Συνέδρια της Ελληνικής Επιστημονικής Ένωσης Τεχνολογιών Πληροφορίας & Επικοινωνιών στην Εκπαίδευση

Τόμ. 1 (2021)

12ο Πανελλήνιο και Διεθνές Συνέδριο «Οι ΤΠΕ στην Εκπαίδευση»

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doi: 10.12681/cetpe.3773

Βιβλιογραφική αναφορά:

Papanikolaou, K., & Zalavra, E. (2022). Involving preservice teachers in learning design evaluation. *Συνέδρια της Ελληνικής Επιστημονικής Ένωσης Τεχνολογιών Πληροφορίας & Επικοινωνιών στην Εκπαίδευση*, *1*, 402–409. https://doi.org/10.12681/cetpe.3773

Involving preservice teachers in learning design evaluation

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Abstract

Teacher education in design for learning accounts for a wide range of practices. These practices take up evaluation as a critical element of the design process, usually assigning teachers at various phases of the design process to reflect on designs and provide feedback to their peers. This paper explores how to organise peer evaluation through the learning design process by employing the PeerLAND environment. PeerLAND is a learning design environment that aligns authoring a learning design with evaluation in terms of the TPACK framework (Technological, Pedagogical and Content Knowledge). We describe a study in a preservice teacher education context following a convergent mixed-method research design. We address student teachers' perceived usefulness of integrating design for learning with peer evaluation and their preferences for the peer evaluation context. Our findings indicate that studying, comparing, and evaluating peer designs promote student teachers' learning design skills. The proposed peer evaluation approach is perceived to support designing for TEL, stimulating reflection, fostering collaboration among designers and promoting review skills. These findings, along with the challenges reported in this study and the student teachers' suggestions for the peer evaluation context, stimulate momentum for further attention to the learning design evaluation practice.

Keywords: teacher education, learning design, learning design tools, peer evaluation, peer review.

Introduction

Judging from growing literature, there is a steadily increasing interest in peer evaluation processes in higher education. Although the terms "peer feedback," "peer review", and "peer assessment" are used interchangeably and take several forms and approaches, they all refer to a process that learners try out the instructor's role and evaluate artefacts developed by their peers. On the one hand, peer evaluation is valued to have great potentials. It is a practical method of formative assessment for starters when the instructor's workload permits only providing a summative assessment (Søndergaard & Mulder, 2012). Thus, it brings into play the constructivist learning principles by coupling the provision and use of feedback (Er et al., 2020; Nicol et al., 2014). Peer feedback is more understandable than instructor feedback because it is written in a more accessible language (Falchikovab, 2013). Also, it invites reviewers' reflection on their own work (Pearce et al., 2009). On the other hand, concerns about peer evaluation involve the inevitable effect of friendship bonds, sympathy, antipathy, or even a peers' popularity (Topping, 2009). Reviewers are often considered to practice tolerance to avoid conflicts and preserve social relationships (Friedman et al., 2008). Lastly, learners doubt the validity of peer assessment and have an underlying belief that their peers will not mark them fairly (Karami & Rezaei, 2015).

Focusing on teacher education to design for learning (Goodyear & Dimitriadis, 2013), the research field of Learning Design (LD) accounts for a wide range of practices around LD (Asensio-Pérez et al., 2017; Svihla et al., 2015). Despite their various orientations, most of

Θ. Μπράτιτσης (επιμ.), Πρακτικά Εργασιών 12ου Πανελλήνιου και Διεθνούς Συνεδρίου «Οι ΤΠΕ στην Εκπαίδευση», σ. 402-409
ΠΔΜ, Φλώρινα, 14-16 Μαΐου 2021. ISBN: 978-618-83186-5-6

these practices seem to take up peer evaluation as an inherent element of the underlying need for LD evaluation. For instance, Sagy and Kali (2014) propose a framework including three phases (a) developing a design, (b) enacting it with learners, and (c) exploring its impact in various contexts. Peer evaluation is incorporated in the first two phases in this framework, either as oral discussion or in a written form. Likewise, Svihla et al. (2015) identify a fingerprint pattern of four common elements for designing learning interventions: modelling practice, supporting dialogue, scaffolding design process, and design for real-world use. The element of "supporting dialogue" refers to providing peer evaluation orally or in google apps, in two instances (a) during the design process to elicit and refine design ideas, and (b) after the enactment with students to share experiences. Also, Bjælde et al. (2019) propose a model for designing a course in higher education by incorporating feedback loops realised by peers in moderated discussions and wikis. Papanikolaou et al. (2017) propose a framework synthesising the Technological, Pedagogical and Content Knowledge (TPACK) framework (Koehler et al., 2014) with Community of Inquiry (Garrison et al., 2010). Among the tasks included in this framework is inter-group peer evaluation of the learning designs developed by designers collaboratively. Asensio-Pérez et al. (2017) built a teacher professional development model around the LD tool Integrated Learning Design Environment (ILDE) (Hernández-Leo et al., 2014), including a main workshop phase for training and a voluntary follow-up phase including the implementation and the enactment of the designs. A peer review is scheduled as the first phase's last activity in this model and is enacted using ILDE community features.

