

International Social Sciences and Humanities

UMJember Proceeding Series (2023) Vol. 2 No 1: 125-133



LATTE: Blended Edition 2022

A need-based evaluation of microteaching program for high school students: Novice teachers' viewpoint

Miftah Al Farhan

¹Universitas Muhammadiyah Banjarmasin; miftahaf@umbjm.ac.id

DOI: https://doi.org/10.32528/issh.v2i1.151 *Correspondence: Miftah Al Farhan Email: miftahaf@umbjm.ac.id

Published: Agustus, 2022



Copyright: © 2023 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY NC) license (http://creativecommons.org/licenses/by/4.0/).

Abstract: Teaching preparation with extensive knowledge and understanding of teaching-related constituents is required to create quality education. It thus underlies why microteaching is necessary for the prospective teachers. Modern Islamic boarding school, with its goal to create ideal future educators, conducted a microteaching program for high school students. This study aimed at evaluating the implementation of microteaching program for high school students in fulfilling their needs of acquiring eight basic skills of teaching. Fifteen novice teachers who had attended the microteaching program and have been teaching for one or two years were involved in the study. Questionnaire and interview were employed for data collection. The research results confirmed that the foregoing microteaching program had facilitated the improvement of eight teaching skills. Only two of eight skills, variation and explaining skills, which need further evaluation as they were found insufficient due to the lack of certain specific skills. Certain positive evaluations, on the other hand, were confirmed by the novice teachers as they found some improvements in terms of teaching method, lesson plan making, and material preparation.

Keywords: microteaching; basic teaching skills; novice teacher

INTRODUCTION

Teaching preparation with extensive knowledge and understanding of teaching-related constituents is required to create quality education [1] [2]. Aside from independent efforts of each educator to acknowledge it, teacher education institutions provide a structured support system to get them well prepared for teaching. Greenhill [3] asserted five essentials, according to the most ideal condition, included in the P-12 education support system, i.e. standards, assessments, curriculum and instruction, professional development, and learning environments. This support system, if properly fulfilled, would give the educators all the tools, materials, and instruments to conduct quality teaching and learning. Their prospective students, on the other hand, would gain more profound learning experiences.

Among the five critical education support systems by Greenhill, professional development, which involves the student teachers in a real teaching practice or microteaching program, has the most powerful impact on the improvement of teaching skills [4] [5] [6] [7]. They are not only required to demonstrate deeper theoretical understanding and mastery of the subject matter, but, more than that, also the practical skills related to the classroom teaching practice. This situation, however, should not be perceived as underestimating the urgency of mastering subject matter, but rather as integrating the practical teaching skills to facilitate the delivery of learning materials. During the microteaching program, student teachers can simultaneously explore and evaluate the most suitable method of conveying materials that best benefit their students [8].

Microteaching, in the view of educational practitioners, has been gradually discussed for its major contribution in the beginning of teacher professional development. The improvement of essential teaching skills is among the most observable positive impact of microteaching [9] [10] [11]. Theoretical knowledge of teaching obtained in the classroom are put into real teaching practices, thus making the student teachers more knowledgable and skillful to adapt to a more complex practice setting [12]. In a teaching practice, for instance, it was confirmed that proper use of technology could benefit the learning process under certain conditions [13] [14]. Such finding has numerous determining factors that could change the final result at any time, indicating how complicated the teaching practice could be. This case, the use of technology for teaching and learning, is only one of many other complex matters a student teacher has to get used to deal with during the development of his teaching quality. It is, therefore, reasonable why microteaching matters in terms of providing an initial overview of practice setting for the prospective teachers so that adequate preparation prior to the real teaching practice is at hand.

Microteaching program has direct impact on the improvement of teaching skills which, according to prior related studies [15] [16] [17] [18], comprise a great deal of specific skills. The present study considers the eight basic skills of teaching reported by Sugihartini *et al.* [18] because of three main reasons. First, among the four cited references related to basic teaching skills, it was the most recent one published in 2020. Second, these basic skills of teaching have been standardized in respect of Indonesian education context. Third, the research results of this proceeding were also similar to the ones mentioned in *Micro Teaching* book written by Helmiati [19]. The eight basic skills of teaching comprise 1) questioning skill, 2) reinforcement skill, 3) variation skill, 4) explaining skill, 5) opening and closing skill, 6) guiding small group discussion skill, 7) classroom management skill, and 8) organizing small group and individual work skill.

