International Journal of Educational Qualitative Quantitative Research (IJE-QQR)
ISSN: 2962-9918 (Online)
Vol. 1, No. 1, pp. 16-22

Students' Critical Thinking and Writing Skills in Project-Based Learning

Suteja Suteja[1], Dadan Setiawan[2]
[1]Fakultas Ilmu Terbiyah dan Keguruan, IAIN Syekh Nurjati Cirebon
[2] PGMI, IAIN Syekh Nurjati Cirebon

Article Info

Article history:
Received May 24, 2022
Revised Jun 19, 2022
Accepted Jun 29, 2022

DOI: 10.58418/ijeqqr.v1i1.5

How to cite this article:
Suteja, S., & Setiawan, D. (2022). Students' Critical Thinking and Writing Skills in Project-Based Learning. *International Journal of Educational Qualitative Quantitative Research*, *1*(1), 16–22.

Read online:

Scan this QR code with your smart phone or mobile device to read online.

ABSTRACT

This study describes the relationship between elementary school students' critical thinking and writing skills. The main objective of this research is to describe students' writing and critical thinking skills through project-based learning models. This study uses a quantitative approach with a quasi-experimental type. The research design used was a nonequivalent pretest-posttest control group design. The sample of this study was 50 students who were divided into 25 experimental groups and 25 students in the control class. This research selects 6th-grade students from one school in Bandung. The data collection instrument in this study used a description test to determine students' critical thinking and an assignment test to make persuasive texts to assess students' writing skills. The ANOVA test was used to determine the relationship between critical thinking and students' writing skills. The T-test was used to determine the differences in students' ability to write persuasive texts before and after receiving treatment with the project-based learning model. The results showed a good correlation between critical thinking and students' writing skills. In addition, there is a significant difference in students' writing skills before and after learning using the project-based learning model. It can be seen from the significance value of 0.00 <0.05. Thus the project-based learning model has a positive impact on improving students' critical thinking in learning to write and writing skills for elementary school students.

Keywords: Critical Thinking, Writing Skills, Project-Based Learning Models, Elementary School Students.

Corresponding Author:
Suteja Suteja
Email: ibnupakar@gmail.com

1. INTRODUCTION

Critical thinking skills are important skills to be mastered by every individual (Gelder, 2005). Critical thinking skills can be defined as a set of cognitive abilities that are active and skilled in conceptualizing, applying concepts, analyzing, synthesizing, and evaluating information obtained from observation, experience, reflection, reasoning, or communication, as a guide for determining attitudes or actions. Facione, 2011; Piauw, 2010). Critical thinking is very important in the education system (Aránguiz et al., 2020; Gilmanshina et al., 2021). In the educational process, students are encouraged to train and develop their thinking to gain understanding and good thinking skills (Saputri et al., 2019; Supena et al., 2021; Teng et al., 2019).

Thinking skills have now become skills that are getting more attention (Kim et al., 2019). Even countries today have focused on education oriented to developing thinking skills (Zohar & David, 2009). Thinking skills that are an essential focus to be developed and have become a top priority in the field of education by countries in the world are higher order thinking skills, including critical thinking skills (Ennis, 1985).

Critical thinking is still considered an ability that can help students in learning (Mulnix, 2012; Paul, 2005). With critical thinking skills, students will be more active in exploring various information, analyzing, evaluating, and solving problems (Kincheloe, 2008; Lai, 2009). In line with this explanation,

students with critical thinking skills have advantages compared to students who do not have good thinking skills. Students with critical thinking will be more active in the learning process and more effective in learning and understanding things (Butler, 2012; Halpern, 2014).

Critical thinking skills not only make students more active and easy to understand, but critical thinking skills also affect students' writing skills (Ebadi & Rahimi, 2018; Ismail et al., 2018). Students who have critical thinking can write something important and substantive because students who have critical thinking skills can clearly and critically express various ideas. Students can evaluate their ideas and ideas submitted by others and can find solutions to solve problems (Paul & Elder, 2006).

Critical thinking affects writing skills (Soodmand Afshar et al., 2017). Through the writing process, students are required to think critically to produce good writing because the results of writing describe a person's critical thinking. As evidence that critical thinking can be improved through learning to write, research conducted by Carroll (2007) and Condon & Kelly-Riley (2004) suggests a change in students' intellectual or thinking ability in the writing process. From this explanation, it can be concluded that the writing process is closely related to critical thinking activities. It is because the results of the writings that are made describe the author's thoughts (KELLOGG & WHITEFORD, 2009).

