

Making Use of the Lesson Study Approach to Secondary Education in Greece—The Contribution to the Professional Development of Teachers

Eurydice-Maria Kanellopoulou¹ & Maria Darra²

¹ Teacher of Secondary Education (M.Ed.), Athens, Greece

² Department of Primary School Education, University of the Aegean, Rhodes, Greece

Correspondence: Eurydice-Maria Kanellopoulou, Teacher of Secondary Education (M.Ed.), Athens, Greece.
E-mail: evikanell@gmail.com

Received: July 5, 2018

Accepted: August 17, 2018

Online Published: November 27, 2018

doi:10.5539/ies.v11n12p78

URL: <https://doi.org/10.5539/ies.v11n12p78>

Abstract

The main purpose of this paper is to investigate the contribution of the Lesson Study (LS) to the professional development of teachers. The present work, which is part of a broader research effort, was realized from February 12 to April 1, 2016 in the second grade of lyceum in a school in the prefecture of Attica. Initially, all the school's scholars (4) and 31 students participated. From the results of the survey, regarding the teachers' perceptions of the contribution of the lesson study to the differentiation of their attitudes and practices for the design of the course and their teaching, all the teacher participants in the research stated that they benefited from the lesson study as far as the subject of their teaching and the foresight of students' possible questions were concerned. At the same time, it has a positive impact on promoting co-operation and professional development of teachers as a form of training within the school.

Keywords: collaborative teaching design, lesson study, professional development of teachers, research lesson

1. Introduction

Professional development of teachers is an important factor in upgrading our education system. The lesson study contributes to the professional development of the teachers within the school by strengthening their cooperation (Lewis & Hurd, 2011).

More specifically, the review of the relevant literature on the use of the lesson study in the professional development of teachers shows that:

- The LS is considered as a very successful method of professional development of the participating teachers as it offers the possibility of continuous professional development and contributes to the upgrading of the educational system (Doig & Groves, 2011).
- The LS can promote the professional development of classroom teachers by building interpersonal relationships and foster motivation to continuously improve their teaching (Fernandez, 2002; Nauerth, 2015; Thompson, 2015; Sirotic, 2015).
- Voluntary and equal participation of teachers is considered a prerequisite for the success of the LS (Lewis & Hurd, 2011).
- LS for young and inexperienced teachers contribute significantly to their professional development (Archer, Pope, Onion, & Wake, 2013).
- The professional development of teachers depends to a large extent on their continuous training (Karras, 2011).
- LS is one of the most appropriate forms of training, as it cultivates collectivity and aims at the full assimilation of innovative theoretical and practical teaching applications. Also, the autonomy it provides teachers with, as well as the time and the way it is implemented, make it effective in-school training (Drenogianni & Primerakis, 2008; Harsono, 2016).

It follows from the above that: a. from the implementation of the lesson study to the classroom, the professional

development of the teachers through the collaborative design of teaching is achieved; and b. there is a lack of relevant research on the use of the lesson study in Greek secondary education. This lack of research is intended to be covered in this research.

2. Lesson Study and Professional Development of Teachers: A Theoretical Approach

2.1 Lesson Study

The lesson study, which originally appeared in Japan, is a process of improving teaching and learning, not only for students but also for teachers. In its context, participating teachers work together to design a research lesson, the teaching and observation of which serves to collect data on student learning. The use of these data for feedback and redesign of teaching contributes decisively to the improvement of teachers (Stepanek, Appel, Leong, Mangan, & Mitchell, 2007).

In order to implement the LS, teachers devote 10-15 hours in 3-4 weeks (Fernandez, 2002). The lesson study process includes the following phases (Stepanek et al., 2007):

- 1) setting goals
- 2) planning the research lesson
- 3) teaching, observing and data collecting of the research lesson
- 4) evaluating- feedback and re-teaching
- 5) reflection – formulation and sharing final results

Setting goals:

In the first phase of the LS, teachers work together to form a group of 3-6 people to examine the goals their pupils aspire to conquer. By studying the curriculum and the material to be taught, they detect gaps between these future goals and the existing reality. They are looking for an important subject for students that is either of their interest or learning difficulty, or in a new module that has recently been added to the curriculum. They explore, through brainstorming, in the context of a fruitful dialogue, the strategies and methods of teaching that will direct their students to gain knowledge of the subject (Lewis & Hurd, 2011).