Questioning skill is closely associated with the aim to enhance students' critical thinking and problem-solving skills. Reinforcement skill is a specific response by a teacher toward students' performance in the classroom. Variation skill is a teacher's act of varying certain instructional components during the course to alleviate the boredom among students and get them more interested in learning with various activities. Explaining skill is a set of systematically organized efforts of a teacher to convey the learning materials to stimulate students' reasoning process. Opening skill concerns students' physical, psychological, and emotional readiness for learning, while closing skill concerns the success of the learning process in terms of the level of student absorption of the material. Guiding small group discussion skill is related to generating a concept where students' thought, social interaction, and positive behavior are well addressed. Classroom management skill is a teacher's art or skill in optimizing classroom resources for the creation of an effective and efficient learning process. Organizing small group and individual work skill indicates teacher's ability in paying close attention to each student individually or in a small group and taking a personal approach to guide, organize, and facilitate their learning [18] [19].

The eight basic skills of teaching are what current teachers need for the improvement of their teaching quality [18]. Each skill has particular points that, if well mastered, would benefit the teachers in every element of teaching and, simultaneously, the students in learning. A number of prior related studies have made it obvious through some empirical evidence. Questioning skill, for instance, was proven to stimulate students' critical thinking and problem-solving skills [20] [21] [22]. Reinforcement skill also has direct influence to both students and teachers as the students get moti-

vated to enhance their learning performance and the teachers could generate more dynamic learning environment [23] [24]. In addition, classroom management skill is typically associated with positive impacts on students' behavior which, at the same time, benefit the teachers in administering the learning process [25]. It is, therefore, necessary to evaluate the implementation and the outcome of microteaching program, both in terms of positive and negative evaluation [26], regarding the fulfillment of student teachers' needs of acquiring these basic skills of teaching.

The relationship between theoretical framework concerning the essential basic skills of teaching and the practical concept of microteaching should be carefully addressed to ensure that the application of existing practical concepts has a scientifically correct rationale. Subramaniam [26] asserted that current theories of teaching should be integrated into the practical framework which underlines the formulation of goals of microteaching program. In addition to this, however, few of the current research have investigated the field of microteaching with the aim of evaluating the program implementation in terms of its connectedness with the improvement of student teachers' basic skills of teaching. Kloet and Chugh [27], for instance, explored the evaluation of microteaching through peer feedback forms that may redefine 'good teaching' as the form of developing and experimenting new modes of teaching and learning instead of reproducing the established ones. This study has gone far beyond the focus of the current study due to the discrete focus of the teaching skills expected to develop from the microteaching program.

Regardless of some related prior studies exploring the direct influence of microteaching on student teachers' skills of teaching, the theoretical basis of these skills diverges. Al Darwish and Sadeqi [28], for instance, reported the teaching skills promoted in their study were classroom instruction which encompasses interaction skill and material planning skill; teaching practice as the whole learning activities from the beginning to the end of the lesson; and classroom management. Akkuş and Sinem [29], on the other side, explored the influence of microteaching on several teaching skills including communication skills performance, illustrated talk performance, and process skill lesson performance. In addition, Ramanathan *et al.* [30] identified seven major skill components of teaching to be evaluated in a microteaching program, namely set induction, planning, presentation, reviewers presentation, use of audio-visual aids, closure, and overall lesson. In sum, different learning context and setting leads to different center of attention regarding microteaching effect on student teachers' skills of teaching which further expands the scope of the topic in question.

Microteaching program is normally conducted for college students majoring in education as pre-service teachers or for the practicing teachers at school as in-service teachers [9] [26]. In Indonesian education context, notwithstanding, there exists an educational institution which regulates a microteaching program for high school students, namely modern Islamic boarding school. One of the most renowned modern Islamic boarding schools for its long history and outstanding contribution to the country through its graduates is Darussalam Gontor Modern Islamic Boarding School or simply called 'Gontor'. Currently, hundreds of boarding schools throughout Indonesia have been established by Gontor alumni [27], thus making the education system of these boarding schools almost the same as the one applied in Gontor.

