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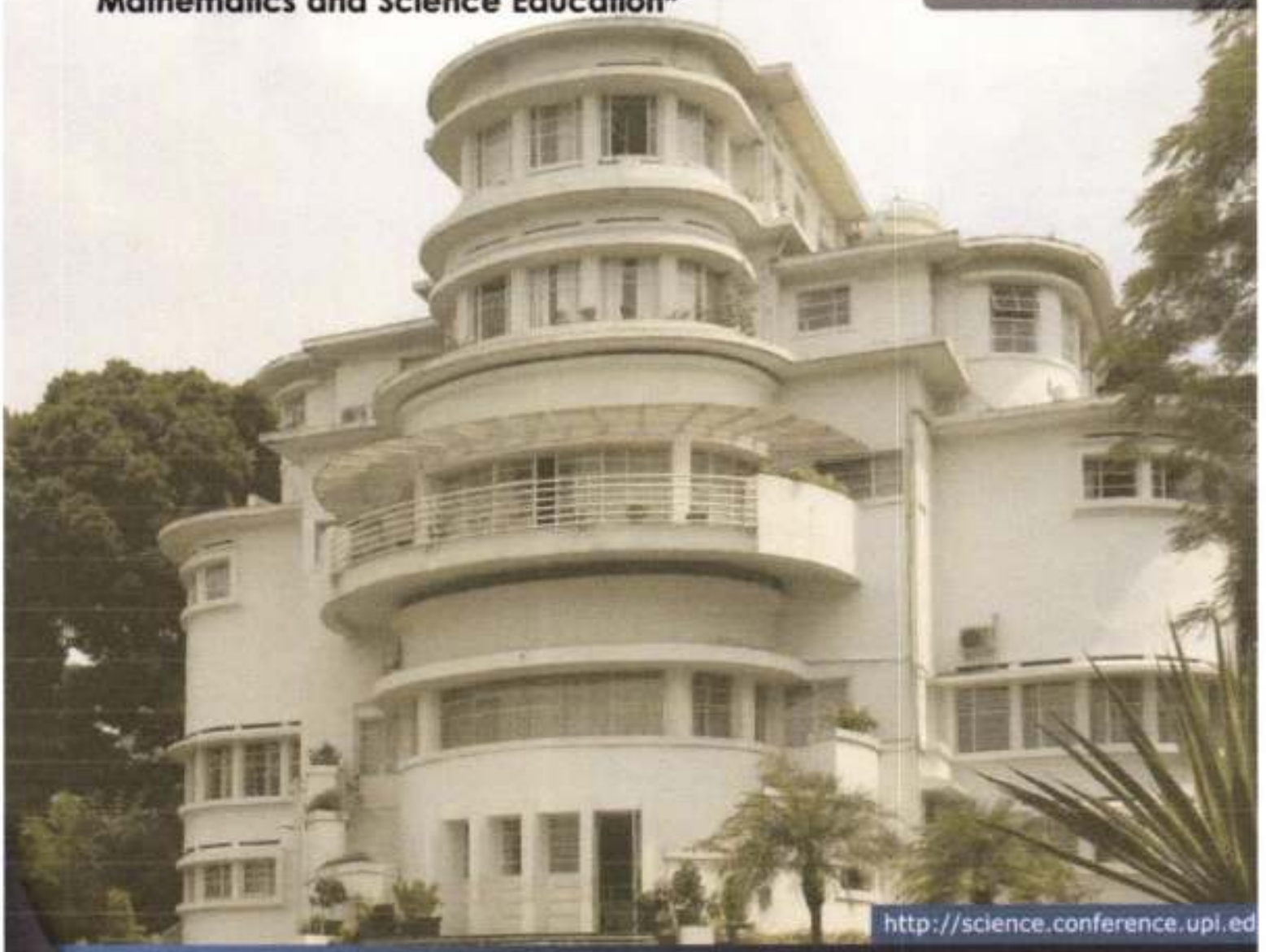

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Content validity study: instrument development to measure professional learning communities through lesson study

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Abstract. Professional Learning Community (PLC) in lesson study (LS) is a development of teacher professionalism which is very important to support the learning process of the 21st century. The research aims to develop a practical instrument to be used to measure affectivity and achievement of PLC-LS from a group of teachers during lesson study activity. This research was carried out of two-step validity content process namely, development and evaluation. The first step was done by determining the indicator and descriptor. The second step was done through obtaining feedback from the expert related to the developed instrument. This research produced an instrument with six indicators outlined in 46 questions related to PLC namely, six reflective questions, seven collaborative questions, seven learning outcome questions, nine share value and vision questions, eight collective responsibility questions, and nine development effective leadership questions which have been validating to be implemented. Based on the CVI analysis, there are 7 items that show below 0,6 score which is then being left out while 11 others with the score more than 0,6were revised according to experts' recommendations. The result of CVR is 0.82 which shows that the instrument of PLC-LS is valid and can be used.

