

Examining Moderator Factor Influencing Teachers' Implementing Program i-THINK: The Role of Teachers' Work Experience

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Abstract

The utilization of the i-THINK implementation program among primary school teachers has the potential to enhance the quality of teaching and learning. This approach gained traction, particularly following the lacklustre and moderate student performance observed in the Trends in International Mathematics and Sciences Study (TIMSS) and Program for International Student Assessment (PISA) between 2009 and 2019 in Malaysia. To frame this study, the CIPP model was adopted, encompassing evaluations of context, input, process, and product. This model, pioneered by Daniel Stufflebeam, laid the groundwork for the research instrument. Besides, this study also aims to investigate how work experience, acting as a moderating factor, influences the relationship between context and process evaluations concerning the product evaluation when implementing the i-THINK program. The respondents in this study consisted of 500 teachers from 9 schools in the Selangor region of Malaysia. Employing a quantitative methodology and in-depth survey questionnaires, the research data underwent analysis through Structural Equation Modelling using IBM-SPSS Amos 24.0. The findings unveiled a significant correlation between context and process evaluations with product evaluation. In terms of the impact of work experience as a moderator, the study disclosed that work experience indeed moderated the effects within the product evaluation aspect of implementing the i-THINK program.

Keywords: Program i-THINK, Moderator, Input Evaluation, Process Evaluation, Product Evaluation

Introduction

Education in Malaysia has experienced many changes coinciding with the international education scenario. This is important because education aims to make life more comfortable and valuable and form knowledgeable people, especially in facing the challenges of

globalization (Dewey, 199; Azalya, 2003). The statement coincides with the intention of the Malaysian Ministry of Education through the Malaysian Education Development Plan (2013-2025) which makes student academic achievement the main agenda of national education reform. However, the national education system by 2025 should achieve two main qualities, namely; (1) achieving comprehensive participation in secondary education and (2) relying on the optimal category in international interpretation (KPM, 2013). If seen from a different angle, the government wants to produce netizens who have the power to create and be able to be foreign at the international level other than being just consumer netizens. Concerning that, the teaching and learning approach needs to match the importance of the current education system to put our country on par with other countries, like sitting equally low and standing equally tall. Realizing the scenario, on 27 July 2011, the Malaysian Innovation Agency under the Prime Minister's Department and the Malaysian Ministry of Education agreed to implement the i-THINK Program as an initiative under the Malaysian Education Development Plan (2013-2025) in stages. Efforts to spread the program's implementation have been expanded to all schools nationwide from 2013 to 2014 (BPK, 2012).

Furthermore, student academic attainment is influenced not solely by proficient educators, as teaching experience also assumes a pivotal role in attaining the goals set forth by the i-THINK Program (Alamsyah et al., 2020). This is also stated by Aziz et al., (2018) that teachers with less than three years of experience work more effectively than teachers with more experience. Additionally, the results of the study by Linda, (2018) conducted on 80 teachers are also in line with the results of the study by Rajendran, (2018) and Aziz et al., (2018), which show that less experienced teachers are more motivated than more experienced teachers and are ready to accept reforms in the education system. Drawing from the findings of the study, a conclusive observation can be drawn: as teaching experience accumulates, teachers' willingness to embrace educational reforms diminishes. The study's findings by Pusparini et al., (2018) and Jamil, (2002) also proved that a few teachers continue to possess an insufficient grasp and awareness of the i-THINK Program. Besides, the results of the studies conducted by Ad Hamid et al. (2017), Myers & Greenon, (2012) and Khairul Anwar Abu Bakar (2014) indicate that competence and skills in teaching and learning process can be acquired through classroom teaching experience rather than formal training programs. With that fact, the successful outcome of teacher professional development can vary based on teaching experience. .Consequently, they remain somewhat unready to seamlessly integrate the i-THINK Program into their teaching and learning strategies, despite their substantial experience. Given the challenges highlighted, it becomes pertinent to undertake an additional investigation aimed at delving into the factors influencing the acceptance of the i-THINK Program. This exploration should encompass the impact of teachers' work experience on the successful implementation of the i-THINK Program. Indeed, it is crucial to examine teachers' work experience as a moderating factor in the implementation of the i-THINK program.