Planning the research lesson:

Teachers choose a unit from the curriculum and cooperatively plan a research lesson in detail. This lesson will realize the goals, the learning and the development of the pupils, and especially not what they will learn, but mainly how they will learn. At this stage, teachers spend enough time to organize the teaching together. They shape the learning path they follow, predict the expected questions of their students and prepare a data collection plan. During these meetings, observations and suggestions for improvement of the teaching plan are made. At the end of this phase, a written analytical teaching plan emerges, which the group is asked to implement in the classroom (Rekalidou, 2012; Lewis & Hurd, 2011).

Teaching, observing and data collecting of the research lesson:

The research lesson is conducted, with one member of the team teaching and the rest observing and collecting data on the teaching and the acquisition of knowledge by students. These data are used in evaluation-feedback (Rekalidou, 2012; Stepanek et al., 2007).

Evaluating- feedback and re-teaching:

In the evaluation, teachers thoroughly analyze the data gathered during the research lesson. The purpose of the assessment is not to critique the teacher's way of teaching, but to draw valuable conclusions on the design of the lesson and, therefore, to improve the learning of students and teachers. Applying improvements can mark the end of the lesson study phases or redesign the same lesson or conduct another lesson study with a different teaching theme. If re-designing is appropriate in the context of the evaluation-feedback process, due to wrong, oral or written, answers in the students' worksheets, it is implemented in another part of the same class by another teacher of the same group (Rekalidou, 2012; Stepanek et al., 2007).

Reflection–formulation and sharing final results:

The process of the lesson study ends with the reflection, formulation and recording of the final conclusions. The written formulation of the conclusions is carried out through interactive discussion and joint analysis of the data and results of the research lesson. These conclusions can be used and applied by other teachers interested in implementing the LS (Stepanek et al., 2007).

2.2 Professional Development of Teachers

Teachers during their careers are required to continuously develop the necessary knowledge and skills to perform their teaching duties more fully. Professional development is directly dependent on collaboration, effective communication and exchange of views among teachers, exploring their particular teaching needs and concerns. This fruitful interaction can take place in formal procedures, such as educational seminars, conferences, but also atypical, such as reading educational articles and participating in informal groups and networks of cooperation (Doukas, Vavourakis, Thomopoulou, Koutra, & Smyrmitopoulou, 2007). Professional development of teachers is also achieved through self-evaluation. Achieving this goal creates feelings of professional satisfaction, which have a positive effect on student performance (Gabrela, 2014).

On the contrary, the difficulties in the professional development of teachers come mainly from the centralized Greek educational system. The lack of appropriate training programs for the adoption of new teaching practices and innovations has an inhibiting effect on their development (Doukas et al., 2007). The teacher is invited to upgrade his / her educational work with the active participation and implementation of new educational practices, which he / she is not familiar with. Also, the lack of incentives and homogeneity of the school's teachers regarding the subject, experience and permanence hinders their development (Gabrela, 2014).

Tackling difficulties and promoting professional development of teachers can make a significant contribution to upgrading the school's educational work.

3. Purpose and Research Questions

The main purpose of this paper is to explore the contribution of collaborative teaching design in the context of the implementation of the LS to the professional development of teachers. In particular, the task is to investigate: a. Teachers' views on the contribution of the LS to the improvement of their abilities in teaching on concrete teaching theme and teaching and b. the degree of differentiation of attitudes and practices of participants as far as research in course design is concerned and teaching as a result of their participation in the LS.

The individual research questions that the research will attempt to answer are:

1st: To what extent do the participants in the research consider that their attitudes and practices towards lesson design and teaching have changed as a result of their participation in the lesson study?

