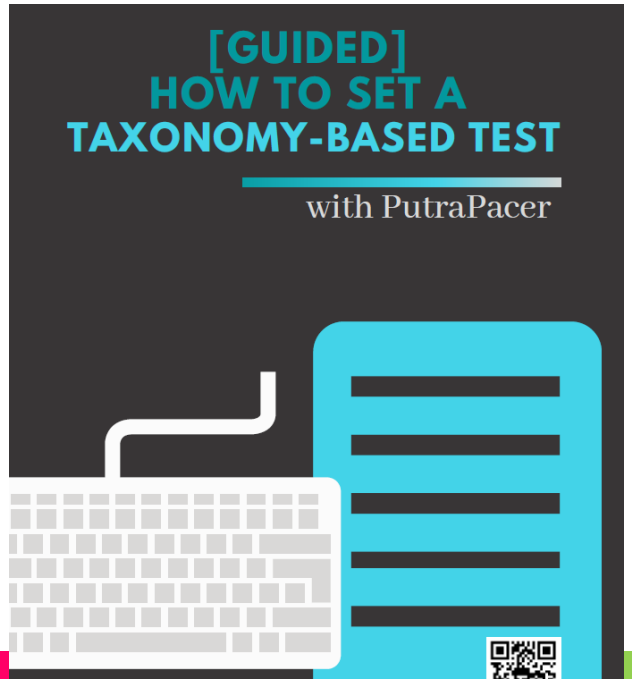
Copyright Presentation February 2020



Accepted for ICCE 2020

So, H. J. et al. (Eds.) (2020). Proceedings of the 28th International Conference on Computers in Education. Asia-Pacific Society for Computers in Education

An Exploratory Study on PutraPacer as a Differentiated Assessment Tool for Learning

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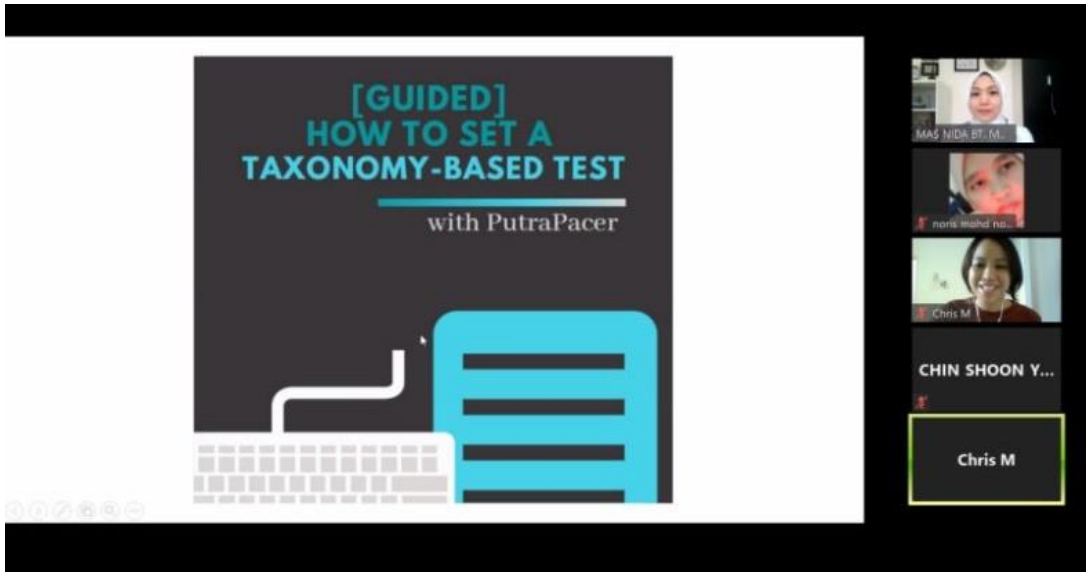
Abstract The use of alternative assessment to curb the practice of standardized assessment in education in recent years has increased. Educators are challenged with the responsibility to address different needs of diverse learners and the dynamic nature of education that changes alongside rapid technology advancement. Realizing that changes in curriculum instruction and assessments are inevitable, educators attempt to improve their practices in alternative assessment. This includes emphasizing differentiation in assessment. Differentiated assessment makes it possible for educators to collect reliable data of students' achievement which in turn will be used to plan better strategies in instruction that could address students' different needs. However, to date, few papers have reported about differentiated assessments that have been