Research Method

Participants

This research employed a quantitative methodology through a cross-sectional survey. A total of 500 educators hailing from nine regions within Selangor, Malaysia, were chosen as the study's subjects. The process of selecting participants was carried out using systematic random sampling. Considering the breakdown of participants, it's worth noting that teachers

with less than eight years of teaching experience constituted 20.2% (101), while those with over eight years accounted for 79.8% (399).

Instrument

The development of the instrument was executed in several stages. Begins, the researchers initiated an extensive exploration of literature spanning various theories. Additionally, they referred to prior tools and frameworks established by the ministry within its documents, aiming to facilitate the design process. The involvement of eight field specialists, encompassing expertise in evaluation, subject matter, language, institutions, and departments, was sought to appraise the content validity of the instrument. Feedback and recommendations from these experts guided the necessary corrections and enhancements. Once the final draft was completed, the researchers submitted it to the academic advisor for the final touches. Subsequently, the instrument's validity and reliability criteria were assessed through an empirical study.

Data collection

They were considering that when this study was conducted, the researcher experienced the situation of the COVID-19 pandemic that hit the whole world including Malaysia. Therefore, the researcher can only collect data from the sample online. 500 sets of questionnaires were sent via a Google form link together with a letter of permission from the Ministry of Education and a sample consent letter to each selected school principal. However, the researcher made an increase in the number of questionnaires by 25% as suggested by Salkind, (2012; Dillman & Frey (1974) to ensure that the number of questionnaire returns is at least 70% (Farrugia et al., 2010) for further analysis.

Results and Discussion

The study obtained 500 valid questionnaires from 530 sets distributed to the respondents. The respondents' profile showed that teaching experience at school for less than eight years is 20.2% (101) and experienced teachers teaching at school for eight years or more is 79.8% (399). The assessment of the structural model's goodness-of-fit indices is crucial to validate its alignment with the data. Substantial congruence with the sample data lends support to the proposed model (Bentler, 1990). The Fitness Indexes, outlined in Table 1, indicate that the model appropriately corresponds with the data. The model demonstrates a satisfactory fit, which allows for further analysis, given that the parsimonious fit registered a χ^2/df index of 2.495, comfortably below the 0.5 threshold set by Bentler & Bonett, (1980); Awang, (2016); Bahri et al., (2021). The Root Mean Square Error of Approximation (RMSEA) of 0.077 falls within the acceptable range of 0.030 to 0.080. Additional fit measures, namely the Comparative Fit Index (CFI) at 0.976 and Tucker-Lewis Index (TLI) at 0.972, surpass the threshold value of 0.9. In light of these indices, it can be deduced that the data aligns well with the model, as evidenced in Table 1. Having fulfilled all prerequisites, a structural model was constructed for the purpose of estimating the interrelationships among the constructs using Structural Equation Modelling (SEM), thereby assessing the stated hypotheses in the study.

Table 1:
The Fitness Indexes for the Structural Model

Name of Category	Name of Index	Index value	Comments
Absolute fit	RMSEA	0.077	The required level is achieved
Incremental fit	TLI	0.972	The required level is achieved
	CFI	0.976	The required level is achieved
Parsimonious fit	Chi-square/df	3.924	The required level is achieved

This research aims to assess the impact of the "teaching experience" element as a moderating construct on the connection between independent and dependent constructs within the model. Next, the influence test has found that only two routes have a significant direct influence as shown in Table 2. Therefore, this study only examines the effect of the construct "teaching experience" as a moderating construct in two paths, namely between (i) the context evaluation to the product evaluation and (ii) the process evaluation to the product evaluation as shown in table 2. This is also stated by Kline, (2016); Matsunaga, (2008); McDonald & Ho, (2022) that testing the hypothesis of the moderating effect of a construct can only be done if the path has a significant direct effect only.