2nd: To what extent do the participants in the research believe that they have gained specific benefits in terms of the particular subject and its teaching from the lesson study?

4. The Method

This paper presents a part of the results of a broader research, which took place in a lyceum in Eastern Attica from February 12th to April 1, 2016. In the framework of the research, the approach of the LS for the teaching of the Literature course was applied. The director and, initially, all the school's scholars (4) participated, but then one left.

Both two parts of the 2nd lyceum were involved. The first consists of sixteen (16) students as a team of experimentation and the second of fifteen (15) as a control group. Teachers' meetings were conducted, with few exceptions, due to force majeure, on a regular weekly basis within the school hours, and their participation was voluntary.

As data-gathering tools transcripts of participant teachers in the lesson study and teaching (traditional and research lessons) were used. Also, calendars that were complied with at the time of the lesson study by the facilitator and the recorder of the team were used as data, as well as the protocols for design, observation, reflection and revision of the research lesson. Another source was also the questionnaire completed by the teachers. This questionnaire mainly included closed and open-ended questions. Closed type questions included three axes.

In the present work and in order to achieve its objectives and answer its research questions, qualitative and quantitative data have been used. More specifically, the results of the third axes of this questionnaire are presented, the six criteria of which focused on the application and learning of the participating teachers from the lesson study. Data from the teachers' meeting after the research lesson are also presented. Teachers' benefits from their involvement in it, as well as the possibility of exploiting the positive effects of applying the LS to their teaching, were examined.

5. Results of the Survey

Recorded meetings and teachings, traditional and research lessons were transcribed in digital form as text files (Creswell, 2011). Subsequently, these files were imported into a computer program for qualitative data analysis, the Atlas.ti, to analyze their content by editing and encoding them, i.e. dividing the texts into parts by giving them

a title. These titles were grouped and combined with other research data sources which were then categorized into several fields that are directly related to research questions. The results and main findings of the research are as follows:

Differentiating teachers' attitudes and practices in terms of course design and teaching

The professional improvement of teachers, as recorded in the third axis of the questionnaire entitled "Applying and learning from the LS", emerged through their answers to the following criteria:

In the first criterion: I have gained specific benefits in terms of teaching subject and teaching from the lesson study, 100% responded they agreed.

In the second criterion: I was able to apply these benefits to my teaching, 50% said they agreed and the remaining 50% responded them totally agreed.

In the third: I have a different view of my course design and teaching as a result of my participation in the lesson study, 50% responded that they agree and the remaining 50% responded that they fully agree.

In the fourth: I choose more carefully the teaching material and the questions as a result of the LS, 50% answered that neither agrees nor disagrees, and the remaining 50% responded that it totally agrees.

In the fifth: I anticipate and better comprehend students' understanding as a result of the LS, 100% responded that they agreed.

In the sixth: LS helped me become a better professor, 100% responded that they fully agree.