Teacher education practices in LD seem to include peer evaluation tasks employing general-purpose tools in various phases of the LD process to support ideas and feedback exchange. The most common approach is to have teachers discuss their designs based on abstract representations of these designs. This additional role for teachers requires skills that instructors try to cultivate in a teacher education context. But, how easy is it to understand and evaluate peer designs that employ various educational approaches? What if structuring the evaluation process? How helpful would it be to organise the peer evaluation process in a way that also promotes the learning design process? What if using a particular environment to author a learning design by manipulating specific representations? What if a teacher community uses the same representations to design courses? How sharing a common representation language could support the design and the evaluation process? Consequently, the underlying need for LD evaluation in teacher education practices evokes considering how to structure and support peer evaluation.

In LD tooling research, we identify limited peer evaluation mechanisms supporting and guiding the provision of sustainable feedback. A basic mechanism is commenting in public on shared learning designs like the one in the community of ILDE. In this case, the evaluation process is open to anyone that intends to submit a review without proposing specific criteria or a particular structure to follow. Another mechanism, aiming to get feedback on particular evaluation criteria, is the case of Ld-Feedback App (Michos et al., 2017). At the Ld-Feedback App, designers create a form with their own criteria, and they give access to their peers and/or students to evaluate the learning design and its implementation (Zalavra et al., 2020).

Aiming to exploit the potential of peer evaluation, we propose the integration of learning design with peer evaluation using TPACK as the common background. To support designers undertake both roles of authors and reviewers, we employ PeerLAND (Papanikolaou et al., 2016), a learning design environment providing a canvas first to represent designs using a synthesis of pedagogical and technological tools, and then reflect on these representations

using TPACK criteria. This paper describes a study exploring student teachers' perceived usefulness of peer evaluation. In particular, we address the following research questions:

- RQ1: How do student teachers perceive the usefulness of integrating peer evaluation in the learning design process through PeerLAND?
- RQ2: What are the student teachers' preferences for the peer evaluation context?

Method

We organised an empirical study in the context of a course on Technology Enhanced Learning (TEL) offered in a postgraduate programme in teacher education at the National and Kapodistrian University of Athens. The course's organisation is based on the main design principles of the framework for constructivist preservice teacher training on TEL proposed in (Papanikolaou et al., 2017). The participants, 18 student teachers, were assigned an LD project including three phases: (a) authoring a learning design, (b) reviewing two learning designs of their peers and (c) considering the peer evaluation towards implementing the learning design in Moodle.

The authoring of learning designs and evaluation phases took place in PeerLAND. The innovation in PeerLAND is the alignment of design with evaluation in terms of the design representation based on the TPACK framework. Initially, authors represent the structure of a technology-enhanced course, starting from the learning design's topic and learning outcomes and then defining the course phases with their related activities. In articulating learning activities, they explicitly represent pedagogical decisions on (a) the type of the activity based on the Conversational Framework (Laurillard, 2012), (b) the educational techniques adopted, (c) the outcomes supported based on the New Learning model (Kalantzis & Cope, 2012) along with (d) the appropriate technological tools. Peer evaluation in PeerLAND supports authenticated evaluation for both authors/reviewees and reviewers and is organised in three dimensions. The first involves recording reviewers' accordance with the design's rationale in terms of its pedagogical and technological ontologies. The second is a quantitative dimension using criteria that underlie the TPACK framework and providing marks. The third allows reviewers to provide textual feedback on the design by arguing on the quantitative evaluation and proposing specific improvements. Lastly, the tool offers authors visual representations of comparative data about the peer evaluation results from their reviewers.