Learning to write must be done by applying learning steps that can encourage students to think critically and develop their writing skills (Abidin, 2017; Varner & Peck, 2003). One way to make this happen is to use innovative learning models that encourage students to be active in learning (Fatimah et al., 2022; Kuswanda et al., 2020; Zhu et al., 2013). One creative learning model enables students to be involved in education and solving problems is the Project Based Learning (PBL) model (Hogue et al., 2011; Lou et al., 2017).

The PBL model is an innovative learning model as an alternative to developing students' 21st-century skills (Prahani et al., 2020; Sudjimat et al., 2021). Through learning activities, project-based learning provides opportunities for students to gain knowledge, increase understanding, and acquire new skills (ChanLin, 2008). The advantages of the PBL model are that it can accommodate students' learning interests (Umar & Ko, 2022). Because freedom to plan learning activities, determine projects to solve problems, and carry out tasks collaboratively can increase student cooperation, build attitudes and develop skills (Jalinus et al., 2020; Parker, 2020; Sirisrimangkorn, 2021).

In addition to the above advantages, the project-based learning model emphasizes that students learn problem-solving through created projects. Therefore, in the learning process, using problems is the first stage in exploring the knowledge and experiences of students. From this activity, students are encouraged to carry out investigative activities to find issues until students find solutions in the form of products or tools to solve these problems (BAS & Beyhan, 2010). This project-based learning also utilizes various existing capitals to facilitate students in developing the knowledge, attitudes, and skills to be achieved (Alafouzou et al., 2013; Alharbi et al., 2018).

Project-based learning is an instructional technique used to develop study and language skills. This characteristic of project-based learning is included in meaningful activities because it allows students to participate in decision-making activities and problem-solving (Howard, 2002).

2. METHOD

This study uses a quantitative approach. This research method is quasi-experimental with a Non-Equivalent Pretest-Posttest Control Group Design. A quantitative with a quasi-experimental to see the effect or influence of the actions applied in the experimental group (Hidayat, 2018; Creswell & Creswell, 2018). This quasi-experimental method aims to know the impact of the project-based learning model on students' ability to write persuasive texts.

2.1. Population and Sample

The population of this research is grade 6 elementary school in Bandung, Indonesia. The sample of this study amounted to 50 students of grade 6 elementary school students who were divided into experimental and control groups. A total of 25 students were in the experimental group, and as many as 25 students were in the control group. The sampling technique used in this research is purposive sampling, which means that the sample is not taken randomly but is determined based on specific considerations (Dhameria et al., 2021; R Nur Abdurakhman et al., 2022).

2.2. Data collection

This research instrument uses a test in the form of 10 questions to determine students' critical thinking skills and an assignment test to write persuasive texts to assess the writing ability of 6th-grade elementary school students. The indicators to evaluate critical thinking skills in this study are (1) analytical skills, (2) the ability to synthesize, (3) problem-solving ability, (4) the ability to conclude, and (5) the ability to evaluate. The indicators for assessing the ability to write persuasive texts are (1) content, (2) content organization, (3) the use of words, and (4) mechanics. This data collection instrument has been validated with expert judgment and declared suitable for use..

2.3. Procedure

In the research procedure, the researcher took a non-random sample. Samples were taken from two sixth-grade elementary schools in one of the schools in the city of Bandung. After taking the sample, a pretest was then conducted to determine the students' critical thinking and writing skills before receiving treatment. After that, treatment was carried out for four learning meetings by applying a project-based learning model. After being given treatment, doing a post-test to find out critical thinking and the ability to write persuasive texts students after learning with the learning stages of the project-based learning model.

3. RESULTS AND DISCUSSION

Research data on critical thinking and the ability to write persuasive texts for grade 6 elementary school students. Regarding the normality of the data and whether the data were normally distributed or not using the Lilliefors test. After the normality test was carried out, a correlation test was carried out between critical thinking and writing skills to find out whether there was a relationship or a close relationship between the two. This study's correlation test used the Pearson and Spearman's tests. After that, the difference in the two mean abilities to write persuasive texts was carried out between before and after being given treatment using a project-based learning model using a t-test. The purpose of this t-test is to determine whether the project-based learning model affects the ability to write persuasive texts.

