

Intellectual Excitement Element in Teaching and Learning

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Abstract: The purpose of this study is to explore the importance of intellectual excitement in teaching and learning. The study established by using Teaching and Learning Guiding Principles Instrument (TLGPI) to look out the reliability and validity of the instrument in generating teaching and learning guiding principles (TLGP). Participants consisted of 350 Malaysian teacher educators. It is an essential instrument to reflect in generating the teaching and learning guiding principles in higher education level in Malaysia. Confirmatory Factor Analysis (CFA) has validated all 8 items of Intellectual Excitement (IC) construct of TLGPI whereby all items indicated high reliability and internal consistency. CFA also confirmed that a single factor model was used to generate teaching and learning guiding principles.

Date of Submission: 04-09-2019

Date of Acceptance: 19-09-2019

I. INTRODUCTION

In this study, one of the six themes of teaching and learning guiding principles (TLGP) were chosen provide the structure and methodology of institutional teaching and learning excellence which are interrelated and interdependent which is “*To foster the atmosphere of intellectual excitement*”. Basically, these principles are based on the National Philosophy of Education, the Philosophy of Teacher Education as well as the National Education Transformation Plan. The principles describe holistic components of the teaching and learning process that reflect the balance of evidence in the research literature on the conditions under which student learning thrives. Each principle has a direct bearing on the quality of students’ intellectual development and their overall experience of university life and beyond as they embark on a process of lifelong learning. The ultimate objective of teaching and learning programs is to prepare quality teachers for future with distinctive attributes that enable them to contribute to ever-changing global context in a meaningful and positive way.¹ Figure 1 shows the teaching and learning guiding principles.

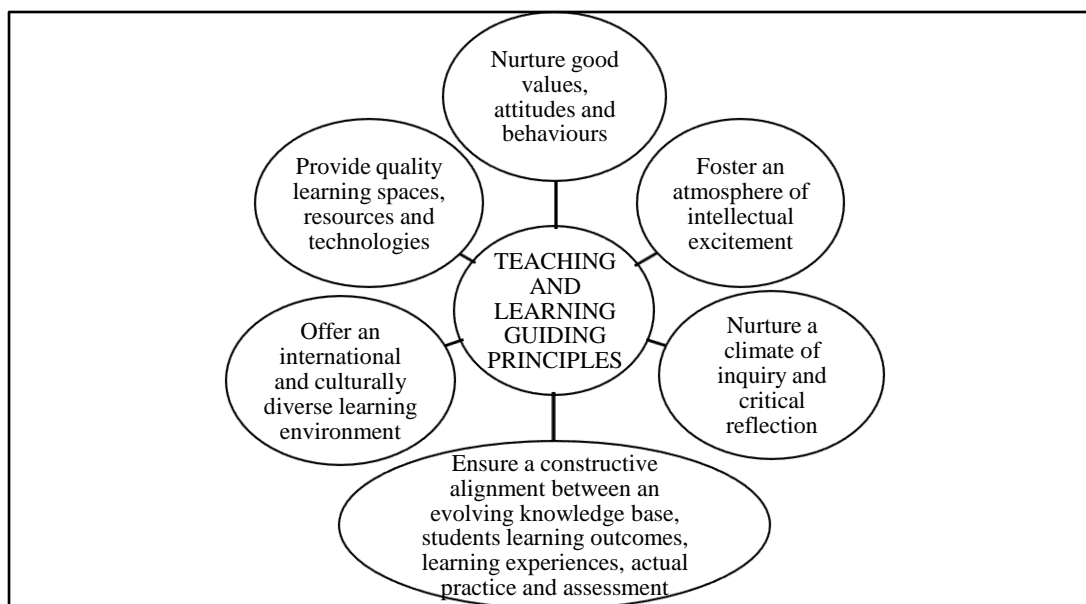


Figure 1: Teaching and Learning Guiding Principle Themes

Intellectual excitement refers to a state where students are actively engaged in the process and content of learning to the point that they are intellectually stimulated and challenged, intrinsically motivated and find learning to be personally meaningful.¹ Intellectual excitement is probably the most dominant motivating force for students and teachers alike. Effective teachers are passionate about ideas. They stimulate the curiosity of their students, channel it within structured frameworks, and reveal their own intellectual interests. Review of literature indicated that greater learning and cognitive development arise when students are closely engaged and involved with the subjects they are studying.