We followed a convergent mixed-method design, collecting and analysing quantitative and qualitative data to obtain more complete and corroborated results (Creswell & Plano Clark, 2017). We collected data through an online survey questionnaire, including closed-ended and open-ended questions. The qualitative data include open-ended questions intriguing the participants to express their thoughts, including aspects that we may not have addressed in the closed-ended questions. The questionnaire is structured in two sections, each attending a research question. The first section includes 10 Likert-scaled questions addressing their perceptions about the usefulness of the peer evaluation process and two open-ended ones for the advantages and disadvantages of integrating design for learning with peer evaluation (see Tables 1 & 2). The second section includes 5 Likert-scaled questions addressing their preferences about the peer evaluation context and one open-ended asking for improvements to the peer evaluation context (see Tables 4 & 5). The Likert-scale used for the statements is 1: Highly Disagree, 2: Disagree, 3: Neutral, 4: Agree, and 5: Highly Agree. We performed quantitative data analysis in SPSS v26 of the participants' responses to statements. Also, we applied quantitative content analysis to define categories of the responses to the open-ended questions and score the qualitative results (Neuendorf, 2020).

Results

We report the quantitative, qualitative and mixed-method results for each research question.

RQ1: *How do student teachers perceive the usefulness of integrating peer evaluation in the learning design process through PeerLAND?*

Table 1 includes the quantitative results regarding the perceived usefulness of peer evaluation as an inherent design process. Tables 2 includes the qualitative results addressing student teachers' perceptions of the corresponding advantages and disadvantages.

Table 1. Distribution of student teachers' responses in statements (n=18)

Statements	1	2	3	4	5	Mean	SD
S1. Peer evaluation through PeerLAND supports designing for TEL.	0 0%	0 0%	4 22%	9 50%	5 28%	4,1	0,72
S2. Peer evaluation through PeerLAND supports and promotes collaboration among designers.	0 0%	1 6%	5 28%	8 44%	4 22%	3,95	0,89
S3. Peer evaluation through PeerLAND promotes review skills.	0 0%	0 0%	4 22%	7 39%	7 39%	4,25	0,79
S4. Through the review process, I compared my learning design with the ones that I reviewed.	0 0%	1 6%	3 17%	4 22%	10 56%	4,35	0,93
S5. Reviewing other learning designs contributed to improving my own learning design.	0 0%	2 11%	5 28%	6 33%	5 28%	3,9	1,02
S6. I considered the peer evaluation comments I received while implementing my design in Moodle.	0 0%	1 6%	1 6%	7 39%	9 50%	4,35	0,81
S7. I found useful the reviews I received from my peers in correcting my learning design.	0 0%	1 6%	5 28%	6 33%	6 33%	4,05	0,94
S8. I trust the evaluation that I received from my peer reviewers.	0 0%	4 22%	6 33%	8 44%	0 0%	3,35	0,88
S9. I considered the learning designs that I reviewed when correcting my learning design.	0 0%	3 17%	5 28%	8 44%	2 11%	3,6	0,94
S10. I consider applying a peer evaluation process with my students.	0 0%	2 11%	6 33%	9 50%	1 6%	3,65	0,88

Table 2. Student teachers' responses to an open-ended question (n=18)

Response Category (responses include more than one category)	Frequency
Q1. How was the peer evaluation integrated into design for learning advantageous to you?	
1. My peers provided constructive criticism and /or suggestions.	10 (56%)
2. Studying and reviewing my peers' designs stimulated reflection on my design.	10 (56%)
3. The visual representations of the peer evaluation results provided by PeerLAND stimulate reflection on my design.	2 (11%)
4. The process (in general) contributed towards improving my learning design.	8 (44%)
5. Peer evaluation is a practical procedure that provides quick feedback and formative assessment that the instructor could not support.	3 (17%)
6. I cultivated peer evaluation skills.	3 (17%)
Q2. In your opinion, what are the drawbacks of integrating design for learning with peer evaluation?	
1. I consider inadequate my peers'evaluation. Peers are not as qualified as experts.	10 (56%)
2. I consider favourable my peers' evaluation aiming to maintain friendly relationships.	9 (50%)
3. I consider inattentive my peers' evaluation. Peers just want to fulfil the assignment.	4 (22%)
4. I was confused by the reviews given. Should I trust my or my peers' point of view?	5 (28%)
5. Peer reviewing caused a 'copy effect'. Subsequently, "copying" peers' design ideas causes standardisation of designing.	2 (11%)

In Table 3, we merge the quantitative and qualitative results into the interpretation of the mixed method in three emerging dimensions regarding (a) the evaluation framework of PeerLAND, (b) the LD skills and practice promotion, and (c) the challenges of integrating design for learning with peer evaluation in a teacher education context.