Critical thinking is one of the primary and essential competencies needed by every student to achieve maximum learning outcomes. With the necessary thinking skills, students can find problems, evaluate problems from different perspectives, identify and analyze facts, and make their judgments based on evidence, not assumptions, so that they can be used as a basis for decision-making. Someone with good critical thinking skills will be encouraged to think analytically to describe some things being studied. In the process of writing, someone who has critical thinking will be able to express his understanding logically and systematically.

This study describes how critical thinking supports the ability to write persuasive texts for students. Then this section it is also explained how the ability to write persuasive texts for sixth-grade elementary school students before being given treatment and after being given treatment using a project-based learning model. The following are the results of this study.

3.1. The Relationship between Critical Thinking and Writing Skills

Critical thinking helps students understand the problems studied from various points of view. In learning to write, critical thinking plays an essential role in assisting students in describing the content or content writing. The following explains how critical thinking relates to students' writing abilities.

Table 1. Normality Test of Critical Thinking

Critical Thinking		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pretest	1.00	0.287	25	0.000	0.857	25	0.002
Posttest	2.00	0.249	25	0.000	0.812	25	0.000

a. Lilliefors Significance Correction

Table 1 above shows that the critical thinking data is not normally distributed. It is because the significance value of the normality test is 0.00<0.05, which means that data is not normally distributed.

Tabel 2. Correlation Test of Pre-test between Critical Thinking and Writing Skills

Correlations				
			Critical Thinking	Writing Skills
Spearman's rho	Critical Thinking	Correlation Coefficient	1.000	0.423*
		Sig. (2-tailed)	.	0.035
		N	25	25
	Writing Skills	Correlation Coefficient	0.423*	1.000
		Sig. (2-tailed)	0.035	.
		N	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

From the data table 2 it is known that critical thinking correlates with students' writing abilities because the significance value is 0.035 <0.05. The relationship between critical thinking and writing ability is quite strong. This means that critical thinking affects the ability of sixth grade elementary school students in writing persuasive texts.

Tabel 3. Correlation Test of Post-test between Critical Thinking and Writing Skills

			Critical Thinking	Writing Skills
Spearman's rho	Critical Thinking	Correlation Coefficient	1.000	0.486*
		Sig. (2-tailed)	.	0.014
		N	25	25
	Writing Skills	Correlation Coefficient	0.486*	1.000
		Sig. (2-tailed)	0.014	.
		N	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation test results on critical thinking posttest data with writing ability are 0.14 <0.05, which means critical thinking is correlated with writing ability. The relationship between critical thinking and writing skills is positive and quite strong. Thus critical thinking can affect the writing ability of sixth-grade elementary school students.

3.2. Writing Skills with Project-based Learning Model

Writing skill is an essential ability in the learning process. Writing activities are an integral part of learning activities. This study explains how the ability to write persuasive texts for sixth-grade elementary school students is explained by applying the project-based learning model.

Tabel 4. Normality Test of Writing Skills Data

	Writing Skills	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Pretest Experimen	1.00	0.269	25	0.000	0.823	25	0.001
Pretest Control	2.00	0.326	25	0.000	0.770	25	0.000
Posttest Experimen	1.00	0.258	25	0.000	0.796	25	0.000
Posttest Control	2.00	0.262	25	0.000	0.839	25	0.001

a. Lilliefors Significance Correction

Table 4 shows the data on students' writing skills. The experimental and control classes were not normally distributed. It indicates that the significance value is <0.05, so the next step is to test the difference between the two means using the non-parametric Mann-Whitney test.

Tabel 5. Mann-Whitney U test

	Pre-test Experiment dan Control	Post-test Experiment dan Control
Mann-Whitney U	300.500	177.500
Wilcoxon W	625.500	502.500
Z	-0.262	-2.773
Asymp. Sig. (2-tailed)	0.793	0.006

a. Grouping Variable: datapretesmenulis_exp_ctrl

Table 5 shows that there are significant differences in students' ability to write persuasive texts before and after being given treatment using the Project-based Learning model. That means that the PBL model positively impacts students' writing skills.

From the study results, critical thinking affects students' writing ability. It is because critical thinking can help students express various ideas, evaluate their own ideas and ideas submitted by others, and find solutions to solve problems (Paul & Elder, 2006).