Constructivist learning theory offers a sharp contrast to the traditional instruction which is based on the transmission or interest view of teaching and learning. Typically, the traditional approach would firstly involve a teacher's model through the completion of several examples and then handed over to students to try to repeat the same procedure demonstrated. From the constructivist perspective, learners are actively involved in the construction of their own knowledge, rather than in passively getting knowledge.²

In the situation where learners are in control of components in the learning environment, learning results are higher.³ We believe that intellectual excitement is probably the most powerful motivating force for students and teachers alike. Effective teachers are passionate about ideas. They stimulate the curiosity of their students, channel it within structured frameworks, and reveal their own intellectual interests. Review of literature indicated that greater learning and cognitive development occur when students are closely engaged and involved with the subjects they are studying.⁴

When a positive classroom atmosphere generated, students learn better. Every student must feel safe and important in the class in order for maximum learning to transpire. A positive classroom environment does not just happen; the teacher creates it. Intellectual excitement included a series of actions: (a) Technical Expertise; (b) Organization; (c) Clarity of Communication; (d) Engaging Presentation; and (e) Enthusiasm.

As a result, intellectual excitement (IE) element included in other guiding principles institutions like Melbourne University⁵, Griffith University⁶, Eberly Centre of Carnegie Mellon University⁷, Nottingham University⁸, Hong Kong University⁹ and Carroll University¹⁰ as a deliverance of knowledge guideline for the learners. It used to create the knowledge motivating environment to inform the course design and classroom teaching. The IE element respectively embedded in the principle as shown in Table 1.

Table 1: Principles for Intellectual Excitement

Study / University	Principle
TLGP	<ul style="list-style-type: none"> • Teaching and learning could foster an atmosphere of intellectual excitement in students (IE)
Melbourne University	<ul style="list-style-type: none"> • An atmosphere of intellectual excitement.
Griffith University	<ul style="list-style-type: none"> • Create an engaging, motivating, and intellectually stimulating learning experience.
Carnegie Mellon University (Eberly Centre)	<ul style="list-style-type: none"> • Effective teaching involves acquiring relevant knowledge about students and using that knowledge to inform our course design and classroom teaching.
Nottingham University	<ul style="list-style-type: none"> • Academic freedom and curiosity. • Innovation and entrepreneurialism.
Hong Kong University	<ul style="list-style-type: none"> • Arouse students' intellectual curiosity and stimulate their enthusiasm for learning. • Enable students to develop the key intellectual skills that will be further enhanced their disciplinary studies.
Carroll University	<ul style="list-style-type: none"> • Constructivist teachers encourage active, engaged, inquiry-oriented learning enabled by formal and informal assessment of prior student learning and experience and by instruction designed in response to those assessments.

II. METHODOLOGY

Research Design

This study employed a descriptive research design using the survey method as our interest to obtain the teaching and learning guiding principles. Teacher educators responded to the survey to gather information about what local teacher educators think are important in teaching and learning. In addition, the confirmatory factor analysis (CFA) was used to examine the underlying factor structure of the data. CFA is reckoned as a best-known statistical procedure for testing a hypothesized factor structure.^{11,12}

Sample

A total of 350 of teacher educators from 10 public universities and teacher training institutions in Malaysia were purposely selected to be involved in this study. They were selected based on proportional

stratified random sampling. Malaysia was divided into five zones which are Northern, Southern, Western, Central/Eastern, Southern and Sabah/Sarawak zone. The mailed survey administered to the samples.

Instrumentation

A set of 5-point Likert scale (ranging from 1= “not at all important” and 5 = “extremely important”) instrument, namely the Teaching and Learning Guiding Principles Instrument (TLGPI) was administered to the samples. The samples were required to response to the 44 items which may address an early indication of the importance of each domain to establish teaching and learning guiding principles.

The instrument comprised of six themes that obtained from the related literature to generating the items from. There were eight items to assess teaching and learning should foster an atmosphere of intellectual excitement (Theme 1); the following eight items to assess the teaching and learning should provide quality learning spaces, resources and technologies (Theme 2); the next five items to assess the teaching and learning should ensure a constructive alignment between an evolving knowledge base, students learning outcomes, learning experiences, actual practice and assessment (Theme 3); seven items to assess the teaching and learning should offer an international and culturally diverse learning environment (Theme 4); three items to assess the teaching and learning should nurture a climate of inquiry and critical reflection (Theme 5); and the last seven items to assess the teaching and learning should in students nurture good values, attitude and behaviors (Theme 6). The mean and standard deviation for IE construct is 4.24 and 0.76.

III. RESULT

IE construct as a latent variable with eight observed variables were measured on the instrument. Figure 2 shows the measurement model for IE construct. The measurement model will assess the degree and numbers of indicators representing a measured construct through CFA. The CFA was tested for model fit, reliability and construct validity of the construct measured. To examine the model fit of this study, the CFA encompassed four indices namely TLI>0.90, CFI>0.90, RMSEA<0.08 and Chisq/df<5.0 and the factor loading should be above 0.5.

Figure 3 presents the initial CFA for intellectual excitement which consisted eight items. The analysis showed good fit (TLI=0.9, CFI=0.93, RMSEA=0.098) with all factor loadings were more than 0.5 (Table 2). The AVE (0.43) measured almost exceed 0.5. This means that on average the items under IE have more error than variance explained¹³.