Through its official website, Gontor affirmed the goal of its education system, that is, to create ideal generations through ideal educators [28]. In addition to the boarding system that supports the formation of students' positive behavior, several distinctive attempts were made to facilitate the

achievement of the goal, and microteaching program is one of the attempts thoughtfully administered to establish students' educator character [27]. The continuation of this program is that some of the graduates with high score of microteaching program are required to teach in the boarding school as novice teachers for one year in order to establish the development of their teaching skills [34].

Despite the large number of studies exploring the practice of microteaching, almost none of them investigates the practice of microteaching for high school students which, in fact, truly exists in Indonesian education context. In addition, as mentioned earlier, studies discussing about the evaluation of microteaching in terms of its effect on the improvement of student teachers' basic skills of teaching are barely found. Therefore, this study aims to evaluate the microteaching program for high school students in fulfilling their needs of acquiring eight basic skills of teaching in the view of novice teachers. Two research questions were addressed in this study, i.e. (1) To what extent did the foregoing microteaching program facilitate the improvement of novice teachers' basic skills of teaching? and (2) How do the novice teachers currently reflect on the microteaching program?

METHOD

Research Design and Participants

The current study adopted mixed-method design of evaluation research. It allowed the researcher to come up with a wide-ranging assessment of a school program aiming at providing adequate information for further decision making. The participants were 15 novice teachers with one to two years of teaching experience at one of boarding schools established by Gontor alumni in South Kalimantan. Since high school graduation, 10 of them (66.7%) have been teaching for two years, while the other 5 (33.3%) have been teaching for one year. All the participants, when they were in high school, got involved in the microteaching program for two weeks administered by the boarding school board. However, some limited criteria were applied to the potential respondents to avoid bias; (1) they graduated from high school at most two years ago to ensure they still remember the foregoing microteaching situation, (2) they are currently teaching at the school, and (3) they are not currently enrolled in any microteaching course in the college. Only those who met all these criteria got involved in the study.

Data Collection and Analysis

The research data were obtained through the use of questionnaire and interview guideline. The questionnaire was adapted from Helmiati [19] with her book discussing about eight basic skills of teaching as a learning component of microteaching program for student teachers. The adaptation was conducted by condensing several redundant items that look really similar so the respondents will not get bored with too many questions and keep answering them genuinely. The questionnaire was intended to answer the first research question. Hence, it consisted of several sections about eight basic skills of teaching; 1) questioning skill, 2) reinforcement skill, 3) variation skill, 4) explaining skill, 5) opening and closing skill, 6) guiding small group discussion skill, 7) classroom management skill, and 8) organizing small group and individual work skill. All these skills were further elaborated into some specific skills that clearly describe the novice teachers' skills of teaching. The questionnaire was made in a Google Form and distributed online to the respondents through WhatsApp.

The interview guideline was employed to get deeper information about novice teachers' view-point and reflection on the microteaching program and its role in facilitating the improvement of their teaching skills. Thus, it was mainly intended to answer the second research question. However, the more comprehensive answers to the first research question were also gained through the interview. After the questionnaire, only the teachers with certain criteria determined by the researcher were selected for further process of data collection, that is, interview. The criteria included the teachers with the most 'no' and the most 'yes' answers to the questionnaire. It was based on the thought that these two separate answers can be compared to obtain an equal judgment on the implementation of the foregoing microteaching program.

Descriptive statistics were employed in the stage of data analysis for the result of questionnaire intended to answer the first research question regarding the evaluation of the foregoing microteaching program in terms of its contribution to the improvement of novice teachers' basic skills of teaching. Besides, the interview result was transcribed and translated into English intended to answer the second research question concerning the novice teachers' viewpoint and reflection on the microteaching program. Interpretation of the interview data was carried out through the transcription coding and thematic analysis.

Ethical Approval

As the present study involved humans as research participants, a detailed procedure of fulfilling ethical approval was undertaken. An informed consent was provided at the beginning of questionnaire distribution before answering the questions. It told the prospective participants a general overview of the study in which they were invited to get involved, such as the goal of the study, the theoretical framework to be discussed, their role in the research process, and a guarantee of the confidentiality of their data. Considering all the information provided in the informed consent, choosing to participate in the study was all their sole right.

RESULTS AND DISCUSSION

In this section, the answers to the two research questions raised earlier are elaborated, namely (RQ1) To what extent does the foregoing microteaching program facilitate the improvement of novice teachers' basic skills of teaching? and (RQ2) How do the novice teachers currently reflect on the microteaching program?