Table 3. Mixed-Method Results

Dimension	Quantitative Findings	Qualitative findings	Mixed-Method Interpretation
Peer evaluation through PeerLAND	The majority thinks that it supports designing for TEL (S1), fosters collaboration among designers (S2) and promotes review skills (S3).	The peer- evaluations' visual representations stimulated some participants' reflection. (Q1.3)	It supports designing for TEL, stimulates reflection, fosters collaboration among designers and promotes review skills.
LD skills and practice promotion	The majority values comparing their design with those they reviewed for contributing to its improvement (S4, S5). Also, they considered peer feedback while implementing their designs in Moodle (S6). Half of the participants have a positive attitude towards applying a review process with their students (S10).	Half of the participants report that studying and evaluating their peers' designs intrigue improving their design (Q1.3). A few participants value peer evaluation as a formative assessment when it is not available from the instructor (Q1.5) and appreciate cultivating peer evaluation skills (Q1.6).	Studying, comparing, and evaluating peer designs promote student teachers' LD skills by eliciting and refining their design ideas. Peer evaluation is a practical formative assessment form that cultivates peer evaluation skills and furthers LD practice in implementing the designs.
Challenges	Although the majority found peer reviews useful in correcting their own learning designs (S7), more than half do not trust the evaluation of peer reviewers (S8).	Half of the participants consider constructive their peers' criticism and suggestions (Q1.4). They question the validity of peer evaluation due to peers a) not being qualified (Q2.1), b) being favourable to maintain friendly relationships (Q2.2) and c) providing inattentive reviews just to fulfil the assignment (Q2.3). Some participants felt confused about trusting their own or their peers' perspective on designing (Q2.4), while some note the implication of copying design ideas (Q2.5).	Although student teachers find useful peer evaluation for providing them constructive suggestions, they question the validity of peer reviews due to peers a) not being qualified, b) being favourable to maintain friendly relations and c) providing inattentive reviews just to fulfil the assignment. Other challenges reported is confusion over trusting their own or their peers' design perspective and the repercussion of design ideas' replication.

RQ2: *What are the student teachers' preferences for the peer evaluation context?*

Table 4 contains the quantitative results of participants' preferences about the peer evaluation context supported by PeerLAND's evaluation framework. Table 5 contains the qualitative results of the open-ended question asking for improvements to the peer evaluation context. In Table 6, we merge the quantitative and qualitative results into the interpretation of the mixed-method in three emerging dimensions regarding (a) the reviewee context, (b) the reviewer context and (c) the evaluation criteria.

Table 4. Distribution of student teachers' responses in statements (n=18)

Statements	1	2	3	4	5	Mean	SD
S11. I would prefer to maintain my anonymity as a reviewer instead of authenticated evaluation.	3 17%	4 22%	1 6%	4 22%	6 33%	3,4	1,54
S12. I would prefer to maintain my anonymity as a reviewee instead of authenticated evaluation.	3 17%	3 17%	2 11%	3 17%	7 39%	3,6	1,57
S13. I consider the proposed criteria of TPACK appropriate for reviewing learning designs.	0 0%	0 0%	3 17%	12 67%	3 17%	4,05	0,60
S14. I would prefer to provide my own criteria for reviewing learning designs.	4 22%	9 50%	2 11%	3 17%	0 0%	2,1	1,02
S15. I would prefer to decide on the reviewing criteria of learning designs in collaboration with my peers.	2 11%	6 33%	5 28%	5 28%	0 0%	2,65	1,04

Table 5. Student teachers' responses in an open-ended question (n=18)

Q3. What improvements would you suggest for the context of the peer evaluation adopted?	
Response Category (responses included more than one category)	Frequency
1. Maintain the author's anonymity so that the reviewer does not exercise a conscious or unconscious bias.	9 (50%)
2. Maintain the reviewer's anonymity not to hesitate/avoid giving negative review due to reservation or fear for reciprocation.	6 (33%)
3. Maintain the reviewer's anonymity so that biases or interpersonal relations do not influence the author.	4 (22%)
4. Reviews should be better documented.	3 (17%)
5. Fewer evaluation criteria organised around the knowledge domains of TPACK.	2 (11%)
6. Introduce a practice phase of reviewing sample learning designs before the peer review.	2 (11%)

