

Minangkabau Proverb: Stimulating High School Students' Critical Thinking and Spatial Thinking

Silvia Marni¹, Muhammad Aliman², Emil Septia³, Ninit Alfianika¹

¹Postgraduate Indonesian Language Education, State University of Malang, Indonesia

²Postgraduate Geography Education, State University of Malang, Indonesia

³STKIP PGRI Sumatera Barat, Indonesia

Keywords: Proverb, Critical Thinking, Spatial Thinking, Learning

Abstract: Critical thinking and spatial thinking need to be developed by utilizing local wisdom, one of which is using proverb. This research aims to describe and explain the forms of critical thinking and spatial thinking is found in Minangkabau proverb and integrates the meaning of critical thinking and spatial thinking in the learning. This research is a qualitative descriptive research that uses content analysis. The data is obtained from a collection book containing 1000 Minangkabau proverbs. The results of the research in the form of Minangkabau proverb which contains elements of critical thinking and spatial thinking are integrated into Indonesian language learning and geography learning in high school. The implication of this study is that the teacher plays an important role in integrating the Minangkabau maxim in each of its learning because it can improve students' critical thinking and spatial thinking skills.

1 INTRODUCTION

The development of education in the 21st century requires students to have abilities in various fields. These abilities are the ability to think critically, think creatively, think logically, think analytically, and think spatially. These capabilities can equip students to face global competition (World Economic Forum). However, the thinking ability needed is the ability to think critically and think spatially to support learning activities (Aliman et al., 2019a; Gojkov et al., 2015; Jo and Bednarz, 2014). There have been various ways done in order to develop and improve these capabilities.

Problem of Research

Critical thinking is a reflective thought (Ennis, 1985). Think about your own thoughts. That is, when one uses his thinking ability, it will involve a strong analysis and a sharp knot of what is in front of them and their minds (Ennis, 1985). Critical thinking can have a positive effect on student opinions (Kaya, Hatice, Ayla, 2011). In order to improve students' critical thinking skills, teachers need to plan and deliver curriculum programs that can support students' critical thinking capacity (Gul et al., 2010). In addition, the development of

students' critical thinking skills can be learned from several things, including meta competence, special competence and personal feelings (Gedik, 2013).

Critical thinking studies have put forward critical thinking skills by designing instruments (Albergaria-Almeida, 2011), preparing valid evaluation tools (Shin, Park, & Kim, 2015), critical thinking in initial teacher education (Nedelova & Denisa, 2017), and defining critical thinking indicators (Gojkov et al., 2015). So far, there has been no research on the provision of stimulus to train students' thinking skills through the understanding of local wisdom. In fact, learning that uses the environment as a source of learning has not been done much by teachers.

Spatial thinking also uses the individual's ability to think in the process of thinking. Spatial thinking is a process of thinking in reconstructing, interpreting in taking policy to solve a problem related to geosphere phenomena (Bednarz, 2015; Bodzin, Fu, Kulo, & Peffer, 2014). In addition, spatial thinking is an individual cognitive skill in understanding the space, using representational tools and tactical in-process (National Research Council, 2006: 12).

Spatial thinking ability can be improved in formal study room. Spatial thinking has not been a systematic thought of school children. Therefore, it

needs to be taught formally and integrated into the school curriculum (National Research Council, 2006). During this time, efforts to improve spatial thinking abilities have been made for geographers (Huynh & Sharpe, 2013; Jo & Bednarz, 2014b), spatial thinking pedagogy on pre-service teachers (Jo & Bednarz, 2014a), geographic textual indicator (Jo & Bednarz, 2011). However, efforts to improve the student's spatial thinking ability through the integration of Minangkabau local wisdom have not been much researched.

