



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT



[www.hrmars.com](http://www.hrmars.com)

ISSN: 2226-6348

## Establishing the Validity and Reliability of Professional Learning Community (PLC) Inventory in Educational Sector

Thiru Kali Thevi Jayaraman, Nor Hasnida Bt Che Md Ghazali

To Link this Article: <http://dx.doi.org/10.6007/IJARPED/v12-i2/17229>

DOI:10.6007/IJARPED/v12-i2/17229

**Received:** 07 April 2023, **Revised:** 09 May 2023, **Accepted:** 26 May 2023

**Published Online:** 12 June 2023

**In-Text Citation:** (Jayaraman & Ghazali, 2023)

**To Cite this Article:** Jayaraman, T. K. T., & Ghazali, N. H. B. C. M. (2023). Establishing the Validity and Reliability of Professional Learning Community (PLC) Inventory in Educational Sector. *International Journal of Academic Research in Progressive Education and Development*, 12(2), 2283–2297.

**Copyright:** © 2023 The Author(s)

Published by Human Resource Management Academic Research Society ([www.hrmars.com](http://www.hrmars.com))

This article is published under the Creative Commons Attribution (CC BY 4.0) license. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this license may be seen at: <http://creativecommons.org/licences/by/4.0/legalcode>

**Vol. 12(2) 2023, Pg. 2283 - 2297**

<http://hrmars.com/index.php/pages/detail/IJARPED>

**JOURNAL HOMEPAGE**

Full Terms & Conditions of access and use can be found at  
<http://hrmars.com/index.php/pages/detail/publication-ethics>



# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN PROGRESSIVE EDUCATION & DEVELOPMENT



[www.hrmars.com](http://www.hrmars.com)

ISSN: 2226-6348

## Establishing the Validity and Reliability of Professional Learning Community (PLC) Inventory in Educational Sector

Thiru Kali Thevi Jayaraman, Nor Hasnida Bt Che Md Ghazali

Faculty of Human Development, Sultan Idris Education University, 35900 Tanjong Malim,  
Perak Darul Ridzuan, Malaysia

Email: tkthevi80@gmail.com, hasnida@fpm.upsi.edu.my

### Abstract

The implementation of Profesional Learning Community (PLC) among secondary school teachers can enhance school capacity and excellence. To assess the execution of PLC, a reliable and valid instrument is necessary. This study aims to examine the validity, reliability and EFA of an instrument designed to evaluate the implementation of PLC. A well-designed instrument, which was distributed to 69 secondary school teachers in the form of a questionnaire for measuring the key components of PLC implementation and providing reliable data for research and assessment purposes. The Context, Input, Process and Product (CIPP) Evaluation Model, established by Daniel Stufflebeam, served as the foundation for the instrument. The content validity of the instrument was examined by experts, while the construct validity was assessed using internal consistency reliability or Cronbach Alpha. The pilot study findings suggest that the instrument is both reliable and valid, with 87 out of 91 items retained. This instrument provides a new perspective on measuring the implementation of Profesional Learning Community, especially in the school context.

**Keywords:** CIPP Model, Evaluation, Exploratory Factor Analysis (EFA), PLC

### Introduction

The Malaysian Education Blueprint (PPPM) 2013-2025 Thrust 4 aims to elevate the teaching profession to be preferred profession (KPM, 2014). To ensure the continuity of teacher quality, the Teacher Education Division (BPG) implemented several initiatives, including the Profesional Learning Community (PLC).

The PLC is a school improvement process that involves collaborative efforts from school leadership and community members to generate knowledge and share information to enhance student performance (Zuraidah, 2021). Today's scholars recognize PLC as a critical element capable of transforming educational practices and enhancing the quality of teaching and student performance (Siti Nafsiah, 2019)

Implementing PLC in schools fosters the development of learning values through collaboration, promoting dynamic learning among teachers, students, principals, parents, and the community. Furthermore, PLC serves as agent to optimize the potential and skills of

teachers by enhancing the quality of the teaching and learning process and encouraging parental and community involvement in ensuring student success (KPM, 2014)

PLC is composed of five significant dimensions: i) shared and supportive leadership, ii) shared values, norms, missions and vision, iii) collective learning and application, iv) personel sharing practices and v) supportive conditions concerning relationships and structure. These five dimensions have a mutually reinforcing effect in ensuring that teacher learning takes place continuously, thereby enhancing student performance in school (Hipp & Huffman, 2003; Hord, 1997)

### **Literature Review**

PLC, evaluation, instrumentation, validity, reliability and Exploratory Factor Analysis (EFA) from the literature are to be reviewed in this section.