Table 6. Mixed-Method Results

Dimension	Quantitative Findings	Qualitative findings	Mixed-Method Interpretation
Reviewee context	Mixed perceptions about maintaining anonymity, positive responses slightly prevail over the negative ones (S12).	Half of the participants argue in favour of anonymity to prevent the reviewers' bias (Q3.1)	Student teachers have mixed perceptions about the reviewee being anonymous or identifiable.
Reviewer context	Mixed perceptions about maintaining anonymity, positive responses slightly prevail over the negative ones (S11).	Half of the participants argue in favour of anonymity to avoid reservation or fear for reciprocation, or bias, or interpersonal relationships (Q3.2-3).	Student teachers have mixed perceptions about supporting anonymous instead of authenticated evaluation, but they give strong arguments favouring anonymity.
Evaluation Criteria	The vast majority find appropriate the proposed criteria of TPACK for reviewing learning designs (S13). Only a few participants prefer to provide their assessment criteria (S14) or decide the criteria with their peers (S15).	Some participants suggest: a) having fewer criteria evaluating TPACK (Q3.5) b) providing better-documented reviews (Q3.4) and c) practising reviewing sample learning designs before the peer evaluation (Q3.6).	Student teachers consider appropriate the quantitative criteria that underlie the TPACK framework but suggest having fewer criteria. A practice review phase can get participants acquainted with the evaluation criteria and cultivate peer-review skills.

Discussion and Conclusions

This study evolved around an LD project in which student teachers authored a learning design, participated in a peer evaluation practice and then implemented their design in Moodle. The innovation explored was utilising PeerLAND to align design with peer evaluation in terms of a design representation based on the TPACK framework.

In this study, we explored how student teachers perceive the usefulness of integrating peer evaluation with designing for learning through PeerLAND (RQ1). As far as the PeerLAND's usefulness is concerned, findings show that it supports designing for TEL, stimulates reflection, fosters collaboration among designers, and promotes review skills. Similar to Søndergaard and Mulder (2012), peer evaluation is considered a practical formative assessment form. The student teachers report that studying, comparing, and evaluating peer designs promote their LD skills by eliciting and refining their design ideas. The findings provide evidence that by participating in peer evaluation, the student teachers reflect on their LD practice and further design and implement their designs in Moodle.

Nevertheless, the student teachers in this study question the validity of peer reviews. Like in Karami and Rezaei (2015), student teachers argue that peers are not qualified to provide adequate reviews. In line with Topping (2009) and Friendman et al. (2008), the student teachers imply that peer evaluation is mostly favourable because peers want to maintain friendly relationships. Another interesting argument challenging the quality of peer reviews is that peers may provide inattentive reviews just to fulfil the assignment.

We also explored the student teachers' preferences for the peer evaluation context adopted (RQ2). The student teachers seem to have mixed perceptions regarding the authenticated evaluation supported for both authors/reviewees and reviewers. The findings show that they are divided between the reviewee being anonymous or identifiable and the reviewer providing an anonymous or authenticated evaluation. They provide strong arguments in favour of anonymity. They suggest that a learning design's author's identity should remain anonymous so that the reviewer does not exercise a conscious or unconscious bias. They mention the likelihood of an identifiable reviewer hesitating or avoiding giving a negative assessment due to reservation or even fear for reciprocation. They claim that an author/reviewee is more likely to accept an anonymous review without being influenced by biases or interpersonal relations with the reviewer. Student teachers in this study consider appropriate the quantitative criteria supported by PeerLAND that underlie the TPACK framework instead of user-defined, even if these can be collaboratively agreed upon. An interesting finding of this study is the student teachers' suggestion of practising to review sample learning designs before the peer evaluation. We consider this idea a key element towards cultivating peer-review skills.

In conclusion, findings are promising regarding integrating design for learning with peer evaluation in teacher education. The practice described in this study structures the design and peer evaluation process based on the TPACK framework allowing student teachers to manipulate the same representations for designing and evaluating, which subsequently promotes both processes. The challenges reported and the suggestions provided in this study stimulate momentum for further attention to the LD evaluation practice around PeerLAND.

The limitations of this study refer to the small sample of participants; however, our focus is grounding findings on teachers' experience based on the mixed-methods approach towards a more profound consideration rather than generalising based on quantitative results.