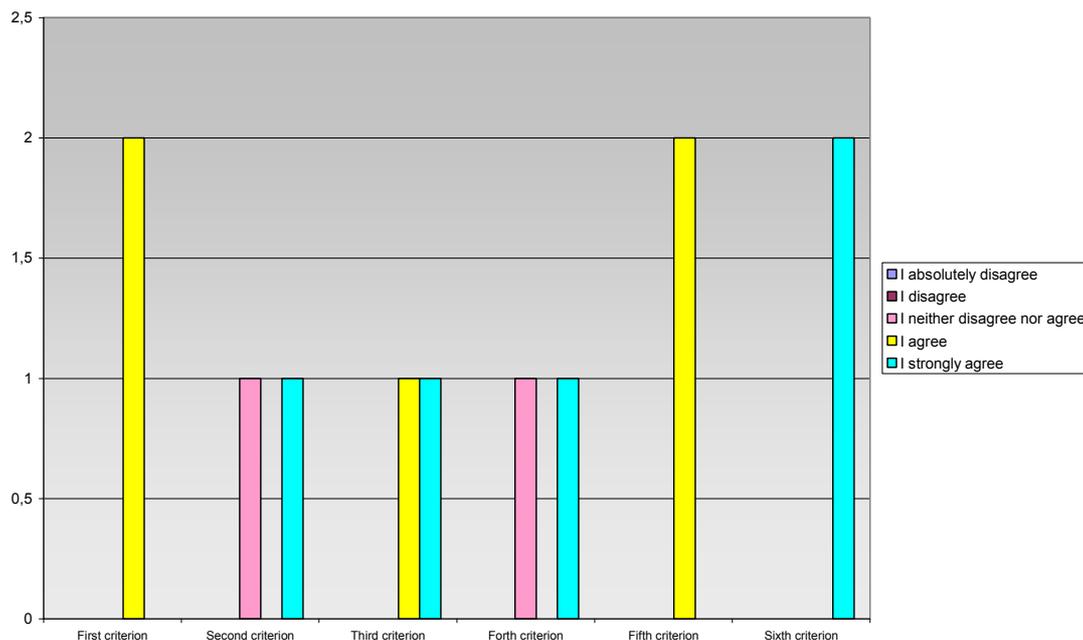


Figure 1. Bar-graph of teachers' answers on the effect of the lesson study on their professional development

Teacher's views on the contribution of the lesson study so as to improve their teaching skills

The professional development of the participating teachers was also highlighted in the meeting after the research lesson, as shown in the following quote:

Professor B: I learned to think about students' potential questions. What they might not understand. It's something I did not do in the past ... Through the lesson study I also managed to cope with the fear of exposure in front of colleagues and to open my class to them, to listen to remarks and advice, aiming at my professional improvement and development.

Professor A: I can say the same thing. Because I too opened my class to my colleagues

.... The way we worked together to design the research lesson impressed me. Everyone spoke of his ideas, we commented on them, which reminds me a little of Aristotle's cumulative theory that we all together can do

something much better. It was a positive experience for me.

Professor D: I would also like to emphasize that our cooperation was the most important in this. We learned to hear each other, to trust each other, to help each other, to understand one another. We all worked together as a team without any particular problems.

The professional development of teachers, according to the survey, is imprinted through the Atlas, with the tree plan (Figure 2):

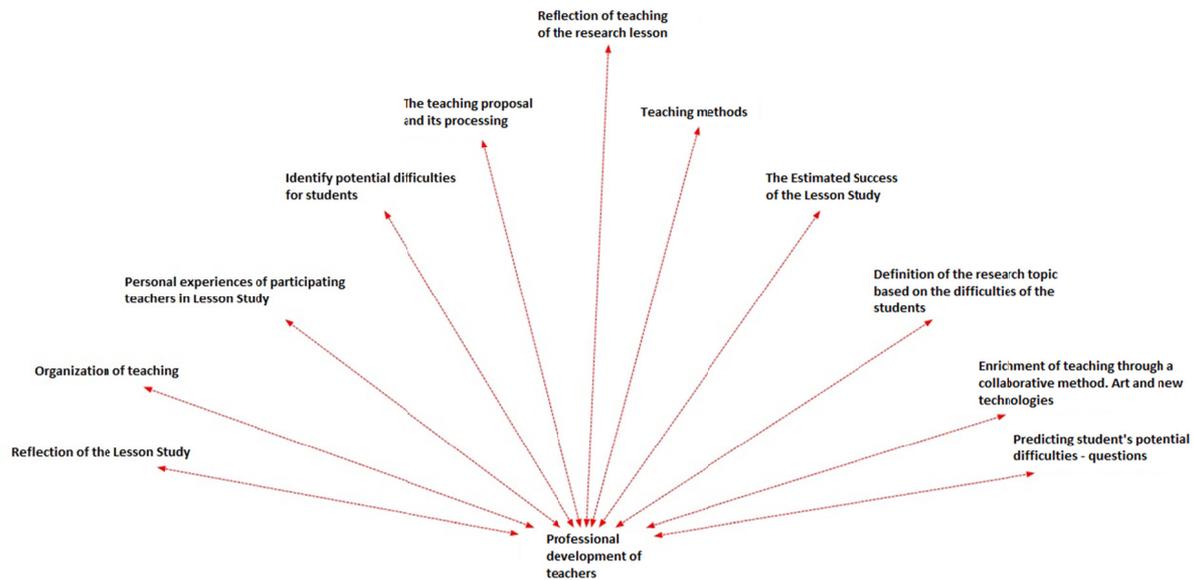


Figure 2. Tree plan of teacher's report on their professional development during their meetings