Spatial thinking processes in humans tend to work after a memory storage processes over events/ events memory or phenomena. Similarly, the process will work when experiencing dissatisfaction with knowledge, high curiosity, and facing problems. The formation of critical thinking processes and spatial thinking in student cognition can be described in the form of thinking indicators. This article uses critical thinking indicators such as interpretation, self-regulation, evaluation, inference, explanation, and analysis (Facione, 1990). While the spatial thinking indicators that been used are scale, spatial interaction, comprehensive, application, representation, and analysis (Huynh & Sharpe, 2013).

Critical thinking skills and spatial thinking have things in common. Critical thinking ability can be identified by seeing how someone responds to a problem. While, a person's spatial thinking ability is reflected in sensitivity and preparedness in every situation and condition. These two capabilities are competencies face complex challenges, for example: determining the location of public services and planning for sustainable areas. Critical thinking ability are part of 21st century competencies, while spatial thinking ability are part of collaborative competencies which are also part of 21st century competencies. Therefore, these two thinking abilities must be instilled in students early on. There have been various ways done in order to develop and improve these capabilities. For example, critical thinking skills can be improved through cooperative learning (Aunurrahman, Hamied, & Emilia, 2017), while spatial thinking skills can also be improved by the use of geography information system (GIS)

(Huynh & Sharpe, 2009). The use of models and learning media functions to enhance critical thinking skills and spatial thinking. In addition, another way that can be done is to integrate the Minangkabau proverb into the learning process at school. Minangkabau proverb is an ancestral culture that was born from the knowledge and experience of its people long ago. Integrating the Minangkabau proverb maxim in learning is one of the efforts in preserving local wisdom (Aliman et al., 2019c).

The proverb is the result of people's thoughts that are formed from experience and learning on natural and environmental conditions since a long time ago. This is what forms the philosophy of the Minangkabau community known as "*Alam Takambang jadi guru*" which means that the natural environment can be a source of learning. The proverb of Minangkabau is local wisdom that must be inherited. Local wisdom contains noble values that can shape the character of the younger generation so it needs to be preserved. However, the philosophy will be marginalized by the times. This is due to the lack of transfer of local culture to the younger generation. Therefore, local wisdom needs to be preserved.

Preservation can be done in many ways one of which is by integrating it into learning at school. Integrating local wisdom values is assumed to stimulate students' thinking activities. Integration of value in Minangkabau proverb can be in the form of developing critical thinking skills and spatial thinking skills. Both of these thinking skills will shape the moral and sensitivity of students (caring) towards the surrounding environment so that they will be a generation that is able to compete against the challenges of the times (Aliman et al., 2019b).

2 METHODOLOGY

This research is a qualitative descriptive research that uses content analysis techniques (Krippendorff, 2003). The data source was obtained from a collection of 1000 Minangkabau proverbs written by Hakimy (2006). This research data is in the form of Minangkabau proverb which contains elements of critical thinking and spatial thinking.