Writing skill is very important because it is an integral part of learning. Writing skills must continue to be honed so that students are skilled in writing. One way to develop writing skills is to apply the PBL model. The PBL model is an innovative learning model that can be used as an alternative in developing students' 21st-century skills. That is because project-based learning provides opportunities for students to gain knowledge, increase understanding, and acquire new skills through learning activities (Parker, 2020). The advantages of the PBL model are that it can accommodate students' learning interests. Because they are given the freedom to plan learning activities, determine projects that will be made to solve problems, and carry out tasks collaboratively, they can increase student cooperation, can build attitudes, and can develop skills in century-21 (Jalinus et al., 2020; Parker, 2020; Sirisrimangkorn, 2021).

In addition to the above advantages, the project-based learning model emphasizes that students learn problem-solving through created projects. Therefore, in the learning process, using problems is the first stage in exploring the knowledge and experiences of students. From this activity, students are

encouraged to carry out investigative activities to find issues until students find solutions in the form of products or tools to solve these problems (BAS & Beyhan, 2010). This project-based learning also utilizes various existing capitals to facilitate students in developing the knowledge, attitudes, and skills to be achieved (Alafouzou et al., 2013; Alharbi et al., 2018).

4. CONCLUSION

Based on the study's results, the project-based learning model affects critical thinking and students' ability to write persuasive texts. The writing ability of students has increased significantly after being given learning using a project-based learning model. The project-based learning model has implications for increasing learning activities, encouraging students to be active in scientific activities and thinking so that students gain a better understanding and meaningful experience during the learning process. In addition, based on the findings, critical thinking is closely related to student's ability to write persuasive texts. It means that critical thinking affects students' writing skills.

REFERENCE

Abidin, Y. (2017). Pengembangan Model Pembelajaran Literasi Berbasis Konsep Multiliterasi, Integratif, dan Berdiferensiasi (MID) di Sekolah Dasar. *Jurnal Cakrawala Pendidikan*, *36*(2). https://doi.org/10.21831/cp.v36i2.13283

Alafouzou, A., Lamprinou, D., & Paraskeva, F. (2013). *Gamified Project Based Learning Environment for Motivation Improvement*. *1979*, 2013.

Alharbi, N. M., Athauda, R. I., Chiong, R., Alharbi, N. M., Athauda, R. I., Chiong, R., Athauda, R. I., & Chiong, R. (2018). Empowering collaboration in project-based learning using a scripted environment : lessons learned from analysing instructors ' needs needs. *Technology, Pedagogy and Education*, *00*(00), 1–17. https://doi.org/10.1080/1475939X.2018.1473289

Aránguiz, P., Palau-Salvador, G., Belda, A., & Peris, J. (2020). Critical Thinking Using Project-Based Learning: The Case of The Agroecological Market at the "Universitat Politècnica de València." *Sustainability*, *12*(9), 3553. https://doi.org/10.3390/su12093553

BAS, G., & Beyhan, O. (2010). *Effects of multiple intelligences supported project-based learning on students ' achievement levels and attitudes towards English lesson*. *2*(3).

Butler, H. A. (2012). Critical Thinking Assessment predicts real world outcomes of critical thinking. *Applied Cognitive Psychology*, *26*, 721–729. https://doi.org/https://doi.org/10.1002/acp.2851.

Carroll, D. W. (2007). Patterns of student writing in a critical thinking course: A quantitative analysis. *Assessing Writing*, *12*(3), 213–227. https://doi.org/10.1016/j.asw.2008.02.001

ChanLin, L. (2008). Technology integration applied to project-based learning in science. *Innovations in Education and Teaching International*, *45*(1), 55–65. https://doi.org/10.1080/14703290701757450

Condon, W., & Kelly-Riley, D. (2004). Assessing and teaching what we value: The relationship between college-level writing and critical thinking abilities. *Assessing Writing*, *9*(1), 56–75. https://doi.org/10.1016/j.asw.2004.01.003

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (Fifth Edition). SAGE Publications, Inc.