### **Profesional Learning Community (PLC)**

PLC, as defined by IPGM (2021), refers to a collective of teachers and administrators who engage in ongoing exploration, sharing of knowledge, and subsequent implementation of action based on their learning. This collaborative effort aims to enhance teaching practices and overall educational outcomes. On the other hand, the Teacher Professionalism Department (2019) defines KPP as a group of dedicated teachers who work together in a collaborative manner, striving to continuously improve the quality of teaching and contribute to the holistic development of students.

According to Zuraidah (2016), the PLC is considered a highly effective practice in school improvement, aimed at addressing challenges and enhancing student achievement. The primary objective of the PLC is to facilitate the sharing of teachers' skills and knowledge, foster meaningful relationships, plan focused programs, leverage available resources, and promote shared leadership in alignment with the National Education Policy. This collective effort aims to cultivate high-quality human capital for the future (KPM, 2019).

To gauge the impact of PLC implementation and identify areas for improvement, it is essential for the responsible party to assess its strengths, successes and weaknesses. Consequently, this study aims to evaluate the implementation of PLC, examining its positive aspects as well as areas that require enhancement. The findings from this evaluation will provide valuable insights for making necessary improvements.

### **Evaluation**

According to Stufflebeam (2000), evaluation serves two primary purposes. Firstly, it aims to assess achievements and determine the extent to which desired goals and objectives have been accomplished. This helps in understanding the effectiveness and success of the subject under evaluation. Secondly, evaluation seeks to identify alternative options and potential improvements that can contribute to informed decision-making processes. By examining different possibilities and gathering insights through evaluation, decision-makers can make more informed choices and take appropriate actions.

Besides that, the CIPP (Context, Input, Process, Product) model is widely utilized to evaluate program implementation effectiveness due to its comprehensive nature. This model encompasses key dimensions necessary for assessment. It considers the contextual factors surrounding the program, the inputs or resources involved, the process of implementation, and the resulting products or outcomes.

Therefore, this CIPP Evaluation Model was chosen to conduct a study on the implementation of the PLC among secondary school teachers in the State of Selangor.

### *Instrument*

The objective of this study was to assess the implementation of the PLC and to establish the validity, reliability and EFA of the instrument used in the evaluation process. A questionnaire was utilized as the survey instrument, featuring a seven-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. The questionnaire was distributed to 69 secondary school teachers in one of the Malaysian states.

The development of the instrument was executed in several stages. The researchers initially conducted an extensive literature search across various theories. Next, the researchers utilized Stufflebeam's CIPP Model to design the instrument. Furthermore, they referred to past instruments and constructs developed by the ministry in its documents to aid in the design process. The researchers also sought the assistance of eight field specialists, including evaluation, subject matter, language, institutional and department experts to evaluate the instrument's content validity. Correction and improvements were made based on the experts' comments and suggestions. After completing the final draft, the researchers submitted it to the academic advisor for finalization before conducting a pilot study to assess the instrument's validity and reliability criteria.

### *Validity*

Validity refers to the degree of accuracy in representing information on a scale or within an assessment group (Hair et al., 2014). It ensures that the research is conducted as planned by the researcher with accurate and reasonable measurements (Uma Sekaran & Bougie, 2016). In this study, the validity of the questionnaire was established by consulting experts in the field under study. Typically, a review by a minimum of two experts is recommended (Äng & Garne, 2016). In this case, eight experts were involved, with six experts assessing content validity and two experts assessing face validity. All experts possessed extensive experience in the education field, with over fifteen years of expertise.

The experts were asked to rate each item on a four-point scale indicating construct relevance: 1 = irrelevant, 2 = somewhat relevant, 3 = relevant, 4 = very relevant. A total of 94 items were adapted for the study. The researcher compiled and summarized all responses and comments provided by the experts. The researchers then calculated the content validity index (CVI), which takes into account the average rating and the degree of suitability assigned by the experts. A CVI value of  $\geq 0.83$  (Lynn, 1986) was considered acceptable.