Additionally, in the teachers' questionnaire, in the open-ended question "Do you believe that the lesson study contributes to the upgrading of the educational process?", the teachers answered that:

It contributes or could contribute to the upgrading of the educational process as its basic prerequisite is the development of a collaborative climate among its teachers, which contributes positively to the proper functioning of the school and the effectiveness of its educational project. This results in more effective school administration.

6. Discussion

Regarding the perceptions of teachers as to the contribution of the lesson study to the differentiation of attitudes and practices on the design of the course and its teaching, all the teacher participants in the research stated that they benefited from the lesson study on the subject of their teaching and on predicting possible student questions. They also mentioned that the lesson study helped them significantly in their professional development. This positive result, as evidenced by the answers of teachers, is also confirmed by other relevant studies, where teachers, in the context of the implementation of the lesson study, systematically examine their teaching methods, the content of their teaching, their programs and their strategies in the classroom (Lewis & Tsuchida, 1998). This finding also agrees with the literature, according to which the lesson study has the characteristics of effective, professional development of teachers as identified in the following: it is continuous and intensive, it is focused on the content, and it involves teachers in active, cooperative learning and integrated into their work (Garet, Porter, Desimone, Birman, & Yoon, 2001). In this context, the purpose of the LS is to improve classroom teaching and learning and is based on the logic of co-operation, inter-evaluation and feedback among teachers (Rekalidou, 2012) who, in their implementation in the classroom, have a researcher role which they use for their professional promotion and for the benefit of their pupils (Coenders & Verhoef, 2018).

As far as teachers' views on the contribution of the LS towards improving their teaching skills are concerned, half of them have fully agreed that they can apply the benefits they have gained from this practice in their teaching, and the other half have simply agreed. The same percentage was also observed in the question of course design and teaching. However, in the question of choosing the teaching materials, half answered that they neither agree nor disagree, while the other half agree that they are totally in agreement. This differentiation may be due to the fact

that while many teachers carefully choose their teaching material, they lag behind in the way they teach when they do not adopt new ways of spreading knowledge and innovative educational methods. In addition, this finding implies that the lesson study contributes to the reflection and development of a professional interaction and cooperation (Hargreaves & Fullan, 1995; Allan, 2015; Fujii, 2016), to the adoption of a research attitude by teachers regarding their practice, as well as to the empowerment of professionalism of all participants, through understanding and recognizing the complexity of teaching by sharing common practical knowledge, exchanging information and teaching techniques and objectives (Peterson, 2000). In this sense, the reflection of teaching becomes a critical pedagogical frame of reference and consequently the terms associated with it are often terms such as “critical awareness”, “empowerment”, “qualitative development”, “self-action”, “autonomy” and “improvement”(Altrichter & Specht, 1998).

Also, given the fact that the teacher culture includes a very strong standard of teaching privacy, which impedes the professional development of teachers (Shulman, 1993, op. Cit., Chism, 1999), the finding shows that in the context of implementation of the lesson study teachers can exercise constructive criticism on their colleagues, especially when the aim is to improve the quality of teaching (Keig, 2000; Kerchner, Koppich, & Weeres, 1997, as reported by Anderson & Pellicer, 2001). But also with colleagues’ evaluation, teaching becomes “property” of the entire teaching staff, and so everyone is aware of the problem situations, of the pros and cons of the specific teaching approaches, of the results of didactic experiments, or solutions that other colleagues have given on important student learning issues, thus making teaching very important to leave to individual experimentation and learning through trial and error (Chism, 1999). In addition, this result means that the teacher through participating in a group of colleagues can better achieve the goal of improving the effectiveness of teaching if he relies on the reflection and feedback he can get from his group of colleagues, which provides a supportive environment in which everyone feels that he learns and continually improves (Barkley & Cohn, 1999).