Dhameria, V., Ghozali, I., Hidayat, A., & Aryanto, V. D. W. (2021). Networking capability, entrepreneurial marketing, competitive advantage, and marketing performance. *Uncertain Supply Chain Management*, *9*(4), 941–948. https://doi.org/10.5267/j.uscm.2021.7.007

Ebadi, S., & Rahimi, M. (2018). An exploration into the impact of WebQuest-based classroom on EFL learners' critical thinking and academic writing skills: a mixed-methods study. *Computer Assisted Language Learning*, *31*(5–6), 617–651. https://doi.org/10.1080/09588221.2018.1449757

Ennis, R. H. (1985). A Logical Basis for Measuring Critical Thinking Skills. In *Educational Leadership* (Vol. 43, Issue 2). https://pdfs.semanticscholar.org/80a7/c7d4a98987590751df4b1bd9adf747fd7aaa.pdf

Facione, P. a. (2011). Critical Thinking : What It Is and Why It Counts. *Insight Assessment*, *ISBN 13: 978-1-891557-07-1.*, 1–28. https://www.insightassessment.com/CT-Resources/Teaching-For-and-About-Critical-Thinking/Critical-Thinking-What-It-Is-and-Why-It-Counts/Critical-Thinking-What-It-Is-and-Why-It-Counts-PDF

Fatimah, S., Rosidin, D. N., & Hidayat, A. (2022). Student-based Learning in The Perspective of Constructivism Theory and Maieutics Method. *International Journal Of Social Science And Human Research*, *5*(5), 1632–1637.

Gelder, T. van. (2005). Teaching Critical Thinking: Some Lessons From Cognitive Science. *College Teaching*, *53*(1), 41–48. https://doi.org/10.3200/CTCH.53.1.41-48

Gilmanshina, S., Smirnov, S., Ibatova, A., & Berechikidze, I. (2021). RETRACTED: The assessment of critical thinking skills of gifted children before and after taking a critical thinking development course. *Thinking Skills and Creativity*, *39*, 100780. https://doi.org/10.1016/j.tsc.2020.100780

Halpern, D. F. (2014). *Thought And Knowledge: An Introduction To Critical Thinking Fifth Edition*. Taylor & Francis.

Hidayat, A. (2018). Kemampuan Biostatistik melalui Pendekatan Investigasi pada Materi Regresi Sederhana. *Syntax Literate; Jurnal Ilmiah Indonesia*, *3*(3), 1–11.

Hogue, A., Kapralos, B., & Desjardins, F. (2011). The role of project-based learning in IT. *Interactive Technology and Smart Education*, *8*(2), 120–134. https://doi.org/10.1108/17415651111141830

Ismail, N. S., Harun, J., Zakaria, M. A. Z. M., & Salleh, S. M. (2018). The effect of Mobile problem-based learning application DicScience PBL on students' critical thinking. *Thinking Skills and Creativity*, *28*, 177–195. https://doi.org/10.1016/j.tsc.2018.04.002

Jalinus, N., Azis, R., & Arbi, Y. (2020). *How Project-Based Learning and Direct Teaching Models Affect Teamwork and Welding Skills Among Students*. *11*(11).

KELLOGG, R. T., & WHITEFORD, A. P. (2009). Training Advanced Writing Skills: The Case for Deliberate Practice. *Educational Psychologist*, *44*(4), 250–266. https://doi.org/10.1080/00461520903213600

Kim, S., Raza, M., & Seidman, E. (2019). Improving 21st-century teaching skills: The key to effective 21st-century learners. *Research in Comparative and International Education*, *14*(1), 99–117. https://doi.org/10.1177/1745499919829214

Kincheloe, J. L. (2008). *Critical Pedagogy and the Knowledge Wars of the Twenty-First Century by*. *1*(1).

Kuswanda, L., Hindriana, A. F., Dani, A. H., Ismana, M. F., & Hidayat, A. (2020). Implementation of Self Assessment to Increase the Science Process Skills and the High-Level Cognitive Abilities on Plants Growth and Development through Research-Based Learning. *Journal of Physics: Conference Series*, *1477*(4).

Lai, Y. . (2009). *Assessing students' Critical Thinking Performance: Urging for measurements using multi-response format. Thinking Skills and Creativity,*. *4*(1), 70–76. https://doi.org/https://doi.org/10.1016/j.tsc.2009.02.001

Lou, S.-J., Chou, Y.-C., Shih, R.-C., & Chung, C.-C. (2017). A Study of Creativity in CaC2 Steamship-derived STEM Project-based Learning. *EURASIA Journal of Mathematics, Science and Technology Education*, *13*(6). https://doi.org/10.12973/eurasia.2017.01231a

MULNIX, J. W. (2012). Thinking Critically about Critical Thinking. *Educational Philosophy and Theory*, *44*(5), 464–479. https://doi.org/10.1111/j.1469-5812.2010.00673.x

Parker, J. L. (2020). *intermediate Spanish course*. *12*(1), 80–97.