### *Reliability*

Reliability is defined as the stability or consistency of a measure when tested repeatedly (Idris, 2010). Furthermore, the reliability of a measure is achieved when it is consistent and unbiased and measures the concept that should be measured (Sekaran, 2016). In fact, internal consistency is an efficient and often used method to obtain trust in questionnaires (Santhanadass, 2015). In accordance with Creswell (2014) who stated that when the research instrument is in the form of a questionnaire, the best method to use is the reliability of the instrument using the Cronbach Alpha ( $\alpha$ ) coefficient. Therefore, the reliability of a study is seen based on the Cronbach Alpha value (Hair 2006). The table 1 below shows a guide to the correlation of Cronbach Alpha reliability values:

Table 1

*Interpretation of Alpha Cronbach (Hair, 2006)*

Alpha Cronbach	Interpretation
< 0.60	Unacceptably low reliable
0.61 - 0.70	Reliable
> 0.80	Highly reliable

*Exploratory Factor Analysis (EFA)*

EFA is used to explore the data in search of information about the factor structure of the data. EFA is important for testing hypotheses and identifying any redundancy between items (Russell, 2002). The items in the questionnaire have been modified from the previous researcher's study to be more suitable to the context of the researcher's study, so the EFA application is followed and implemented with the aim of justifying the entire item (Zainudin Awang et al., 2018). All items under the four constructs (CIPP) in the questionnaire were checked using EFA as suggested by (Williams et al., 2010).

Principal component analysis (PCA) with Varimax rotation was performed on the questionnaire using IBM SPSS software with eigenvalues greater than one being extracted by factors. However, interpretation of results with double loading was done with caution, as recommended by (D. Muijs, 2011). The Varimax with Kaiser Normalization method was used for rotation and the analysis extracted factors from the context evaluation dimension components. The types of items contributing to the factors were found to be consistent with the earlier theory.

**Methodology**

The pilot study involved 69 secondary school teachers who were selected from the Klang district. It is important to ensure that the participants in the pilot study share similarities with the study population (Konting, 2005) but will not be included in the actual study to avoid contamination (Chua, 2014; Idris, 2013).

The sample size of 69 respondents was deemed sufficient for the researcher to proceed with exploratory factor analysis (EFA) and reliability analysis, as suggested by (Hair et al., 2014). The EFA helps to identify underlying factors or dimensions within the questionnaire, while the reliability analysis assesses the internal consistency and reliability of the instrument.

By conducting the pilot study, the researcher was able to refine the questionnaire further and assess its suitability for the field study. The feedback and responses from the pilot study participants informed any necessary adjustments or improvements to ensure the clarity and comprehensibility of the questionnaire. This process ensured that the final instrument used in the field study was reliable and suitable for capturing the desired data.

**Results and Discussion**

The results presented in this study are organized based on three fundamental characteristics: the validity, reliability and EFA of the instruments used. A survey administered in this study resulted in 87 original items being retained out of the initial 94 items, based on the assessments of validity, reliability and EFA.

**a. Content Validity for Context, Input, Process and Product Evaluation**

The CVI analysis was conducted using the formula by Polit and Beck (2006). The CVI for the constructs in this study ranged from 0.94 to 0.98 (Table 2), exceeding the threshold of 0.83. This indicated that the research instrument achieved acceptable content validity, as determined by the six experts. However, items with CVI values below 0.83 (Lynn, 1986) were removed. Specifically, two items were eliminated from the input evaluation dimension and one item from the product evaluation dimension.

Table 2  
*VI constructs*

Constructs	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	CVI
Total Score	0.98	0.97	0.94	0.96	0.94	0.98	0.96

In conclusion, after the content validity process, the questionnaire, initially containing 94 items, was refined to retain 91 items. This revised questionnaire was then administered to secondary school teachers for pre-testing and pilot study.