As suggested in the literature, measurement error may be due to psychological factors of the respondents^{14, 11} or the items may be measuring other latents besides the hypothesised construct in the study^{15 11}. However, the AVE value of IE is near 0.50. Hence, to prove the items have convergent validity we can refer to the fact that the factor loadings of the items under the IE construct are above 0.5 and significant (p < 0.01). Furthermore, the CR (0.85) larger than 0.6 indicating satisfactory validity and reliability, as illustrated in Table 3.

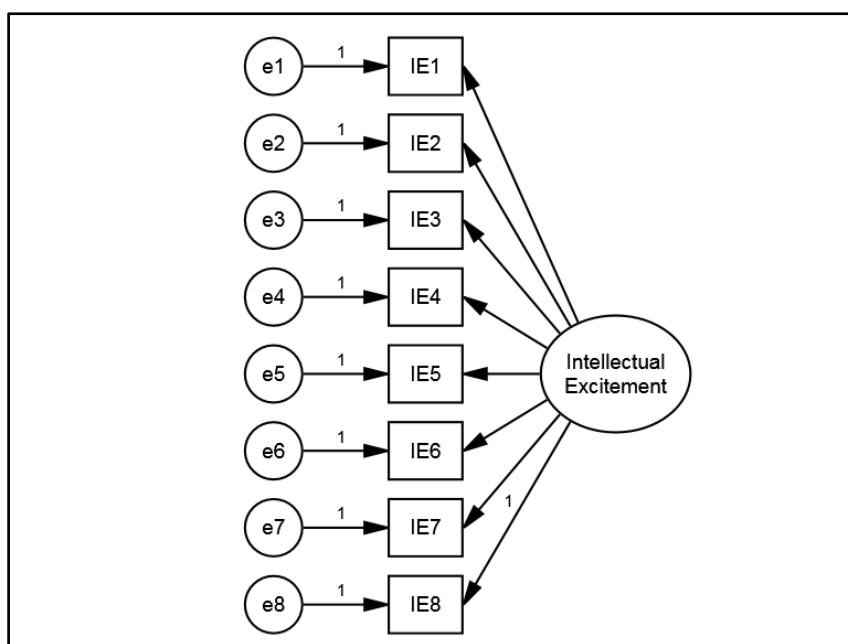


Figure 2:Measurement Model for Intellectual Excitement

Table 2 : Fit Indices of the Initial CFA for Intellectual Excitement

Fit Indices	Index Value	Recommended Value	Results
TLI	0.90	>0.90	Good Fit
CFI	0.93	>0.90	Good Fit
RMSEA	0.09	<0.10	Good Fit
Chisq/df	4.42	<5.00	Good Fit