7. Conclusions

All survey participants stated that they benefited from the LS on the subject of their teaching and on predicting students’ potential questions. The enrichment of the research lesson with the contribution of the group’s knowledge, experience, proposals and different perspectives promotes their professional advancement. These collective processes, which are encouraged through the implementation of the LS, promote the level of knowledge of the participating teachers as well as their professional development.

Finally, the collaboration and the fruitful exchange of views, ideas, arguments and teaching techniques, according to the opinions of all teachers, broadened their knowledge and promoted their professional development. This development was directed by themselves, with their voluntary participation and worked as a form of training within the school unit.

In spite of the positive results from the use of the LS in enhancing student learning, there are some limitations that should be mentioned. The sample of the survey was relatively small. Using a larger sample would increase the credibility of the survey. There were also time constraints on the implementation of the survey, which did not allow for longer duration. Finally, the present research was conducted only in the teaching of Literature in secondary school students. Besides, the choice of the research method, which was based on qualitative analysis, is not intended to generalize the findings.

From the work constraints, the proposals for further research, which could focus on the following axes, arise. Future studies could examine the effectiveness of the lesson study in teaching other subject matter in pupils of smaller and/or older classes. Future surveys could also use a combination of quantitative and qualitative approaches and, in particular, conduct personal interviews with students, teachers and educators. Still, the conditions for creating and expanding a communication network between the different schools units participating in the lesson study is another research proposal to make use of. In addition, the creation of a quality assurance system for lesson study to avoid its superficial application in the Greek education system could be another proposal for further research. Finally, a comparison of the results of applying the lesson study to Greek in comparison with other corresponding European and international education systems could be another proposal for further study.

References

- Allan, D. (2015). I think, therefore I share: Incorporating Lesson Study to enhance pedagogical knowledge exchange. *Educate*, 15(1), 2-5.
- Altrichter, H., & Specht, W. (1998). Quality assurance and quality development in education. International approaches and parameters as applying to the austrian school system. In J. Solomon (Ed.), *Trends in evaluation of education systems: School (self-) evaluation and decentralization*. Athens: Pedagogical

Institute.