1. Introduction

The need of an instrument to measure an indicator becomes an important part of a research activity. Validity and reliability are needed to demonstrate the quality and strength of the measuring instrument to be used [1], those include measuring the professional learning community (PLC) in educational research. There has been a shift in educational paradigm in many aspects over the past decade, such as the transformation of individual learning into collaborative learning, the beginning of openness and awareness to build a wider network, and educators being an important part of it. Observing the development of these conditions requires the current and future educators to pay attention to the formation of a knowledge community so that it becomes more professional in performing their roles. The development of a professional educators community called PLCs has become an important component of rapid development today, in line with the issue of dynamic 21st-century education [2,3]

One of the efforts made by the Indonesian government to improve educators' professionalism is through the implementation of lesson study (LS). With the implementation of the cycle plan, do and see, done periodically proves that LS is effective in improving the quality of learning [4,5]. Collaboration and intensity of communication among educators in every stage of LS are able to build educators' competence in preparing lessons, improving the experience and sharing understanding. Under these conditions, the application of LS is very supportive and in line with the concept of PLC for educators

[6]. The concept of the instrument produced in PLC-LS will answer the question related to the important thing that can be done by educators to improve the quality of their learning.

Collaboration among educators to develop their professionalism is often not clearly defined. Therefore, this condition is only expressed or measured as a form of collaboration that is understood as the form of all kinds of relationships that only occur among educators [7]. Thus, connectivity among teams that implement LS is still not measured. Few studies take into account how the professional relationship is intertwined and what impact is felt by the community and the learners. Thus, the detail condition of PLC conducted in LS activities among educators has not been measured clearly.

This study, Professional Learning Community-Lesson Study (PLC-LS) that we create and develop already has the effectiveness and flexibility in measuring the condition of professional development that is intertwined in LS activities. The PLC-LS concept presented in this instrument considers the time and process found during the LS activities with the main objective of improving the quality of learning including the improvement of educators' professionalism [8,9]. This research will present the results of the development of PLC-LS measurement instrument that can be implemented in an educational institution (school or college).

2. Method

The development of PLC-LS instrument is carried out with two important steps namely the process of content validity with the process of instrument development and assessment. The first step is done by stages 1) determining the indicator and descriptor, based on the literature study conducted for PLC-LS, 2) formulating the objectives of the instrument preparation, and 3) developing the test on the instrument. This activity is intended to construct the contents of the instrument with the variables that will be measured. The second step is the submission of the instrument result to five experts [1] namely the educational evaluation and the lesson study expert. This is done to obtain advice on the developed instrument [10], especially the content on each item of the generated statement. The results obtained from the experts then compiled and analyzed to get the result of content validity.

Data analysis was performed using CVI and content validity ratio (CVR) = (Ne-N / 2) / (N / 2). Ne is the number of experts who declare that the lesson study is valid and N is the total number of validators. Since the number of validators is five people [11] the minimum CVR score is 0.736.

3. Result and Discussion

3.1. The Result of Indicator Development Based on The Literature Study

The researchers done some compiling for the indicators of PLC-LS instruments and generating six indicators, namely: a) reflective [12-14], b) collaborative [3,15,16], c) learning outcome [3,17], Shared valued and vision [18,19], e) Collective responsibility [19,20], and f) development of effective leadership [20-22]. Based on the indicator description, the researchers found 53 items related to PLC-LS statement. Instruments used to measure PLC that have been developed [2] contains 6 indicators namely; a) shared and support leadership, b) shared values and vision, c) collective learning and application, d) supportive condition-relationship and e) supportive condition-structure. While the indicators developed by the study [13] measure and focus on learning activities in general, and has not clearly described specific indicators PLC that can build a learning community among educators.

The form of instrument to measure PLC that has been developed so far are mostly in the form of the open-ended question [13,17], which tend to have weaknesses in evaluation time consumption. Another form of instrument that measures PLC is a questionnaire with four answer choices [2]. These types of instruments are very difficult to be classified based on answer choices.

Based on the weaknesses presented, the advantages of PLC-LS is the efficiency of the time and the clear classification of evaluation at the stage of LS (plan, do and see). In addition, this instrument has accommodated and measured the learning community by combining important indicators in more detail.