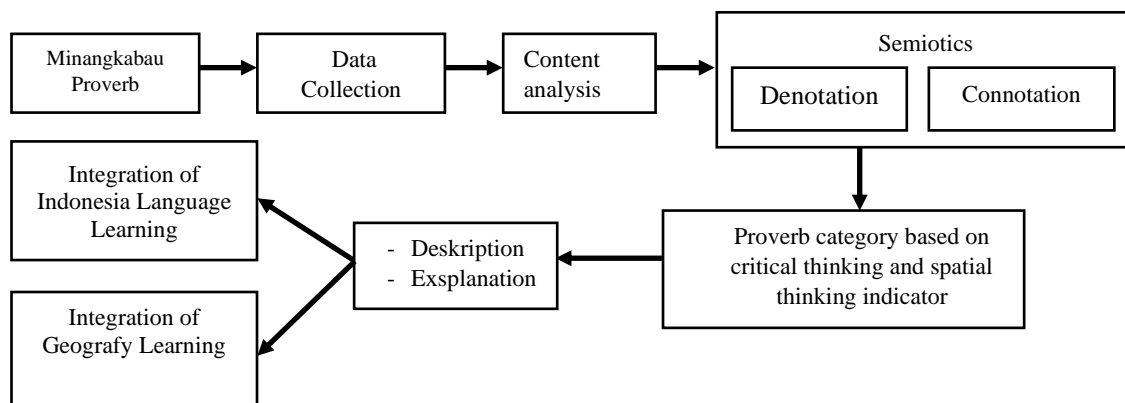


Figure 1: Research plot

The data are collected by reading 1000 Minangkabau proverbs. Then the proverbs are classified into five areas of life, namely the socio-cultural field, the economic field, the socio-political field, the religious field, and the law / defense sector (Hakimy, 2006). From the classification, a proverb that contains elements of thinking is chosen. The thinking elements found in the proverb include logical thinking, creative thinking, analytical

thinking, critical thinking, and spatial thinking. After that, the same types of thinking are found in each proverb and studied in depth. The proverb is described and explained based on indicators of critical thinking and spatial thinking. The results of the description and explanation are integrated into the competencies that high school students must achieve. The process of reduction and data analysis are explained on table 1.

Table 1: Reduction process and data analysis

Data source	Data unit	Sampling	Data reduction	Inference drawing	
1000 Minangkabau proverb	Social Cultural	<i>Alun Takilek Lah Takalam</i>	Critical, spatial, analytic, creative	Thinking critically and thinking spatially	Analysis
	Economy	<i>Gabak di hulu tando ka hujan</i>	Critical, analytic, spatial, logical		
	Social political	<i>Cewang dilangik tando ka paneh</i>	Critical, spatial, logical, analytic		
	Religion	<i>Adat lurah timbunan aia</i>	Critical, logical, spatial		
	Law and defence	<i>Alu tataruang patah tigo, samuik tapijak indak mati</i>	Creative, critical, spatial		

Source: adapted from (Krippendorff, 2003)

In the process of reducing table 1 data, the proverb that is sampled contains forms of critical, spatial, analytical, logical, critical and creative thinking. However, from the five samples, critical thinking and spatial thinking are always present in all samples.

3 RESULTS OF RESEARCH

Based on data collection and data analysis, there were found several Minangkabau proverb which contained elements of critical thinking and spatial thinking. The discussion of findings can be divided into two sections. First, the meaning of Minangkabau proverbs which contain critical thinking and spatial thinking elements. Second, the integration of Minangkabau proverbs to learning process in high school.

3.1 The Integration of Critical Thinking in Indonesian Language Learning

Table 2: Research Findings

Proverb	Critical thinking	Spatial thinking
<i>Alun Takilek Lah Takalam</i>	Interpretation, evaluation, self-regulation	Analysis, Representation, Comprehension
<i>Gabak Di Hulu Tando Ka Hujan</i>	Interpretation, evaluation, analysis, inference	Application, analysis, spatial interaction
<i>Cewang Dilangik Tando Ka Paneh</i>	Interpretation, evaluation, analysis, inference	Application, analysis, spatial interaction
<i>Adat Lurah Timbunan Aia</i>	Interpretation, evaluation, inference, explanation, self-regulation	Spatial interaction, application
<i>Alu Tataruang Patah Tigo, Samuik Tapijak Indak Mati</i>	Interpretation, evaluation, self-reflection, explanation	Analysis, Application

Source: researcher's analysis, 2018

Table 3: The form of integrating the proverb into Indonesian language learning

Proverb	Grade	Indonesian language learning in high school
<i>Alun Takilek Lah Takalam</i>	X	4.5 Reconstruction implicit meaning in anecdotal text
<i>Gabak Di Hulu Tando Ka Hujan</i>	XI	4.4 Producing explanation text orally or in written form by paying attention to its structure and language
<i>Cewang Dilangik Tando Ka Paneh</i>	XI	3.4 Analyzing the structure and language of explanation text
<i>Adat Lurah Timbunan Aia</i>	X	4.1 Replicating the content of scientific book read in the form of review
<i>Alu Tataruang Patah Tigo, Samuik Tainjak Indak Mati</i>	X	4.10 Delivering an offer, agreement, and closing in an argumentative text orally or in written form