- Anderson, L. W., & Pellicer, L. O. (2001). *Teacher peer assistance and review*. California: Corwin Press.
- Archer, R., Pope, S., Onion, A., & Wake, G. (2013). *Working group report: Lesson study in research and CPD in mathematics education*. Retrieved from <http://www.bsrlm.org.uk/lps/ip33-2/BSRLM-IP-33-2-C>
- Barkley, S., & Cohn, R. (1999). *Professional growth plans offer alternative to teacher checklists*. The School Administrator Web Edition. Retrieved from <http://www.aasa.org>
- Chism, V. N. N. (1999). *Peer review of teaching*. A Sourcebook. MA: Anker Publishing Company Inc.
- Coenders, F., & Verhoef, N. (2018). *Lesson study: professional development (PD) for beginning and experienced teachers*. Professional Development in Education. <https://doi.org/10.1080/19415257.2018.1430050>
- Creswell, J. (2011). *Research in education. Design, Conduct and Evaluation of Quantitative and Qualitative Research*. N. Kouvarakou Trns. Edited by: C. Tsorbatzoudis. Athens: Ion.
- Doig, B., & Groves, S. (2011). Japanese lesson study: Teacher professional development through communities of inquiry. *Mathematics Teacher Education and Development*, 13(1), 77-93. Retrieved from <https://files.eric.ed.gov/fulltext/EJ960950.pdf>
- Doukas, Ch., Vavourakis, A., Thomopoulou, M., Koutra, Ch., & Smyrmitopoulou, A. (2007). Quality approach to training: Training for professional development of teachers and school improvement. *Review of Educational Issues*, 13, 113-123. Retrieved from <http://www.pischools.gr/download/publications/epitheorisi/teyxos13/113-123.pdf>
- Drenogianni, E., & Primerakis, G. (2008). Digital teaching scenarios for primary school: Exploring their content with an emphasis on structural, morphological and methodological design elements. *Science and Technology Issues in Education*, 1(2), 143-175. Retrieved from <https://earthlab.uoi.gr/thete/index.php/thete/article/view/7>
- Fernandez, C. (2002). Learning from Japanese approaches to professional development: the case of lesson study. *Journal of Teachers Education*, 53(5), 393-405. <https://doi.org/10.1177/002248702237394>
- Fujii, T. (2016). Designing and adapting tasks in lesson planning: a critical process of Lesson Study. *ZDM Mathematics Education*, 48, 411-423. <https://doi.org/10.1007/s11858-016-0770-3>
- Gabrela, M. (2014). *Defining the development of a systematic educational policy to support the professional development of teachers: Principles, terms and conditions*. Retrieved from <http://diaylos.webnode.gr/news/%CE%B5%CF%80%CE%B1%CE%B3%CE%B5%CE%BB%CE%BC%CE%B1%CF%84%CE%B9%CE%BA%CE%CE%B1%CE%BD%CE%B%CE%BA%CF%80%CE%B1%CE%B9%CE%B4%CE%B5%CF%85%CF%84%>
- Garet, M., Porter, A., Desimone, L., Birman, B., & Yoon, K. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945. <https://doi.org/10.3102/00028312038004915>
- Hargreaves, A., & Fullan, M. (1995). *The evolution of teachers*. Athens: Patakis.
- Harsono, M. (2016). *The impact of lesson study on primary school teachers' knowledge and skills in differentiating primary school mathematics instruction: A digital mixed methods approach* (Doctoral dissertation, Curtin University). Retrieved from <https://espace.curtin.edu.au/bitstream/handle/20.500.11937/48463/Harsono%202016.pdf?isAllowed=y&sequence=1>
- Karras, K. (2011). *The teacher in a changing world*. Athens: Gutenberg.
- Keig, L. (2000). Formative peer review of teaching: Attitudes of faculty at liberal arts colleges toward colleague assessment. *Journal of Personnel Evaluation in Education*, 14(1), 67-87. <https://doi.org/10.1023/A:1008194230542>
- Lewis, C., & Hurd, J. (2011). *Lesson study step by step. How teacher learning communities improve instruction*. Portsmouth, NH, USA.
- Lewis, C., & Tsuchida, I. (1997). Planned educational change in Japan: the case of elementary science instruction. *Journal of Education Policy*, 12(5), 313-331. <https://doi.org/10.1080/0268093970120502>
- Nauerth, D. (2015). *The impact of lesson study professional development on teacher self-efficacy and outcome expectancy* (Doctoral dissertation, Kansas State University). Retrieved from <https://krex.k-state.edu/dspace/bitstream/handle/2097/19048/DeborahNauerth2015.pdf;sequence=1>

- Peterson, K. D. (2000). *Teacher evaluation: A comprehensive guide to new directions and practices*. Thousand Oaks, CA: Corwin Press.
- Rekalidou, G. (2012). Improving teaching. The case of lesson study. *Pedagogy-Theory and Practice*, 5, 98-109.
- Sirotic, N. (2015). *Knowledge growth through lesson study: A case of secondary Mathematics teachers' collaborative learning* (Doctoral dissertation, Simon Fraser University). Retrieved from <http://www.peterliljedahl.com/wp-content/uploads/Thesis-Natasa-Sirotic.pdf>
- Stepanek, J., Appel, G., Leong, M., Mangan, M. T., & Mitchell, M. (2007). *Leading lesson study. A practical guide for teachers and facilitators*. California, USA.
- Thompson, D. (2015). *An analysis of the perceived impact of lesson study on improving secondary school STEM teacher effectiveness* (Doctoral dissertation, University of Central Florida). Retrieved from <http://stars.library.ucf.edu/cgi/viewcontent.cgi?article=2310&context=etd>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).