References

Asensio-Pérez, J. I., Dimitriadis, Y., Pozzi, F., Hernández-Leo, D., Prieto, L. P., Persico, D., & Villagrá-Sobrino, S. L. (2017). Towards teaching as design: Exploring the interplay between full-lifecycle learning design tooling and Teacher Professional Development. *Computers and Education*, *114*.

Bjælde, O. E., Hougaard, R. F., Caspersen, M. E., Lindberg, A. B., & Godsk, M. (2019). Learning design for science teacher training and educational development. *ASCILITE 2015 - Australasian Society for Computers in Learning and Tertiary Education, Conference Proceedings*.

Creswell, J. W., & Plano Clark, V. L. (2017). Designing and Conducting Mixed Methods Research | SAGE Publications Ltd. In *SAGE Publications, Inc*. SAGE Publications, lnc.

Er, E., Dimitriadis, Y., & Gašević, D. (2020). A collaborative learning approach to dialogic peer feedback: a theoretical framework. *Assessment and Evaluation in Higher Education*.

Falchikovab, N. (2013). Improving assessment through student involvement: Practical solutions for aiding learning in higher and further education. In *Improving Assessment through Student Involvement: Practical Solutions for Aiding Learning in Higher and Further Education*. Taylor and Francis.

Friedman, B. A., Cox, P. L., & Maher, L. E. (2008). An expectancy theory motivation approach to peer assessment. *Journal of Management Education*, *32*(5).

Garrison, D. R., Anderson, T., & Archer, W. (2010). The first decade of the community of inquiry framework: A retrospective. *Internet and Higher Education*, *13*(1–2).

Goodyear, P., & Dimitriadis, Y. (2013). In medias res: Reframing design for learning. In *Research in Learning Technology* (Vol. 21, Issue SUPPL.1).

Kalantzis, M., & Cope, B. (2012). New learning: Elements of a science of education, second edition. In *New Learning: Elements of a Science of Education*.

Karami, A., & Rezaei, A. (2015). An Overview of Peer-Assessment: The Benefits and Importance. *Journal for the Study of English Linguistics*, *3*(1).

Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2014). The technological pedagogical content knowledge framework. In *Handbook of Research on Educational Communications and Technology: Fourth Edition*.

Laurillard, Diana. (2012). Teaching as a design science: Building pedagogical patterns for learning and technology. In *Teaching as a Design Science: Building Pedagogical Patterns for Learning and Technology*.

Michos, K., Fernández, A., Hernández-Leo, D., & Calvo, R. (2017). Ld-feedback app: Connecting learning designs with students' and teachers' perceived experiences. *Lecture Notes in Computer Science*, *10474 LNCS*.

Neuendorf, K. A. (2020). The Content Analysis Guidebook. In *The Content Analysis Guidebook*. SAGE Publications, Inc.

Nicol, D., Thomson, A., & Breslin, C. (2014). Rethinking feedback practices in higher education: a peer review perspective. *Assessment and Evaluation in Higher Education*, *39*(1).

Papanikolaou, K. A., Gouli, E., Makrh, K., Sofos, I., & Tzelepi, M. (2016). A peer evaluation tool of learning designs. *Lecture Notes in Computer Science*, *9891 LNCS*.

Papanikolaou, K., Makri, K., & Roussos, P. (2017). Learning design as a vehicle for developing TPACK in blended teacher training on technology enhanced learning. *International Journal of Educational Technology in Higher Education*, *14*(1).

Pearce, J., Mulder, R. A., & Baik, C. (2009). Involving Students in Peer Review: Case Studies and Practical Strategies for University Teaching. *Centre for the Study of Higher Education*.

Sagy, O., & Kali, Y. (2014). Teachers as Design-Researchers of Technology-Enhanced Learning. *Proceedings of the 9th Chais Conference for the Study of Innovation and LT*.

Søndergaard, H., & Mulder, R. A. (2012). Collaborative learning through formative peer review: Pedagogy, programs and potential. *Computer Science Education*, *22*(4).

Svihla, V., Reeve, R., Sagy, O., & Kali, Y. (2015). A fingerprint pattern of supports for teachers' designing of technology-enhanced learning. *Instructional Science*, *43*(2).

Topping, K. J. (2009). Peer assessment. *Theory into Practice*, *48*(1).

Zalavra, E., Papanikolaou, K., Makri, K., Michos, K., & Hernández-Leo, D. (2020). Exploiting Peer Review in Microteaching Through the Ld-Feedback App in Teacher Education. In *Advances in Intelligent Systems and Computing* (Vol. 1008).