Table 2:
The Regression Path Coefficient and Its Significance

	Estimate (Beta, β)	S.E.	C.R.	P-value	Result
PR <--- C	.121	.040	3.016	.003	Significant
PR <--- P	.902	.051	17.613	***	Significant
PR <--- I	-.033	.057	-.576	.564	Not Significant

P value < 0.05; PR = Product; C = Context; I = Input; P = Process

In addition, this study also uses the Multigroup CFA procedure to test the hypothesis of a moderator effect as in the model in figure1.

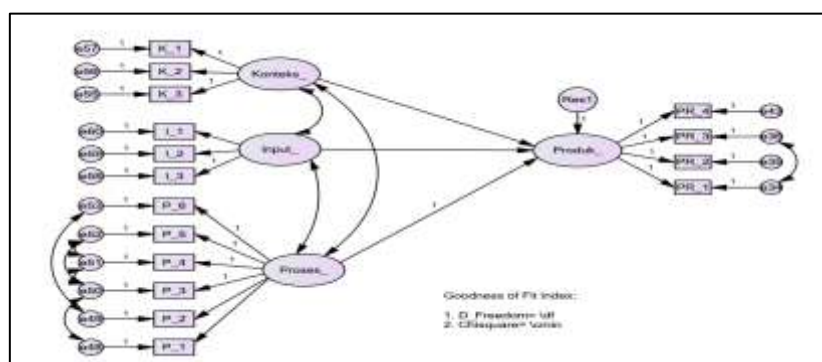


Figure1. Testing the Moderator's Teaching Experience Construct According to the Selected Path

This study would employ the proposed method to test the moderator effect in the model (Tabachnick & Fidell, 2013; 2007). The moderator variable in this study is the teachers' work

experience. The model showed work experience as a moderator effect on product evaluation from contexts and product evaluations, respectively. The testing process needs to be conducted to confirm these effects. The results are presented in the tables below.

Table 3

Hypothesis Testing of Teaching Experience Data Over Eight Years (K-PR)

Model 1	Constrained Model	Unconstrained Model	Chi-Square Difference	Results on Moderation	Result on Hypothesis
Chi-Square (DF)	724.794 200	495.522 198	229.272 2	Significant	Supported

Hypothesis Statement:

Ha3a: More than eight years of teaching experience is a significant moderator in the relationship between the context evaluation (C) and the product evaluation (PR)

Table 4

Hypothesis Testing of Less Than Eight Years of Teaching Experience (C-PR) data

Model 1	Constrained Model	Unconstrained Model	Chi-Square Difference	Results on Moderation	Result on Hypothesis
Chi-Square (DF)	724.794 200	495.522 198	229.272 2	Significant	Supported

Hypothesis Statement:

Ha3a: Less than eight years of teaching experience is a significant moderator of the relationship between the context evaluation and the product evaluation

The hypothesis test found that both teaching experiences of more than eight years and less than eight years had a significant moderating effect on the relationship between the context evaluation and the product evaluation in implementing the i-THINK Program. So, hypothesis Ha3a is accepted.

Table 5

Hypothesis Testing of Teaching Experience Data Over Eight Years (P-PR)

Model 2	Constrained Model	Unconstrained Model	Chi-Square Difference	Results on Moderation	Result on Hypothesis
Chi-Square (DF)	510.303 200	495.522 198	14.781 2	Significant	Supported

Hypothesis Statement:

Ha3c: More than eight years of teaching experience is a significant moderator of the relationship between process evaluation and product evaluation

Table 6

Hypothesis Testing of Less than Eight Years of Teaching Experience Data (P-PR)

Model 2	Constrained Model	Unconstrained Model	Unconstrained Model	Results on Moderation	Result on Hypothesis
Chi-Square (DF)	510.303 200	495.522 198	14.781 2	Significant	Supported

Hypothesis Statement:

Ha3c: Less than eight years of teaching experience is a significant moderator in the relationship between the process evaluation and the product evaluation

The hypothesis test found that both teaching experiences (more than eight years and less than eight years) had a significant moderating effect on the relationship between the process and product evaluations. So, hypothesis Ha3c is accepted.