**b. Reliability and EFA for Context Evaluation**

The dimension of context evaluation consists of three constructs: teachers’ perspectives on the National Education Philosophy’s goals, teachers' views on the Malaysia education Blueprint (2013–2025) and teachers’ assessment of the objective PLC. Each construct is comprised of a total of twelve items with four items for the first construct, three items for the second construct and five items for the third construct. Table 3 displays the utilization of Cronbach’s Alpha to assess the internal consistency reliability of each construct. According to the pilot study results that shows in Table 3, the Cronbach’s Alpha reliability coefficient for the context evaluation dimension was found to be high. The results suggest that all items in the context evaluation dimension have a minimum value above 0.60, which indicates that the items are acceptable and possess good reliability. Thus, the items in this particular construct can be deemed suitable for use in field studies based on their high reliability coefficients,



Table 3

*Cronbach's Alpha values if items are deleted and overall Cronbach's Alpha coefficient for constructs in context evaluation dimension*

Context Constructs	Evaluation Item	Cronbach's Alpha if Item Deleted	Overall Value Cronbach's Alpha
Teachers' views on National Education Philosophy	B1	0.941	0.946
	B2	0.940	
	B3	0.942	
	B4	0.939	
Teachers' views on MEB (2013-2025)	B5	0.938	
	B6	0.942	
	B7	0.942	
Teachers' views on objective PLC	B8	0.941	
	B9	0.941	
	B10	0.944	
	B11	0.942	
	B12	0.942	

The findings of the factor analysis using Varimax rotation for context assessment dimension are presented in Table 4.

Table 4

*Factor analysis findings with Varimax rotation for context evaluation dimension components*

Component Matrix			
Item	1	2	3
B5	0.889		
B4	0.840		
B2	0.816		
B9	0.800		
B1	0.797		
B8	0.793		
B7	0.788		
B12	0.778		
B11	0.776		
B3	0.766		
B6	0.759		
B10	0.711		

Based on Table 4, three factors extracted from context evaluation dimension component. The first factor comprises three items related to teachers' view on the National Education Philosophy (Items B1-B3), the second factor comprises three items on teachers' views on the Malaysian Education Blueprint (2013-2025) (Items B4-B6) and the third factor comprises five items on teachers' view on the objective of PLC (items B7-B12). All items in the three constructs of context evaluation were retained, indicating their significance in assessing the implementation of PLC among secondary school teachers.

**c. Reliability and EFA for Input Evaluation**

The input evaluation dimension, includes three constructs: teachers’ views on Design Action Share (DAS) Strategy, teachers’ views on PLC Kit and teachers’ view on PLC implementation facility. The pilot study found that the Cronbach’s Alpha values for all items in each construct more than 0.90. which suggests acceptable to very good reliability. There is no need to repeat the pilot study before administering the instrument to the actual sample (Ghazali & Sufean, 2018). Therefore, the items in this construct can be used in field studies. Additionally. Table 5 displays the Cronbach’s Alpha values if the items are eliminated, as well as the overall Cronbach’s Alpha for input assessment dimension constructs.

Table 5

*Cronbach's Alpha values if items are deleted and overall Cronbach's Alpha for input assessment dimension constructs*

<b>Input Evaluation Item</b>	<b>Cronbach's Alpha if Item Deleted</b>	<b>Overall Value Cronbach's Alpha</b>
Teachers' views on Design Action Share (DAS) Strategy	C1	0.967
	C2	
	C3	
	C4	
	C5	
	C6	
	C7	
	C8	
	C9	
Teachers' views on PLC Kit	C10	
	C11	
	C12	
	C13	
	C14	
	C15	
	C16	
	C17	
	C18	
	C19	
	C20	
	C21	
	C22	
	C23	
	C24	
	C25	
Teachers' views on PLC implementation facility	C26	
	C27	
	C28	
	C29	



Based on Table 6, the analysis revealed three factors that were extracted from components. The factors are: (a) teachers' views Design, Action and Share (DAS) Strategy (10 Items: Items C1-C10) including ten items, (b) teachers' views on PLC Kit (15 Items: Items C11-C25) involving fifteen items and (c) teachers' views on PLC implementation facility (4 Items: Items C26-C29) comprising four items. Nevertheless, values factor loading for item C29 was less than 0.60. The researcher deleted item C29 from the questionnaire.