GIPP Activities

Participant recruitment (Lecturers in UPM & School Teachers in Sandakan, Sabah)



WEBINAR

INTRODUCTION TO PUTRAPACER: ELECTRONIC TOOL FOR ALTERNATIVE ASSESSMENT

5 May 2020 / Tuesday
9:30am via Zoom
Organized by
PutraPacer Team

HOUSEKEEPING NOTES
for participants

01.

Try to be online a couple of minutes earlier prior to Webinar time to **make sure everything works** and to make room for solving any technical errors. If you need **technical support** in the middle of the webinar, please use the **chat box**. The co-hosts will attend to you shortly.

02.

Have a laptop or PC nearby for you will be doing hands-on activities. You may launch the PutraPacer website ahead of time. The URL is **www.putrapacer.com**
A note book and a pen will come

Recognition

Granted copyright 3 July 2020

Perbadanan Harta Intelek Malaysia
Intellectual Property Corporation of Malaysia
(Diperbadankan)
Unit 1-7 & Mezzanine, Unit 12, 12A, 13, 15, 16, 17, 18, dan 19
Tower B Menara UOA Bangsar, No. 5, Jalan Bangsar Utama 1
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Laman Sesawang : www.myipo.gov.my

LCR01

PROF. MADYA DR. ZAHIRA MOHD ISHAN
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PUTRA IP, PUTRA SCIENCE PARK
UNIVERSITI PUTRA MALAYSIA
43400 SERDANG
SELANGOR DARUL EHSAN

NOTIS PEMBERITAHUAN HAK CIPTA
(Seksyen 26B, Akta Hak Cipta 1987)

Tuan/Puan

Sukacita dimaklumkan, maklumat butiran Pemberitahuan Sukarela Hak Cipta tuan/puan telah direkodkan ke dalam Daftar Hak Cipta sebagaimana diperuntukkan di bawah Seksyen 26B, Akta Hak Cipta 1987. Butiran Pemberitahuan Hak Cipta tersebut dirujukkan seperti berikut:

TARIKH PERMOHONAN	:	03/07/2020
NO. PERMOHONAN	:	LY2020002274
NO. PEMBERITAHUAN	:	CRLY00024632
TAJUK KARYA	:	PUTRAPACER: INTELLIGENT TOOL FOR DIFFERENTIATED ASSESSMENT
KATEGORI KARYA	:	SASTERA
TARIKH PENERBITAN PERTAMA	:	14/11/2019
PENCIPTA	:	MAS NIDA BINTI MD KHAMBARI RAHMITA WIRZA BINTI O.K. RAHMAT WONG SU LUAN LUM KAR YAN HOO YONG LENG NORIS BINTI MOHD NOROWI TENGKU FADILAH BINTI TENGKU KAMALDEN AZRUL HAZRI BIN JANTAN
PEMUNYA	:	UNIVERSITI PUTRA MALAYSIA
PEMEGANG LESEN	:	TIDAK BERKAITAN

DITERIMA
24/8/2020
Putra Science

Received Gold Medal Award at PicTL 2019
17 October 2019

UPM
UNIVERSITI PUTRA MALAYSIA

PicTL 2019

Certificate of Award

This is to certify that

MAS NIDA MD. KHAMBARI, NORIS MOHD NOROWI,
AZRUL HAZRI JANTAN, WONG SU LUAN,
RAHMITA WIRZA O. K. RAHMAT &
TENGKU FADILAH TENGKU KAMALDEN