Based on table 3, one example of the proverbial the Synectic model on Basic Competence 4.4 class integration in learning is "*Gabak Di Hulu Tando Ka Hujan*" by using the learning steps below based on

Table 4: the steps of Synectic Learning Model

Syntax	Activity Step	Students' activities
Step 1	Describing the current situation	<ul style="list-style-type: none"> - Students answer questions raised by the teacher regarding the process of rain - Students answer teacher questions regarding signs of rain. - Students respond to the teacher's statement about how to know the natural symptom of rain
Step 2	Direct analogy	<ul style="list-style-type: none"> - Students are invited to express a direct analogy about the signs of rain - Students and teachers design a draft explanatory text based on direct analogy - The teacher describe one sign of the occurrence of rain with the proverb "<i>Gabak di hulu tando ka Hujan</i>" - The teacher explains the meaning of the saying "<i>Gabak di hulu tando ka hujan</i>"
Step 3	Personal analogy	<ul style="list-style-type: none"> - Students bring up another analogy to compare with the wisdom given by the teacher to explain the process of rain
Step 4	Dense topic	<ul style="list-style-type: none"> - Students make several signs and describe them in the text of the process of the rain based on direct analogies and personal analogies
Step 5	Direct analogy	<ul style="list-style-type: none"> - Students explore the characteristics of the chosen analogy
Step 6	Examining the initial task	<ul style="list-style-type: none"> - Students discuss with the teacher, students re-examine the explanatory and linguistic elements - Students and teachers reflect on the explanatory text using the Minangkabau proverb

The integration of the Minangkabau proverb in Basic Competencies 4.4 Indonesian language learning Class XI can be done using the synectic learning model. In the second stage, namely the

direct analogy, the teacher ask students to make direct analogies based on the proverb "*Gabak di hulu tando ka hujan*". In this way, students will easily arrange explanation text with the topic "The

Process of Rain". At the end of the stages teachers and students reflect on the preparation of explanatory texts using Minangkabau proverbs.

3.2 The Integration of Spatial Thinking in Geography Learning

Table 5: The form of integrating the proverb into Geography learning

Proverb	Grade	Geography learning in high school
<i>Alun Takilek Lah Takalam</i>	X	3.3 Understanding the steps of geography research using maps
<i>Gabak Di Hulu Tando Ka Hujan</i>	X	3.7 Analyzing the dynamics of the hydrosphere and its impact on life
<i>Cewang Dilangik Tando Ka Paneh</i>	X	3.6 Analyzing atmospheric dynamics and their impact on life
<i>Adat Lurah Timbunan Aia</i>	X	3.5 Analyze the dynamics of the lithosphere and its impact on life
	XII	3.1 Understanding regional and territorial concepts in national, provincial and district / city spatial planning
<i>Alu Tataruang Patah Tigo, Samuik Tainjak Indak Mati</i>	XI	3.2 Analyzing the distribution of flora and fauna in Indonesia and the world based on the characteristics of the ecosystem

Based on table 5, one example of the integration of the proverb "Adat lurah timbunan aia" can be described in the learning step below which uses the Project based learning learning model on 3.1 class XII basic competencies.