Table 6

*Results of Varimax rotation factor analysis for input evaluation dimension components*

Item	Component Matrix		
	1	2	3
C18	0.865		
C19	0.836		
C15	0.833		
C9	0.827		
C2	0.804		
C22	0.795		
C13	0.782		
C5	0.777		
C20	0.767		
C17	0.760		
C3	0.756		
C16	0.748		
C1	0.738		
C26	0.732		
C4	0.732		
C24	0.731		
C27	0.728		
C11	0.724		
C10	0.722		
C23	0.706		
C6	0.705		
C12	0.692		
C25	0.676		
C28	0,674		
C14	0.667		
C8	0.653		
C7	0.643		
C21	0.637		
C29	0.534		

### c. Reliability and EFA for Process Evaluation

The process evaluation dimension comprises four constructs; teachers' attitudes in implementing the PLC, teachers' knowledge of the PLC, the application frequency of collaborative tools and cooperation of administrators in the PLC implementation. The pilot study yielded a high Cronbach's Alpha value for the process evaluation dimension, exceeding

0.60, indicating reliable results. Consequently, there is no need to repeat the pilot study before administering the instrument to the actual sample. The items within this construct can be used in field studies. Table 7 presents both the overall Cronbach's Alpha for the process assessment dimension construct and the Cronbach's Alpha value if the items are removed, providing clear and concise information

Table 7

*Cronbach's Alpha values if items are eliminated and overall Cronbach's Alpha for process evaluation dimension construct*

Process Constructs	Evaluation	Item	Cronbach's Alpha if Item Deleted	Overall Value Cronbach's Alpha
Teachers' attitudes towards implementing PLC	the	D1	0.965	0.967
		D2	0.965	
		D3	0.965	
		D4	0.965	
		D5	0.965	
		D6	0.965	
Teachers' knowledge improvement by implementing PLC		D7	0.965	
		D8	0.965	
		D9	0.966	
Application frequency of collaborative tools	of	D10	0.966	
		D11	0.965	
		D12	0.965	
		D13	0.966	
		D14	0.965	
		D15	0.966	
		D16	0.966	
		D17	0.966	
		D18	0.966	
		D19	0.966	
		D20	0.965	
		D21	0.965	
Cooperation of administrators in the PLC implementation	of	D22	0.966	
		D23	0.966	
		D24	0.966	
		D25	0.965	
		D26	0.966	
		D27	0.965	
		D28	0.965	
		D29	0.965	
		D30	0.965	
		D31	0.965	

Table 8 revealed three factors that were extracted from the components. The factors are: (a) teachers' attitudes in implementing the PLC (6 Items: Items D1-D6) (b) teachers' knowledge of

the PLC (5 Items: D7-D11) (c) application frequency of collaborative tools (12 Items: D12-D23) (d) cooperation of administrators in the PLC implementation (8 Items: D24-D31) Nevertheless, values factor loading for items D18, D22 and D24 were less than 0.60. The researcher deleted items D18, D22 and D24 from questionnaire.

Table 8

*Factor analysis findings with Varimax rotation for process evaluation dimension components*

<b>Component Matrix</b>				
<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
D4	0.822			
D7	0.813			
D30	0.795			
D12	0.789			
D6	0.787			
D31	0.776			
D5	0.760			
D1	0.756			
D27	0.755			
D25	0.754			
D28	0.753			
D11	0.751			
D8	0.750			
D3	0.732			
D29	0.732			
D21	0.724			
D9	0.722			
D20	0.722			
D2	0.717			
D14	0.699			
D26	0.687			
D15	0.679			
D10	0.673			
D16	0.649			
D13	0.640			
D19	0.638			
D23	0.635			
D17	0.610			
D22	0.573			
D18	0.570			
D24	0.564			

**d. Reliability and EFA for Product Evaluation**

The product evaluation dimension consists of three constructs, namely teachers' teaching skill improvement by implementing PLC, collaborative culture among teachers, and improving students' achievement by implementing PLC. The results of the internal consistency

and reliability analysis for each construct are presented in Table 9. The pilot study revealed a high Cronbach's Alpha value for the product evaluation dimension, indicating excellent reliability. The findings indicate that all items within the construct have a minimum value exceeding 0.60, signifying acceptable to very good reliability. Hence, there is no requirement to replicate the pilot study before implementing the instrument in the actual sample. Consequently, the items within this construct can be utilized in the field study.