Paul, R. (2005). The state of critical thinking today. *New Directions for Community Colleges*, *2005*(130), 27–38. https://doi.org/10.1002/cc.193

Paul, R., & Elder, L. (2006). *How to Assess Close Reading and Substantive Writing Use in conjunction with: The Thinker's Guide to Analytic Thinking The Thinker's Guide to Critical Thinking Competency Standards The Foundation for Critical Thinking*. *2*, 1–18. https://www.criticalthinking.org/files/ReadWritingTestOp1.pdf

Piauw, C. Y. (2010). Building a Test to Asses Creative and Critical Thinking Simultaneously. Kualalumpur: *Procedia Social and Behavioral Science.*

Prahani, B. K., Jatmiko, B., Hariadi, B., Sunarto, D., Sagirani, T., Amelia, T., & Lemantara, J. (2020). Blended Web Mobile Learning (BWML) Model to Improve Students' Higher Order Thinking Skills. *International Journal of Emerging Technologies in Learning (IJET)*, *15*(11), 42. https://doi.org/10.3991/ijet.v15i11.12853

R Nur Abdurakhman, Abas Hidayat, Didi Taswidi, & Alifa Romadoni. (2022). Effect of hypertension exercise on blood pressure in the elderly. *World Journal of Advanced Research and Reviews*, *13*(3), 491–495. https://doi.org/10.30574/wjarr.2022.13.3.0269

Saputri, A. C., Sajidan, S., Rinanto, Y., Afandi, A., & Prasetyanti, N. M. (2019). Improving Students' Critical Thinking Skills in Cell-Metabolism Learning Using Stimulating Higher Order Thinking Skills Model. *International Journal of Instruction*, *12*(1), 327–342. https://doi.org/10.29333/iji.2019.12122a

Sirisrimangkorn, L. (2021). *Improving EFL Undergraduate Learners ' Speaking Skills Through Project-Based Learning Using Presentation*. *c*.

Soodmand Afshar, H., Movassagh, H., & Radi Arbabi, H. (2017). The interrelationship among critical thinking, writing an argumentative essay in an L2 and their subskills. *The Language Learning Journal*, *45*(4), 419–433. https://doi.org/10.1080/09571736.2017.1320420

Sudjimat, D. A., Nyoto, A., & Romlie, M. (2021). Implementation of Project-Based Learning Model and

Workforce Character Development for the 21st Century in Vocational High School. *International Journal of Instruction*, *14*(1), 181–198. https://doi.org/10.29333/iji.2021.14111a

Supena, I., Darmuki, A., & Hariyadi, A. (2021). The Influence of 4C (Constructive, Critical, Creativity, Collaborative) Learning Model on Students' Learning Outcomes. *International Journal of Instruction*, *14*(3), 873–892. https://doi.org/10.29333/iji.2021.14351a

Teng, W., Ma, C., Pahlevansharif, S., & Turner, J. J. (2019). Graduate readiness for the employment market of the 4th industrial revolution. *Education + Training*, *61*(5), 590–604. https://doi.org/10.1108/ET-07-2018-0154

Umar, M., & Ko, I. (2022). E-Learning: Direct Effect of Student Learning Effectiveness and Engagement through Project-Based Learning, Team Cohesion, and Flipped Learning during the COVID-19 Pandemic. *Sustainability*, *14*(3), 1724. https://doi.org/10.3390/su14031724

Varner, D., & Peck, S. R. (2003). Learning From Learning Journals: The Benefits And Challenges Of Using Learning Journal Assignments. *Journal of Management Education*, *27*(1), 52–77. https://doi.org/10.1177/1052562902239248

Zhu, C., Wang, D., Cai, Y., & Engels, N. (2013). What core competencies are related to teachers' innovative teaching? *Asia-Pacific Journal of Teacher Education*, *41*(1), 9–27. https://doi.org/10.1080/1359866X.2012.753984

Zohar, A., & David, A. Ben. (2009). *Paving a clear path in a thick forest : a conceptual analysis of a metacognitive component*. 177–195. https://doi.org/10.1007/s11409-009-9044-6