Table 6: Steps of Project Based Learning Model

Syntax	The activity stage	Students' activities
Step 1	Making questions	<ul style="list-style-type: none"> - Students answer questions raised by the teacher about the causes of flooding in West Sumatra, especially in the City of Padang. - Students answer teachers questions about any area in Padang City that impacted flooding. - Students give a response to the teacher's statement on how to find a flood and find out which areas are safe from flooding in the City of Padang.
Step 2	Designing project activities	<ul style="list-style-type: none"> - Students and their groups designed the project to find out the location of the flood in Padang City by designing a project to create a thematic map of the location of floods in the City of Padang. - Together with each group, students understand the process of making thematic maps and provide tools and materials used to make thematic maps.
Step 3	Arrangeing a schedule of activities	<ul style="list-style-type: none"> - Students describe the steps for making thematic maps of flood locations and schedule the completion of the project.
Step 4	Observing project activities	<ul style="list-style-type: none"> - Students monitor the thematic making of a thematic map of flood area of the city of Padang by following the manufacturing steps.
Step 5	Testing the product	<ul style="list-style-type: none"> - Students present the results of their projects in front of the class. - Other students and teachers provide suggestions on the results presented
Step 6	Reflecting on the product	<ul style="list-style-type: none"> - Students discuss with the teacher, reflect on the project process carried out. - Students and teachers reflect on the content of the thematic map and review the theme of the map by comparing it with the theory and reality in the field. - Students discuss with the teacher to study the causes of flooding at the location on the map and relate it to the local wisdom of Minangkabau (Proverb), one of which reads "<i>Adat lurah timbunan aia</i>"

The integration of the Minangkabau proverb as a spatial thinking stimulus is illustrated in the sixth step, which is product reflection. In the sixth step, the teacher explains to the students that the ancestral local wisdom has provided a clue that the proverb "Adat lurah timbunan aia" implies that the valleys and ravines are areas that are easily filled with water. Therefore, the use of valleys and ravines is

not suitable to be used as residential settlements because it can cause flooding, loss of life and material casualties. In the end, the teacher

4 DISCUSSION

Minangkabau proverbs that contain characters can be integrated into learning. The proverb value and meaning are used as stimulus of students' critical thinking spatial thinking. From the analysis carried out integrating the proverb can be done on Indonesian and Geography subjects.

This research focuses on stimuli for critical thinking and spatial thinking. From the findings of this research, learning Indonesian and Geography is assumed to be appropriate for practicing these abilities. This is in accordance with the achievement of Indonesian and Geography learning compiled in basic competencies by integrating the value and meanings of the Minangkabau proverb into the learning syntax.

The meaning of the proverb provides contextual stimuli to students, especially students who are in the Minangkabau natural environment. Students will know and love their customs and culture that are rich in moral and character messages. As concluded by Oyserman (2016) that culture can change one's mindset according to the situation they face, both the same cultural situations and different cultures. This certainly has a positive impact on the development of students' thinking in comprehend meaning in each learning and make them be a better person in the future.

Cultural learning opens students' insight into the world with a variety of customs. The uniqueness and distinctiveness of certain cultures are very important to be taught in schools to motivate students and teachers (Gedrovics, 2005). This will create learning in accordance with the national curriculum in Indonesia. Learning that integrates cultural elements can improve the balance of both cognitive, psychological and social levels, ideas, values, behaviors that must be consistent with individual needs (Pornpimon, et al., 2014).

5 CONCLUSIONS

From the findings and discussion, a number of things can be concluded. First, the local wisdom in the form of proverb can foster character for the younger generation in facing the challenges of the 21st century. Second, the Minangkabau proverb that

collaborates on the findings on thematic maps, the location of settlements and relates them to the meaning of the proverb.

contains elements of critical thinking and spatial thinking are classified in five areas of life, namely socio-cultural fields, economics, socio-political fields, fields religion, and law / defense. The proverb is: *alun takilek lah takalam, gabak di hulu tando ka hujan, cewang di langik tando ka paneh, adat lurah timbunan aia, alua tataruang patah tigo samuik tainjak indak mati*. Third, the meaning of Minangkabau proverbs is in line with the elements of critical thinking and spatial thinking. Fourth, the Minangkabau proverb can be used as a learning resource to stimulate critical thinking skills and spatial thinking of high school students. Fifth, this research can be further developed in making local wisdom-based teaching books.

ACKNOWLEDGEMENTS

Thank you to the Lembaga Pengelola Dana Pendidikan (LPDP) Ministry of Finance of the Republic of Indonesia.