Table 9

*Shows the Cronbach's Alpha values if the items are eliminated and the overall Cronbach's Alpha for the product evaluation dimension construct.*

Product Constructs	Evaluation Item	Cronbach's Alpha if Item Deleted	Overall Value Cronbach's Alpha
Teachers' view on teaching skill improvement by implementing PLC	E1	0.970	0.972
	E2	0.971	
	E3	0.970	
	E4	0.970	
	E5	0.970	
Teachers' views on collaborative culture among teachers	E6	0.970	
	E7	0.969	
	E8	0.970	
	E9	0.970	
	E10	0.970	
	E11	0.970	
	E12	0.972	
Teachers' views on improving students' achievement by implementing PLC	E13	0.970	
	E14	0.970	
	E15	0.970	
	E16	0.970	
	E17	0.970	
	E18	0.970	
	E19	0.970	

Table 10 presents the factor results for the product evaluation dimension component obtained through the Varimax (Rotated Component Matrix) method with normality (Varimax with Kaiser Normalisation), which revealed four factors from the extracted product components.

Table 10

*Factor results with Varimax rotation for product evaluation dimension components*

<b>Component Matrix</b>			
<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>
E7	0,874		
E13	0.850		
E18	0.848		
E3	0.848		
E19	0.840		
E6	0.836		
E17	0.834		
E14	0.834		
E16	0.821		
E15	0.816		
E4	0.811		
E1	0.808		
E8	0,801		
E10	0.800		
E9	0,795		
E11	0.794		
E5	0,794		
E2	0.777		
E12	0,690		

Based on Table 11, three factors from the product evaluation dimension components were extracted. The factors are (a) teachers' teaching skill improvement by implementing PLC (5 Items: Items E1-E5), (b) collaborative culture among teachers (8 Items: Items E6-E13), (c) improving students' achievement by implementing PLC (6 Items: Items E14- E19). The conclusion is all items in the three constructs of product evaluation were retained.

Table 11

Shows all items in CIPP evaluation dimensions and items after the validity, reliability and EFA process.

Context evaluation construct	Items before the validity and reliability	Item after the validity and reliability
Teachers' views on		
a) National Education Philosophy	B1, B2, B3, B4	B1, B2, B3, B4
b) MEB (2013-2025)	B5, B6, B7	B5, B6, B7
c) objective PLC	B8, B9, B10, B11, B12	B8, B9, B10, B11, B12
Input evaluation construct	Items before the validity and reliability	Item after the validity and reliability
Teachers' views on		
a) Design Action Share (DAS) Strategy	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10
b) PLC Kit	C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25	C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25
c) PLC implementation facility	C26, C27, C28, C29	C26, C27, C28
Process evaluation construct	Items before the validity and reliability	Item after the validity and reliability
Teachers' views on		
a) attitudes of teachers towards implementing the PLC	D1, D2, D3, D4, D5, D6	D1, D2, D3, D4, D5, D6
a) teachers' knowledge improvement by implementing PLC	D7, D8, D9, D10, D11	D7, D8, D9, D10, D11
b) application frequency of collaborative tools	D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23	D12, D13, D14, D15, D16, D17, D19, D20, D21, D23
c) cooperation of administrators in the PLC implementation	D24, D25, D26, D27, D28, D29, D30, D31	D25, D26, D27, D28, D29, D30, D31
Product evaluation construct	Items before the validity and reliability	Item after the validity and reliability
Teachers' views on		
a) teaching skill improvement by implementing PLC	E1, E2, E3, E4, E5	E1, E2, E3, E4, E5
b) collaborative culture among teachers	E6, E7, E8, E9, E10, E11, E12, E13	E6, E7, E8, E9, E10, E11, E12, E13
c) improving students' achievement by implementing PLC	E14, E15, E16, E17, E18, E19	E14, E15, E16, E17, E18, E19
<b>TOTAL ITEMS</b>	<b>91 items</b>	<b>87 items</b>

## Discussion

The aim of this research was to develop a framework for evaluating the implementation of PLC in Malaysia. The efficacy of the proposed framework is contingent upon the quality of the study conducted. Currently, limited tools are available to assess the implementation of



PLC. Therefore, an instrument to evaluate teachers' perceptions of PLC implementation was developed and tested. The study emphasized the importance of displaying the reliability and validity values of a questionnaire to inspire confidence in the quality of data collected by fellow researchers. The instrument was developed through literature reviews and previous instruments from PLC. The study found Cronbach Alpha to be between 0.946 and 0.972, which is considered acceptable for internal consistency, as the value must be above 0.7 (Hair et al., 2019) and a value higher than 0.80 is considered good (Koo et al., 2016). Items with a factor loading value of less than 0.6 are not significant to the construct measurement and can be removed (Zainuddin, 2015). Moreover, a factor loading value exceeding the minimum limit (0.6) is essential to identify the items used for one component, as suggested by (Hair et al., 2019; Hoque et al., 2017). Additionally, the relatively high factor loading value provides vital information on construct validity. The researchers' relevant interpretations were also evaluated.