3.2. Analysis Result of Content Validity

The result of analysis based on the suggestion from five experts [10,11] is reduced to 46 items from the initial of 53 items prepared. There are 7 items that have CVI values below 0.6 which are then eliminated. In addition, there are 11 items of statements that have a value of more than 0.6 for each item and then revised in accordance with the experts' recommendations.

Recommendations given by the experts include such things as improvements in sentence structure, change of diction and indicators that need to be adjusted. An example of a revision submitted by an expert is content collaborating in the do stage, it was advice to add a collaborative stage. Additional suggestions from the expert is an affirmation in the observation to emphasize the observation on student learning conditions, and not to seek weakness of the model teacher.

The result of the CVR value for the resulting instrument is 0.82 indicating that the resulting PLC-LS instrument is valid and can be implemented. The expert's validity is essentially subjective but strong enough to state that the statement in the instrument can be used to measure the PLC-LS performed.

4. Conclusion

This study develops an instrument to measure professionalism learning community-lesson study (PLC-LS) that can be used to measure the effectiveness of the learning community that is established during LS activities. Of the six descriptors compiled, there were 53 items of statements initially compiled which then reduced to 46 statements based on the validation from five experts. Based on the CVI analysis, there are 7 statement items with values below 0.6 which were then left out. In addition, there are 11 points of statements with a value of more than 0.6 which were then revised in accordance with the recommendations of experts. The CVR value result shows the value of 0.82 indicating that the PLC-LS instrument is valid and can be implemented. The instrument will then be implemented through the small-scale test at 15 learning community which is currently formed in UNIPMA. The result of PLC-LS instrument response will be taken into consideration for the next stage test.

5. References

[1] Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar A-R. Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. J Caring Sci. 2015;4(2):165–78.
[2] J. Huffman & K. Hipp. Professional Learning Community Assessment (PLCA) Oliver,. 2003;
[3] Hargreaves A. Teachers and Teaching : Theory and Practice and Professional Learning Four Ages of Professionalism and Professional Learning. Teach Teach Hist Pract. 2000;6(2):37–41.
[4] Fujii T. Lesson study for improving quality of mathematics education. 2015;(May):41–7.
[5] Mufidah LI, Wajdi MBN. Lesson Study To Improve Quality Of Learning. Educ J Educ. 2017;2(2):1–11.
[6] Chichibu T, Kihara T. How Japanese schools build a professional learning community by lesson study. Int J Lesson Learn Stud. 2013;2(1):12–25.
[7] Woodland R, Lee MK, Randall J. A validation study of the Teacher Collaboration Assessment Survey. Educ Res Eval. 2013;19(5):442–60.
[8] Alshwaikh J, Adler J. Researchers and teachers as learners in Lesson Study. 2017;(April).
[9] Smith RR. Lesson Study: Professional Development for Empowering Teachers and Improving Classroom Practice. 2008;
[10] Yaghmale F. Content validity and its estimation. J Med Educ. 2003;3:25–7.
[11] Lawshe C. A Quantitative Approach To Content Validity. Pers Psychol. 1975;(1):563–75.
[12] Bolam R, Mcmahon A, Stoll L, Thomas S, Wallace M, Greenwood A, et al. Creating and Sustaining Effective Professional Learning Communities. Education [Internet]. 2005;210.
[13] Eliason SK, Holmes CL. Reflective Practice and Inquiry in Professional Development for Online Teaching. Learning. 2010;6(2):454–65.
[14] Reilly Y, Parsons J, College S. Identifying a hierarchy of reflective practices .
[15] DuFour R. To create a professional learning community, focus on learning rather than teaching,

work collaboratively, and hold yourself accountable for results. Vol. 61, Educational Leadership. 2004. p. 6.
[16] Louie NL. Tensions in equity- and reform-oriented learning in teachers' collaborative conversations. Teach Teach Educ. 2016;53:10–9.
[17] Hipp A, Kiefer K, Bumpers J. Professional Learning Communities: Assessment--Development. Prof Learn Communities. 2003;(4).
[18] Rentfro ER. NAESP : Professional Learning Communities Impact Student Success. Leadersh Compass. 2007;5(2):3–5.
[19] Stoll L, Bolam R, McMahon A, Wallace M, Thomas S. Professional Learning Communities: A Review of the Literature. Vol. 7, Journal of Educational Change. 2006. 221-258 p.
[20] Scope. Building a Learning Community. Community Q [Internet]. 2012;15–21.
[21] Theobald KA, Windsor CA, Forster EM. Engaging students in a community of learning: Renegotiating the learning environment. Nurse Educ Pract. 2018;29:137–42.
[22] Redmond P. Reflection as an indicator of cognitive presence. E-Learning Digit Media. 2014;11(1):46–58.

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