Conclusion

The study's outcomes demonstrate that teaching experience serves as a noteworthy moderator, exerting a substantial moderating influence on the association between context evaluation and process evaluation in relation to the product evaluation during the implementation of the i-THINK program. The results of this study are further strengthened by the study of Hata & Mahmud, 2020 and Zee & Koomen, 2016 who stated that teachers experienced always obey and support all educational policies as in the Malaysian Education Development Plan (2013-2025). This study is also consistent with Rahman & Daud, (2022) who stated that teachers' work experience has positively impacted more effective teaching practices to achieve objectives.

Furthermore, the findings of this study are consistent with the findings of Zi & Iksan, (2021) who asserted that seasoned educators possess substantial expertise in effectively implementing the teaching and learning procedures. Similarly, this study is further strengthened by the study of Iswadi & Richardo, (2018) which states that teachers with experience have implemented teaching tasks that are more systematic and effective and also implemented the i-THINK program successfully. This is further supported by Biggs & Moore (1993) one's experience is a guarantee of student achievement in academics.

The discussion of the moderating impact within this research reveals that the teaching experience of educators serves as a moderator for the connection between context evaluation, process evaluation, and product evaluation during the implementation of the i-THINK program. This signifies that teachers' accumulated teaching experience significantly contributes to comprehending the significance of integrating the i-THINK program into the teaching and learning process. However, according to research, to help new teachers succeed and reach their goals as specified in the Malaysian Education Blueprint (2013–2025), professional development courses should be offered to those who have no prior job experience. In spite of this, the study's findings can be informative and serve as a model for further study in the field.

References

- Ab Rahman, R., Omar, M. C., & Daud, R. (2022). Gabungan Peta Pemikiran I-Think dan Aplokasi Quizizz Dalam PDPR (Combination of I-Think Thinking Map and Quizizz Application in PDPR). *Jurnal Islam dan Masyarakat Kontemporari*, 23(2), 14-24.

- Alamsyah, D., Othman, N., & Mohammed, H. (2020). The awareness of environmentally friendly products: The impact of green advertising and green brand image. *Management Science Letters*, 10(9), 1961-1968.
- Azalya Ayob, (2003). Kepentingan kemahiran generik di kalangan pekerja di industri elektrik dan elektronik di Bayan Lepas, Pulau Pinang. Projek Sarjana Muda, Universiti Teknologi Malaysia.
- Aziz, F. A. A., & Abd Rahman, F. 2018. Sorotan kajian kesediaan dan keperluan guru Bahasa Melayu dalam pelaksanaan kemahiran berfikir aras tinggi (KBAT) di bilik darjah. *Pendeta Journal of Malay Language, Education and Literature* 9:80-101
- Bakar, K. A. A. (2014). *Tahap kesediaan guru pelatih Institut Pendidikan Guru dalam latihan mengajar* (Doctoral dissertation, Universiti Tun Hussein Onn Malaysia).
- Bahagian Pembangunan Kurikulum Kementerian Pelajaran Malaysia. (2012). *Draf Program i-THINK: Membudayakan Kemahiran Berfikir*.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, 107(2), 238.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, 88(3), 588.
- Biggs, J., & Moore, P. (1993). *The process of learning* (3rd ed.). New York: Prentice Hall.
- Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process*. D.C: Heath and Co. Mass
- Dillman, D. A., & Frey, J. H. (1974). Contribution of personalization to mail questionnaire response as an element of a previously tested method. *Journal of Applied Psychology*, 59(3), 297-301. <http://dx.doi.org/10.1037/h0036534>
- Farrugia, P., Petrisor, B. A., Farrokhyar, F., & Bhandari, M. (2010). Research questions, hypotheses and objectives. *Canadian journal of surgery*, 53(4), 278.
- Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2018). *Multivariate data analysis*. 8thEd.
- Hata, N. F. M., & Mahmud, S. N. D. (2020). Kesediaan guru Sains dan Matematik dalam melaksanakan pendidikan STEM dari aspek pengetahuan, sikap dan pengalaman mengajar (Teachers' readiness in implementing STEM education from knowledge, attitude, and teaching experience aspects). *Akademika*, 90(S3).
- Hamid, M. F., Idroas, M. Y., Basha, M. H., Sa'ad, S., Mat, S. C., Abdullah, M. K., & Alauddin, Z. A. Z. (2017). Numerical study on dissimilar guide vane design with SCC piston for air and emulsified biofuel mixing improvement. In *MATEC Web of Conferences* (Vol. 90, p. 01065). EDP Sciences.
- Ir H Syamsul Bahri, M. M., Zamzam, H. F., & MM, M. (2021). *Model Penelitian Kuantitatif Berbasis SEM-AMOS Mengenal SEM-AMOS*. Republish.
- Iswadi, I., & Richardo, R. (2018). Pengaruh latar belakang bidang studi, tingkat pendidikan dan pengalaman mengajar terhadap kemampuan profesional guru pada SMA Kartika XIV 1 Banda Aceh. *Genta Mulia: Jurnal Ilmiah Pendidikan*, 8(2), 27-40.
- Jamil Ahmad. 2002. Pemupukan budaya penyelidikan di kalangan guru sekolah: Satu penilaian. Tesis Dr, Falsafah, Fakulti Pendidikan, Universiti Kebangsaan Malaysia.
- Kementerian Pendidikan Malaysia. (2013). *Pelan Pembangunan Pendidikan Malaysia 2013-2025*.