### **Limitations of The Study**

This study specifically focuses on evaluating the PLC among secondary school teachers in the State of Selangor. Hence, it is important to note that the results and conclusions derived from this study cannot be generalized to the entire country of Malaysia. The participants involved in this research were solely secondary school teachers within the State of Selangor. In future studies, it would be beneficial to incorporate data from schools in different states across Malaysia. The primary instrument employed in this study is a questionnaire, and therefore, the findings heavily rely on the respondents' honesty and sincerity when answering the questionnaire.

### **Conclusion**

This study explores the teacher's thoughts on implementation of the PLC in secondary school. The findings present several key implications. Firstly, the study contributes to the improvement on detailed methods to test the level of questionnaire instrument in order to have high validity and reliability to be used in evaluating the implementation of PLC in schools. Secondly, the findings highlight that the implementation of PLC fosters a culture of collaboration and shared values among secondary school teachers. Thirdly, the results emphasize the role of PLC in promoting continuous professional development and increasing teacher accountability that leads to professional growth. Lastly, the findings underscore the importance of PLC in keeping teachers collectively focused on students' success and continuously working to enhance their instructional practices. Overall, the implication of PLC among secondary school teachers has positive and transformative impact on instructional practices, student achievement and school environment. To obtain more comprehensive formative and summative evaluations, it is essential to gather perspectives from diverse samples, especially from administration groups, headteachers, ministry officers and students. By incorporating these perspectives, a broader understanding of the impact of PLC can be achieved.

## References

- Bahagian Pendidikan Guru. (2012). *Pelan Pembangunan Profesionalisme berterusan (guru dan pemimpin sekolah)*. Putrajaya: Kementerian Pendidikan Malaysia.
- Blueprint Pelan Pembangunan Pendidikan Malaysia. (2013). Diperoleh daripada <http://www.moe.gov.my/userfiles/file/PPP/Preliminary-BlueprintExecSummary->
- Creswell, J. (2015). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. New York: Pearson.
- Creswell, J. W. (2008). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (3rd ed.)*. Upper Saddle River, NJ: Pearson Education, Inc.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Thousand Oaks, California: SAGE Publications, Inc.
- Cronbach, L. J. (1963). *Course Improvement Through Evaluation*. Teacher College Record. New York: Teachers College, Columbia University.
- DuFour, R., DuFour, R., & Eaker, R. (2008). *Revisiting professional learning communities at work: New sight for improving schools (10th ed.)*. Bloomington, IN: Solution Tree Press.
- Kusaini, E. A. (2018). Tahap Kesiapan Guru Cemerlang Bahasa Melayu Terhadap Pelaksanaan Komuniti Pembelajaran Profesional Di Sekolah Menengah Di Negeri Melaka. *Jurnal Pendidikan Bahasa Melayu-JPBM*, 8(Mei), 63–73.
- Yahya, F. (2016). *Penilaian Kurikulum Sains Program Ijazah Sarjana Muda Perguruan*. Universiti Teknologi Malaysia, Johor.
- Darusalam, G., & Hussin, S. (2018). *Metodologi Penyelidikan Dalam Pendidikan: Amalan dan Analisis Kajian*.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate data analysis: Pearson new international edition*. Pearson Higher Ed.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis (7th ed.)*. Pearson.
- Hair, J. F. (2006). *Multivariate Data Analysis*. Pearson Prentice Hall.
- Hipp, D., & Huffman. (2000). *How Leadership Is Shared and Visions Emerge In The Creation Of Learning Communities*. Paper presented at the annual meeting of the American Education Research Association, New Orleans, April.
- Hoque, A. S. M. M., Awang, Z., Jusoff, K., Salleh, F., & Muda, H. (2017). Social business efficiency: Instrument development and validation procedure using structural equation modeling. *International Business Management*, 11(1), 222-231.
- Hord, S., & Sommers. (2008). *Leading Professional Learning Communities: Voice From Research And Practice*. New York: McGraw-Hill Inc.
- Hord, S. M., & Sommers, W. A. (2007). *Leading professional learning communities: Voices from research and practice*. Corwin Press.
- Hord, S. M. (2004). *Learning together, leading together: Changing schools through professional learning communities*. Teachers College Columbia University.
- Hord, S. (1997). *Professional Learning Communities: Communities of Continuous Inquiry and Improvement*. SEDL.
- Ismail, S. N., Abdullah, Z., Othman, A. J., & Shafie, S. (2018). Amalan Komuniti Pembelajaran Profesional Dalam Kalangan Guru Bahasa Melayu di Selangor. *Jurnal Kepimpinan Pendidikan*, 5(4), 19.
- Kementerian Pendidikan Malaysia. (2013). *Pelan Pembangunan Pendidikan Malaysia 2013-2025*.