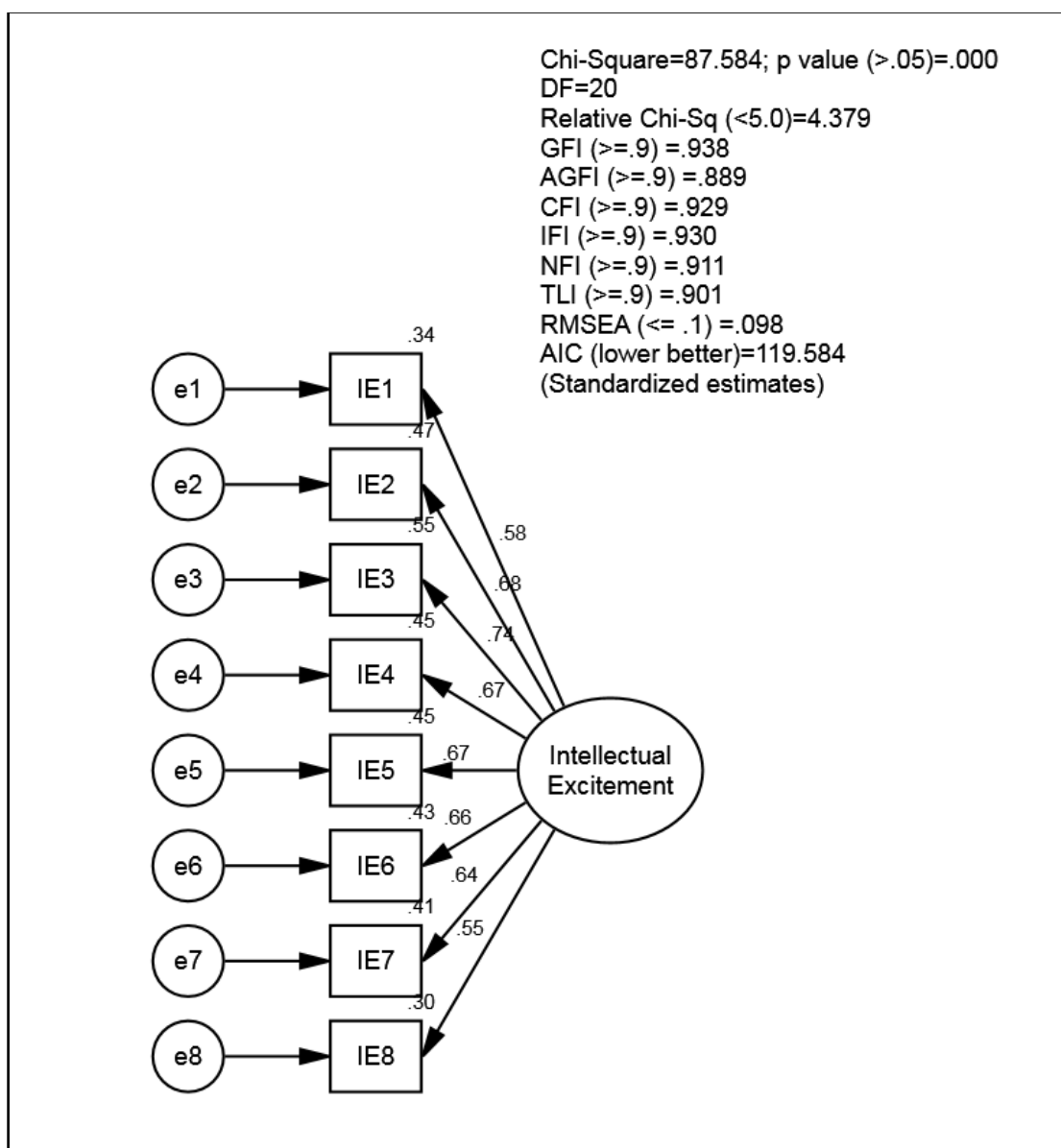


Figure 3: The Initial CFA for Intellectual Excitement

Table 3 : Factor Loading, Average Variance Extracted (AVE) and Construct Reliability (CR) for Initial CFA of Intellectual Excitement

Item	Factor Loading	AVE (>0.5)	CR (>0.6)
IE1	0.58	0.43	0.85
IE2	0.68		
IE3	0.74		
IE4	0.67		
IE5	0.67		
IE6	0.66		
IE7	0.64		
IE8	0.55		

IV. DISCUSSION

The analysis has yielded eight items of Intellectual Excitement (IE) construct. No item deleted and remained all eight items in IE construct as shown in Table 4. Goodness of fit indices of CFA indicated a good fit of the collected data and the model. This indicates that the intellectual excitement construct is acceptable as an important element in teaching and learning which is based on the requirement¹⁶. It is also can assessed from the high degree of reliability and validity of the construct¹⁷.

Table 4 : The Final Items of Intellectual Excitement (IE) Construct

Item	
IE1	I having students complete a problem solving game in class.
IE2	I assign small group discussions.
IE3	I having students present a play or panel discussion in small groups.
IE4	I encouraging students to debate issues related to the topics covered in the course.
IE5	I use role-play and simulation methods.
IE6	I having students compare theories relevant to the content of the course.
IE7	I having student involvement in inter-professional practice.
IE8	I having student engagement in knowledge transfer activities in community, professions and/or industries.

V. CONCLUSION

This study provides an indication for the evidence of the important of intellectual excitement in teaching and learning and as one of the principle in TLGP that based on continuous improvement on empirical evidence grounded in the context of actual practice. Based on the findings, teachers might be able to embed intellectual excitement element in their teaching and learning practices in higher education and assist educational authorities to prepare teacher educators in education program, particularly by taking into consideration.

The present study can be extended to different settings and sample in order to achieve a better measurement model. It is hoped that by validating the TLGPI, then more upcoming related issues will be conducted in the future in order to facilitate teaching and learning practices. It is also can give an important implication to the various stakeholders in higher education institutions¹⁸. However, by considering triangulation in the current methodology, it gives more support in terms of measurement and evaluation of the instrument.

This study is vital in Malaysian higher education since the scope of the teaching and learning practices has changed which align with the technology development. A thorough investigation on the real classroom setting can be done so that more inputs can be obtained for the betterment of the future education.

ACKNOWLEDGEMENT

We extend our gratitude to Ministry of Education Malaysia for providing the funds under the Niche Research Grant Scheme (NRGS): 2014-0001-107-82-2 Sultan Idris Education University for providing the official approval that enables us to do the research. Special thanks to the teacher educator from public universities and teacher training institutions in Malaysia for the involvement in this research.

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Azwani Masuwai. " Intellectual Excitement Element in Teaching and Learning." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*. vol. 24 no. 09, 2019, pp. 39-44.