REFERENCES

- Albergaria-Almeida, P. (2011). Critical Thinking, Questioning and Creativity as Components of Intelligence. *Procedia - Social and Behavioral Sciences*, 30, 357–362. <https://doi.org/10.1016/j.sbspro.2011.10.070>
- Aliman, M., Budijanto, Sumarmi, Astina, I.K., Putri, R.E., Arif, M., (2019a). The Effect of Earthcomm Learning Model and Spatial Thinking Ability on Geography Learning Outcomes. *Journal of Baltic Science Education*, 18 (3), 323–334. <https://doi.org/10.33225/jbse/19.18.323>.
- Aliman, M., Budijanto, Sumarmi, Astina, I.K., (2019b) Improving Environmental Awareness of High School Students' in Malang City through Earthcomm Learning in the Geography Class. *International Journal of Instruction*, 12 (4). Online First.
- Aliman, M., Marni, S., Budijanto, B., Sumarmi, S., & Astina, I. K. (2019c). Makna Berpikir Spasial Masyarakat Minangkabau Dalam Logo Pemerintahan Daerah Di Sumatera Barat (The Meaning of Spatial Thinking of the Minangkabau Society in the Symbol of Regional Government in West Sumatera). *Jurnal Geografi*, 11(2), 123–134. <https://doi.org/10.24114/jg.v11i2.13049>
- Aunurrahman, A., Hamied, F. A. H., & Emilia, E. (2017). Exploring the Tertiary EFL Students' Academic Writing Competencies. *Indonesian Journal of Applied*