- Kementerian Pendidikan Malaysia. (2014). *Pelan Pembangunan Profesionalisme Berterusan (Guru dan Pemimpin Sekolah) Edisi 2014*. Kementerian Pendidikan Malaysia.
- Koo, T. K., & Li, M. Y. (2016). A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. *Journal of Chiropractic Medicine*, 15(2), 155-163. doi: 10.1016/j.jcm.2016.02.012
- Shuib, S., & Jumahat, T. (2020). *Amalan Komuniti Pembelajaran Profesional dan Efikasi Kendiri Guru Sekolah Menengah Kebangsaan di Selangor dan Putrajaya*. Institusi Aminuddin Baki Cawangan Genting Highlands, Pahang.
- Sekaran, U., & Bougie, R. (2016). *Research Methods for Business: A Skill-Building Approach (7th ed.)*. Wiley & Sons.
- Sekaran, U. (2000). *Research methods for business: A skill-building approach (3rd ed.)*. John Wiley & Sons, Inc.
- Senge, P. M., Cambron-McCabe, N., Lucas, T., Smith, B., & Dutton, J. (2012). *Schools that learn: A fifth discipline fieldbook for educators, parents, and everyone who cares about education*. Crown Publishing Group.
- Senge, P. M. (1990). *The Fifth Discipline: The Art and Practice of the Learning Organization*. Random House Australia.
- Ismail, S. N. (2019). *Reka bentuk model komuniti pembelajaran profesional dan pengajaran berkesan guru bahasa melayu Malaysia*. Universiti Malaya, Kuala Lumpur.
- Stufflebeam, D. L. (1975). Evaluation as enlightenment for decision-making. In B. R. Worthen & J. R. Sanders (Eds.), *Educational Evaluation: Theory and Practice*. Charles A Jones Publishing Company.
- Stufflebeam, D. L., Folely, W. J., Gephart, W. J., Guba, E. G., Hammond., Merriman, H. O., & Provus, M. M. (1971). *Educational Evaluation and Decision Making*. F.E. Peacock.
- Stufflebeam, D. L., & McKee, H. (2003). *The CIPP model for evaluation*. Materi presentasi pada konferensi tahunan Oregon Program Evaluators Network (OPEN) tahun 2003.
- Stufflebeam, D. L. (2000). Lessons in Contracting for Evaluations. *American Journal of Evaluation*, 21, 293-314.
- Fitzpatrick, J. L., Sanders, J. R., & Worthen, B. R. (2004). *Program Evaluation: Alternative Approaches and Practical Guidelines*. Pearson Education, Inc.
- Awang, Z. (2012). *Research Methodology and Data Analysis (2nd ed.)*. UiTM.
- Awang, Z. (2015). *A Gentle Approach to Learning Structural Equation Modelling*. MPWS Rich Publication.
- Zuraidah A. (2016). *Komuniti pembelajaran profesional di Malaysia: Amalan penambahbaikan sekolah*. Penerbit Universiti Malaya.
- Abdullah, Z. (2010). *Profil Komuniti Pembelajaran Profesional Sekolah Menengah Di Malaysia*. Unpublished doctoral dissertation, Institute of Educational Leadership, University of Malaya.