PROJECT TITLE: DEVELOPING A CUSTOMIZABLE INTELLIGENT WEB APPLICATION FOR DIFFERENTIATED ASSESSMENT

has been awarded the

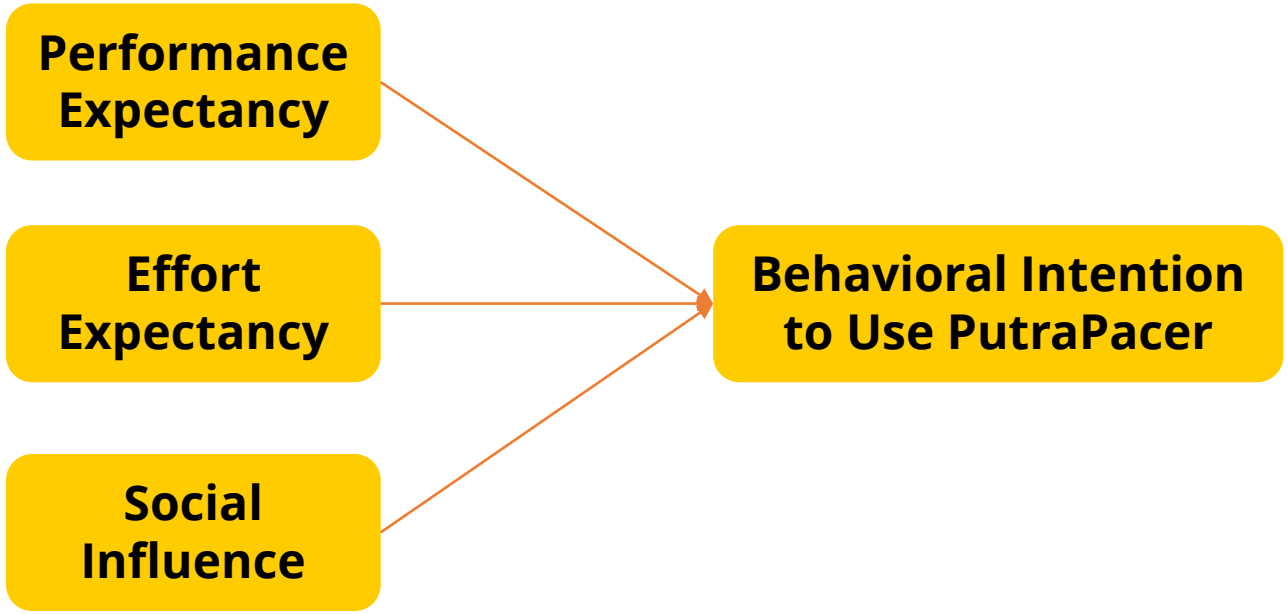
GOLD MEDAL

at the **Putra InnoCreative Competition**
Putra InnoCreative Carnival in Teaching and Learning 2019
16th – 17th October 2019 | Universiti Putra Malaysia

Professor Datin Paduka Dato' Dr. Aini Ideris
Vice Chancellor, Universiti Putra Malaysia

Preliminary Findings

Students enrolled in courses at FES & FCSIT (n=34)



Correlations

		PE	BI
PE	Pearson Correlation	1	.920**
	Sig. (1-tailed)		.000
	N	34	34
BI	Pearson Correlation	.920**	1
	Sig. (1-tailed)	.000	
	N	34	34

**. Correlation is significant at the 0.01 level (1-tailed).

Correlations

		EE	BI
EE	Pearson Correlation	1	.939**
	Sig. (1-tailed)		.000
	N	34	34
BI	Pearson Correlation	.939**	1
	Sig. (1-tailed)	.000	
	N	34	34

**. Correlation is significant at the 0.01 level (1-tailed).

Correlations

		SI	BI
SI	Pearson Correlation	1	.940**
	Sig. (1-tailed)		.000
	N	34	34
BI	Pearson Correlation	.940**	1
	Sig. (1-tailed)	.000	
	N	34	34

**. Correlation is significant at the 0.01 level (1-tailed).

The value pf Pearson's Correlation r = .920 (PE and BI), r = .939 (EE and BI), r=.940 (SI and BI) shows that there are strong positive relationship between PE and BI, EE and BI, SI and BI.
The higher PE, EE and SI, the higher BI will be.

thank you

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