The RQ1 is answered by the result of questionnaire which elaborates the novice teachers' mastery of eight basic skills of teaching as a result of their participation in the foregoing microteaching program when they were in high school. In addition, the result of interview also plays a significant role in reinforcing the answer to the RQ1. Table 1 presents the details of the result of questionnaire. Judging from their answers to each skill, the novice teachers considered they are practically capable of performing all the basic skills of teaching. Two skills with the lowest percentage, nonetheless, remain necessary to evaluate.

Table 1. Novice Teachers' Mastery of Eight Basic Skills of Teaching

Basic Skills of Teaching	Number of Specific Skills	Number of Responses	Percentage
Opening and closing skill	6	90	95.6%
Explaining skill	10	150	90.7%
Variation skill	8	120	89.2%
Classroom management skill	7	105	96.2%
Questioning skill	7	105	94.3%
Reinforcement skill	4	60	93.4%
Organizing small group and individual work skill	8	120	94.2%
Guiding small group discussion skill	7	105	95.3%
$Number\ of\ Participants=15$			

Variation skill, the one with the lowest percentage (89.2%), encompasses several specific skills some of which are not well mastered by the novice teachers. In contrast to Al Darwish and Sadeqi's [28] study which reported freshmen teachers' ability in making vocal variety, in this study, making variations in pitch, volume, and rate of speech is among the skills that they are least likely to master. Teacher W, who answered NO the most in variation skills, confirmed that his lack of the skills was most likely due to his limited creativity. This finding validated Csikszentmihalyi and Wolfe's [35] research result that making variations is highly associated with being creative, so both of them are considered interdependent. Teacher W, further, suggested the improvement of microteaching program orientation. His detailed answer was described in the following excerpt:

To be creative, a variation has to be adapted to its social environment, and it has to be capable of being passed on through time

There needs to be an improvement in the stage of program orientation to motivate and shape the mentality of teachers because it can help develop teachers' creativity and their mastery of teaching methods (Interview data).

Explaining skill, the one with the second lowest percentage (90.7%), also has certain skills the novice teachers are not really good at. Making variations in voice volume when explaining material is the skill that most of them do not master well. Concerning the variations in voice volume, Teacher R said in the interview that being nervous was the main cause many student teachers could not make it. Study from Gassull *et al.* [36] concluded the same case in which being nervous, as a part of reactivity to stress, is interconnected with any voice problems for teachers. Teacher R, then, encouraged the strengthening of student teachers' mentality before the microteaching program begins. The following excerpt describes his detailed response:

Teachers must be able to strengthen their mentality before starting to participate in the microteaching program so that they are not getting nervous during the teaching practice and are able to live the goals of the program implementation (Interview data).

This answer corroborates the previous one related to variation skill in which the activities prior to the implementation of microteaching program should be well arranged to get the student teachers

ready for showing their best performance. Hence, their teaching practices during the program can effectively facilitate the improvement of their basic skills of teaching.

The answer to RQ2 is, in fact, associated with the previous answers to RQ1 which concentrates on investigating the novice teachers' viewpoint and reflection on the microteaching program through interview. This reflection, however, has a very broad scope as the respondents were set free to express their reflection on the program implementation. As presented earlier, the reflections were directed to the activities leading up to the program in the form of negative evaluation as they were pointed to the errors and shortage of microteaching program [26]. It was mainly due to the state that the part was essential in preparing them for the teaching practices, so further improvements are indispensable. In the form of positive evaluation, on the other hand, several aspects were found to improve during and after the microteaching program such as teaching method, lesson plan making, and material preparation. Study from Ramanathan *et al.* [31] identified the same result in which organized learning materials and teaching method are among many aspects positively influenced by microteaching program. Teacher S confirmed his opinion as written in the following excerpt:

This activity is very helpful for me now in teaching because I feel that it greatly affects the quality of my teaching. I become aware of how to teach properly and correctly, how to deal with students in class in certain situations and conditions, and how to convey the subject matter so that the students can understand.

However, the one that most novice teachers found very helpful was the part of lesson plan making as it could clearly portray the whole learning situation they were about to face. Teacher H stated that the learning of lesson plan making during the microteaching program helped him prepare all the instructional components he was going to use for the teaching practice such as learning materials, teaching tools and equipment, planned learning activities, and so forth. In addition to that, lesson plan making remains useful as they are currently teaching at schools, confirmed by Teacher D.