- Linguistics*, 7(1), 72.
<https://doi.org/10.17509/ijal.v7i1.6860>
- Bednarz, S. (2015). Geographic Thinking. In *The Power of Geographical Thinking* (p. 30). London: IGUCGE/UCL.
- Bodzin, A. M., Fu, Q., Kulo, V., & Peffer, T. (2014). Examining the Effect of Enactment of a Geospatial Curriculum on Students' Geospatial Thinking and Reasoning. *Journal of Science Education and Technology*, 23(4), 562–574.
<https://doi.org/10.1007/s10956-014-9488-6>
- Ennis, R. H. (1985). A Logical Basis for Measuring Critical Thinking Skills. *Educational Leadership*, 43(2), 44–48.
- Facione, P. A. (2015). Critical Thinking: What It Is and Why It Counts. www.insightassessment.com.
- Gedik, H. (2013). Social Studies Teacher Candidates' Critical Thinking Skills. *Procedia - Social and Behavioral Sciences*, 93, 1020–1024.
<https://doi.org/10.1016/j.sbspro.2013.09.322>
- Gojkov, G., Stojanović, A., & Rajić, A. G. (2015). Critical Thinking of Students – Indicator of Quality in Higher Education. *Procedia - Social and Behavioral Sciences*, 191, 591–596.
<https://doi.org/10.1016/j.sbspro.2015.04.50>
- Gul, R., Cassum, S., Ahmad, A., Khan, S., Saeed, T., & Parpio, Y. (2010). Enhancement of critical thinking in curriculum design and delivery: A randomized controlled trial for educators. *Procedia - Social and Behavioral Sciences*, 2(2), 3219–3225.
<https://doi.org/10.1016/j.sbspro.2010.03.49>
- Hakimy, I. D. R. P. (2006). 1000 Pepatah. Retrieved October 27, 2018, from <https://dokumen.tips/documents/1000-pepatah-petitih-569dfb45c5019.html>
- Huynh, N. T., & Sharpe, B. (2009). The Role of Geospatial Reasoning in Effective GIS Problem Solving: K-16 Education Levels. *Geomatica*, 63(2), 119–128.
- Huynh, N. T., & Sharpe, B. (2013). An Assessment Instrument to Measure Geospatial Thinking Expertise. *Journal of Geography*, 112(1), 3–17.
<https://doi.org/10.1080/00221341.2012.682227>
- Jo, I., & Bednarz, S. W. (2011). Textbook Questions to Support Spatial Thinking: Differences in Spatiality by Question Location. *Journal of Geography*, 110(2), 70–80.
<https://doi.org/10.1080/00221341.2011.521848>
- Jo, I., & Bednarz, S. W. (2014a). Developing pre-service teachers' pedagogical content knowledge for teaching spatial thinking through geography. *Journal of Geography in Higher Education*, 38(2), 301–313.
<https://doi.org/10.1080/03098265.2014.911828>
- Jo, I., & Bednarz, S. W. (2014b). Dispositions Toward Teaching Spatial Thinking Through Geography: Conceptualization and an Exemplar Assessment. *Journal of Geography*, 113(5), 198–207.
<https://doi.org/10.1080/00221341.2014.881409>
- Kaya, Hulya, Hatice s, Ayla K. (2011). Critical Thinking in Nursing Education: Anatomy of a Course. *Journal of The New Educational Review*, 23,1 (159-176).
- Krippendorff, Klaus. (2003). Content Analysis: An Introduction to its Methodology. *Journal of the American Statistical Association*, 79 (385), 240.
<https://www.doi.org/10.2307/2288384>.
- Lunney, M. (2009). Use of Critical Thinking to Achieve Positive Health Outcomes.
- Manalo, E., & Sheppard, C. (2016). How might language affect critical thinking performance? *Thinking Skills and Creativity*, 21, 41–49.
<https://doi.org/10.1016/j.tsc.2016.05.005>
- McLeod, S. (2014). Vygotsky | Simply Psychology. Retrieved April 1, 2018, from <https://www.simplypsychology.org/vygotsky.html>
- National Research Council. (2006). *Learning to Think Spatially: GIS as a support system in the K-12 curriculum*. Washington, DC: National Research Council.
- Nedelova, Magdalena & Denisa Sukolova. (2017). Critical Thinking in Initial Teacher Education: Secondary Data Analysis from Ahelo GS Feasibility Study in Slovakia. *Journal of The New Educational Review*, 49,3 (19-29).
- Oyserman, Daphna. (2016). What Does a Priming Perspective Reveal about Culture: Culture-as-Situated Cognition. *Current Opinion in Psychology*, 12, 94-99.
<https://doi.org/10.1016/j.copsyc.2016.10.002>
- Pornpimon, Chusorn, AriratanaWallapha, ChusornPrayuth. (2014). Strategy Challenges the Local Wisdom Applications Sustainability in Schools. *Procedia - Social and Behavioral Sciences*, 112, 626-634.
<https://doi.org/10.1016/j.sbspro.2014.01.1210>
- Saqipi, B., Asunta, T., & Korpinen, E. (2014). Understanding the Context of Teacher Professionalism in Education Systems Undergoing Transition – Kosovo Case. *Procedia - Social and Behavioral Sciences*, 112, 635–646.
<https://doi.org/10.1016/j.sbspro.2014.01.1211>
- Sasson, I., Yehuda, I., & Malkinson, N. (2018). Fostering the skills of critical thinking and question-posing in a project-based learning environment. *Thinking Skills and Creativity*, 29, 203–212.
<https://doi.org/10.1016/j.tsc.2018.08.001>
- Shin, H., Park, C. G., & Kim, H. (2015). Validation of Yoon's Critical Thinking Disposition Instrument. *Asian Nursing Research*, 9(4), 342–348.
<https://doi.org/10.1016/j.anr.2015.10.004>
- Williams, K. J. H., Lee, K. E., Hartig, T., Sargent, L. D., Williams, N. S. G., & Johnson, K. A. (2018). Conceptualising creativity benefits of nature experience: Attention restoration and mind wandering as complementary processes. *Journal of Environmental Psychology*, 59, 36–45.
<https://doi.org/10.1016/j.jenvp.2018.08.005>
- Zohar, A., & Ben David, A. (2009). Paving a Clear Path in a Thick Forest: A Conceptual Analysis of a Metacognitive Component. *Metacognition and Learning*, 4(3), 177–195.
<https://doi.org/10.1007/s11409-009-9044-6>