- Kline, R.B. (2011). Principles and Practice of Structural Equation Modelling (3 rd ed.). The Guildford Press. New York.
- Kline, R.B. (2016). Principles and Practice of Structural Equation Modelling (4 th ed.). The Guildford Press. New York
- Linda J. Graham (2018) Student compliance will not mean 'all teachers can teach': a critical analysis of the rationale for 'no excuses' discipline, *International Journal of Inclusive Education*, 22:11, 1242-1256, DOI: 10.1080/13603116.2017.1420254
- Marsh, H. W., & Hocevar, D. (1988). A new, more powerful approach to multimethod analyses: Application of second-order confirmatory factor analysis. *Journal of Applied Psychology*, 73, 107-117.
- Matsunaga, M. (2008). Item parceling in structural equation modeling: A primer. *Communication Methods and Measures*, 2(4), 260-293. <https://doi.org/10.1080/19312450802458935>
- McDonald, R. P., & Ho, M. H. R. (2002). Principles and practice in reporting structural equation analyses. *Psychological Methods*, 7(1), 64
- Myers, J. L., & Greenson, J. K. (2012). Life-long learning and self-assessment. *Archives of Pathology & Laboratory Medicine*, 136(8), 851-853.
- Pusparini, S. T., Feronika, T., & Bahriah, E. S. (2018). Pengaruh Model Pembelajaran Problem Based Learning (PBL) Terhadap Kemampuan Berpikir Kritis Siswa pada Materi Sistem Koloid. *JRPK: Jurnal Riset Pendidikan Kimia*, 8(1), 35–42. <https://doi.org/10.21009/jrpk.081.04>
- Rajendran, N. S. (2018). Teaching and acquiring higher order thinking skills: Theory and practice. Universiti Pendidikan Sultan Idris Tanjong Malim, Perak.
- Salkind, N.J. (ed.). 2012. Exploring research. (8th Edition). New York, NY: Pearson
- Tabachnick, G.B., & Fidell, S.L. (2013). Using Multivariate Statistics (6th ed.). Pearson Educational Inc
- Tabachnik, B.G., & Fidell, L.S. (2007). Using multivariate statistic (5th ed.). Boston: Pearson Education Inc
- Zainuddin Awang. (2016). A Handbook on SEM. MPWS Publisher.
- Zee, M., & Koomen, H. M. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational research*, 86(4), 981-1015.
- Zi, F. C. M., & Iksan, Z. (2021). Kesan Psikologi Guru Terhadap Pelaksanaan Kajian Pembelajaran di Sekolah. *Jurnal Dunia Pendidikan*, 3(3), 13