CONCLUSION

The current study discovers several conclusions and implications regarding the implementation of microteaching program for high school students aiming at fulfilling their needs to develop several essential basic skills of teaching. From the view of novice teachers, the foregoing microteaching program they participated in the last few years had facilitated the improvement of the teaching skills. Only two of eight skills, variation and explaining skills, which need further evaluation as they were found insufficient due to the lack of certain specific skills. Certain positive evaluations, on the other hand, were confirmed by the novice teachers as they found some improvements in terms of teaching method, lesson plan making, and material preparation. The implication for the boarding school board, therefore, is that the identified deficiencies should be carefully resolved for the next program and the identified improvements should be maintained and further developed.

REFERENCES

[1] S. A. Eckert, "What do teaching qualifications mean in urban schools? A mixed-methods study of teacher preparation and qualification," *Journal of Teacher Education*, vol. 64, no. 1, pp. 75-89, 2013.

- [2] E. R. Hollins, "Teacher preparation for quality teaching," *Journal of Teacher education*, vol. 62, no. 4, pp. 395-407, 2014.
- [3] V. Greenhill, 21st Century Knowledge and Skills in Educator Preparation, New York, NY: the American Association of Colleges of Teacher Education and the Partnership for 21st Century Skills (P21), 2010.
- [4] S. Bakır, "The effect of microteaching on the teaching skills of pre-service science teachers," *Journal of Baltic Science Education*, vol. 13, no. 6, pp. 789-801, 2014.
- [5] R. Donnelly dan M. Fitzmaurice, "Towards productive reflective practice in microteaching," *Innovations in Education and Teaching International*, vol. 48, no. 3, pp. 335-346, 2011.
- [6] C. He dan C. Yan, "Exploring authenticity of microteaching in pre-service teacher education programmes," *Teaching Education*, vol. 22, no. 3, pp. 291-302, 2011.
- [7] A. Mergler dan D. Tangen, "Using microteaching to enhance teacher efficacy in pre-service teachers," *Teaching Education*, vol. 21, no. 2, pp. 199-210, 2010.
- [8] C. H. Cobilla, "Exposure of pre-service teachers to microteaching," *Journal of Educational and Human Resource Development (JEHRD)*, vol. 2, pp. 207-215, 2014.
- [9] Z. Arsal, "The effects of microteaching on the critical thinking dispositions of pre-service teachers," *Australian Journal of Teacher Education*, vol. 40, no. 3, pp. 140-153, 2015.
- [10] K. R. Reddy, "Teaching how to teach: microteaching (a way to build up teaching skills)," *Journal of Gandaki Medical College-Nepal*, vol. 12, no. 1, pp. 65-71, 2019.
- [11] A. Remesh, "Microteaching, an efficient technique for learning effective teaching," *Journal of Research in Medical Sciences*, vol. 18, no. 2, p. 158–163, 2013.
- [12] J. Whatman dan J. MacDonald, "High quality practica and the integration of theory and practice in initial teacher education," New Zealand Council for Educational Research, New Zealand, 2017.
- [13] M. R. Ahmadi, "The use of technology in English language learning: A literature review," *International Journal of Research in English Education*, vol. 3, no. 2, pp. 115-125, 2018.
- [14] S. Chauhan, "A meta-analysis of the impact of technology on learning effectiveness of elementary students," *Computers & Education*, vol. 105, pp. 14-30, 2017.
- [15] D. W. Allen dan K. Ryan, Microteaching, Massachusetts: Addison-Wesley Pub. Co., 1969.
- [16] B. K. Passy, "Becoming Better Teacher: Microteaching Approach," Sahitya Mudranalaya, India, 1976.
- [17] B. Rani, "Classification of the Teaching Skills based on Q-Methodology using the Perceptions of Sec. School Teachers," International Journal of Educational Planning & Administration, vol. 1, no. 2, pp. 141-150, 2011.
- [18] N. Sugihartini, G. P. Sindu, K. S. Dewi, M. Zakariah dan P. Sudira, "Improving teaching ability with eight teaching skills," dalam the 3rd International Conference on Innovative Research Across Disciplines (ICIRAD 2019), Bali, 2020.
- [19] Helmiati, Micro Teaching: Melatih Keterampilan Dasar Mengajar, Yogyakarta: Aswaja Pressindo, 2013.
- [20] A. Halim, Yusrizal, H. Mazlina, Melvina dan Zainaton, "Questioning skill of science teacher from the students perscrective in senior high school," dalam *Journal of Physics: Conference Series*, 2018.
- [21] H. Yang, "A Research on the Effective Questioning Strategies in Class," *Science Journal of Education*, vol. 5, no. 4, pp. 158-163, 2017.
- [22] C. Wangru, "The Research on Strategies of College English Teachers Classroom Questioning," *International Education Studies*, vol. 9, no. 8, pp. 144-158, 2016.
- [23] A. Mas'ud dan D. A. Wulandari, "The Student Teachers' Verbal and Non-Verbal Reinforcement During Teaching Practice in Microteaching Class," dalam *International Conference on English Language Teaching (ICONELT 2019)*, Surabaya, 2020.
- [24] M. A. M. Lestari, "Teachers' reinforcement and students' perception to the teachers in English classroom," *ELT Forum: Journal of English Language Teaching*, vol. 9, no. 1, pp. 96-106, 2020.

- [25] B. Simonsen, A. S. MacSuga-Gage, D. E. Briere III, J. Freeman, D. Myers, T. M. Scott dan G. Sugai, "Multitiered support framework for teachers' classroom-management practices: Overview and case study of building the triangle for teachers," *Journal of Positive Behavior Interventions*, vol. 16, no. 3, pp. 179-190, 2014.
- [26] J. D. Wright, Ed., International Encyclopedia of the Social & Behavioral Sciences, 2nd ed., Orlando: Elsevier Ltd., 2015.
- [27] K. Subramaniam, "Creating a microteaching evaluation form: The needed evaluation criteria," *Education*, vol. 126, no. 4, pp. 666-678, 2006.
- [28] M. A. Vander Kloet dan B. P. Chugh, "An interdisciplinary analysis of microteaching evaluation forms: how peer feedback forms shape what constitutes "good teaching"," *Educational Research and Evaluation*, vol. 18, no. 6, pp. 597-612, 2012.
- [29] S. Al Darwish and A. A. Sadeqi, "Microteaching Impact on Student Teacher's Performance: A Case Study from Kuwait," *Journal of Education and Training Studies*, vol. 4, no. 8, pp. 126-134, 2016.
- [30] H. Akkuş and S. Üner, "The effect of microteaching on pre-service chemistry teachers' teaching experiences," *Cukurova University Faculty of Education Journal*, vol. 46, no. 1, pp. 202-230, 2017.
- [31] R. Ramanathan, S. Narayanan, A. Mutalik, J. Shanmugam, L. Padmavathy, C. Vaishnavi and R. Kathiravan, "Impact of Microteaching in Enhancing Teaching Skills of Medical College Faculty," *Journal of Advances in Education and Philosophy*, vol. 5, no. 6, pp. 160-164, 2021.
- [32] M. L. Fernández, "Learning through microteaching lesson study in teacher preparation," *Action in Teacher Education*, vol. 26, no. 4, pp. 37-47, 2005.
- [33] Merdeka.com, "Alumni Gontor kini telah dirikan 350 pesantren," 24 January 2016. [Online]. Available: https://www.merdeka.com/peristiwa/alumi-gontor-kini-telah-dirikan-350-pesantren.html. [Diakses 7 June 2022].
- [34] Pondok Modern Darussalam Gontor, "Amaliyah Tadris Perdana: Lahirkan Guru yang Ideal," 8 March 2018. [Online]. Available: https://www.gontor.ac.id/putri2/amaliyah-tadris-perdana-lahirkan-guru-yang-ideal. [Diakses 7 June 2022].
- [35] M. Al Farhan, "The Implementation of Instructional Design by Novice English Teacher at Modern Islamic Boarding School," Universitas Negeri Yogyakarta, Yogyakarta, 2021.
- [36] M. Csikszentmihalyi and R. Wolfe, "New conceptions and research approaches to creativity: Implications of a systems perspective for creativity in education," *The systems model of creativity*, pp. 161-184, 2014.
- [37] C. Gassull, C. Casanova, Q. Botey and M. Amador, "The impact of the reactivity to stress in teachers with voice problems," *Folia Phoniatrica et Logopaedica*, vol. 62, no. 1-2, pp. 35-39, 2010.