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The Impact of Learning Independence on Higher Order Thinking Learning Outcomes in College Students

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Abstract
A person's independence is strongly influenced by level of difficulty of his life, as well as a person's learning independence. If someone has high enough independence then education will be the main priority and responsibility. This study aims to determine the impact of learning independence on learning outcomes of higher order thinking. This research is an experimental research using One-Group Pretest-Posttest Design. The research subjects used were 170 students. The analytical technique used is the t-test, which compares the results of students who have high learning independence with those who have low learning outcomes. The results showed that there was a positive influence of learning independence on learning outcomes of higher order thinking. Higher-order thinking skills are things that students must have in an effort to solve problems or assignments from lecturers or from the environment. The highest phase in the learning theory stage is higher order thinking skills.

Keywords: learning independence, higher order thinking, learning outcomes, motivation

Introduction

In the development of students, it is strongly influenced by level of difficulty of their lives, so that the independence of students is also affected. Negative activities such as free sex, school brawls, skipping school, have a bad effect on students now (Beyth-Marom, Austin, Fischhoff, Palmgren, & Jacobs-Quadrel, 1993) (Sanders, 1998) (Putra, 2019). In addition to external effects, activities such as cheating, individualistic attitudes are also able to attack the internals of students (Waterman, 1981) (JenniferSumsion & CatherinePatterson, 2004). To avoid this, students must have a sense of responsibility for themselves, be able to determine what is good and not for their lives, and the most effective step is to foster a sense of independence. Therefore, student independence is very important to be instilled. If students have a high enough sense of independence, education will be the main priority and responsibility (Hadis, 2005). This will be accompanied by positive activities that are chosen as an alternative to avoid the negative impacts that exist. Because they are the subject of education, students who have a sense of independence will tend to think about what is good for their future education.

The development of learning independence is still a problem in the world of education. Students as the nation's next generation are required to have a sense of learning independence (Azmiyah & Astutik, 2021). Behavior, changes in social values are aspects that underlie the emotional changes of individuals who experience increased learning independence (Pekrun, 2006). In addition to cognitive changes, physical changes are also very likely to occur due to the development of learning independence. Learning independence also cannot be separated from the role of parents and the individual activities themselves (Plowman, McPake, & Stephen, 2008).

Students are individuals who are expected to have independent behavior as future managers, which of course will be useful for their social environment (Weinstein, Tomlinson-Clarke, & Curran, 2004). However, this is not in line with the development of independence which is still the main problem in human life today (Kolin, 2011). Independence is not something that

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is influenced by other people, it arises from one's own will to be responsible for himself either physically or spiritually which will ultimately lead to a sense of self-confidence to manage himself without having to need other people. According to Steinberg (2006), basically humans are social beings who depend on each other, and the word independence is very different from the understanding of interdependence.

Learning independence will emerge when students are able to control their emotions and level of confidence. Because the basic concept is, independence requires a sense of readiness in being responsible for himself in any activity carried out without the influence of others. According to Sternberg (2006) Steinberg (2006), basically humans are social beings who depend on each other, and the word independence is very different from the understanding of interdependence. Although basically humans are social beings who will depend on and need each other. However, humans are also creatures who have thoughts that must be able to regulate their own lives.

Independence is basically the authority of each individual in determining what he chooses for himself (Chaplin, 2002). In addition, independence is an individual effort in finding identity by not depending on both parents (Blustein, Walbridge, Friedlander, & Palladino, 1991) (Cast & Burke, 2002). The process of independence in individuals is independent behavior by choosing their own destiny and determining their responsibilities without any influence from other people who are expected to be able to take full responsibility for themselves. From the explanation of some of the opinions above, it can be concluded that independence is (1) the state of an individual who already has the desire to advance and compete with other individuals for his own good; (2) Able to think and determine what decisions must be taken regarding existing problems; (3) There is a sense of self-confidence in carrying out all responsibilities; (4) Fully responsible for all decisions and matters taken. Successful learning is learning in which students are actively and independently involved in their learning activities, so that it will greatly affect the success of student learning itself. Because learning activities are one of the internal factors forming independence.

Higher-order thinking is a person's effort to fuse new information with old information that is in his memory which is then rearranged to achieve a goal by developing the information into a single unit (Singh, et al., 2020). The fusion of new information with old information needs to be done in an effort to get a new understanding or definition (Gunawan, 2006). Based on observations during lectures on basics of education, students in the first year of lectures, when given problems related to aspects of analysis, evaluation and creation, not all students can solve these problems well. This happens because, students are accustomed to problem solving activities at a lower or low cognitive level. So that when there is a combination of cognitive levels that link three aspects, they feel difficult and unable to solve problems at that level or high level. According to Mustaji (2017), the problem-based learning model prioritizes students as the main controller of learning activities, where they are freed to solve existing problems

and lecturers are learning facilitators who direct students in learning activities so that learning creativity increases (Aslan & Duruhan, 2021).

Higher-order thinking activities are very likely to help students fuse old information in their memory with new information that they can then become the answer to existing problems (Stapa & Ibaharim, 2020). Motivation and independence are the driving force for student learning activities (Rafiola, Setyosari, Radjah, & Ramli, 2020). Without motivation and independence, students will not try more than they can do. In addition, those who experience failure generally cannot explain why they entered a particular major and also do not know what their future orientation is. Not infrequently when they can state the reason they enter a major, it usually happens because they joined in, not on their own accord. In addition, there are also those who have a reason for going to college only because of the demands of their parents, then the majors taken are not in accordance with what is expected, so that it has an impact on students' learning motivation. From some of the reasons above, it can be concluded that the development of independence in a psychological concept is still not visible, in terms of the absence of a sense of wanting to be responsible for himself, the individual is not ready to meet his life needs economically, until the influence of other people, namely parents, is still large in making decisions.

Materials and methods
This research is a quasi-experimental study using a control class and an experimental class. The research subjects used were 170 people. Learning independence was obtained from the results of a questionnaire with a likert scale (0-5) given before the implementation of the experiment. The results of the questionnaire data obtained by students who have high learning independence amounted to 99 people and low learning independence amounted to 71 people. Learning outcomes are obtained from tests that lead to higher-order thinking processes given after the experiment. The data analysis technique used in this research is t-test, with independent sample test.

Results & Discussion
At this stage, a trial will be conducted by comparing the results of the questionnaire assessment that has been collected, because we want to know the impact of applying learning independence to learning outcomes for higher order thinking. To be able to know the results, an independent sample test was used. There are 99 students with high learning independence and 71 students with low independence. In table 1, it shows that the mean of high-level thinking learning outcomes is 82.9616, higher than students with low learning independence, which is 47.7563. The results of the calculation using the independent sample test (table 2), show sig. 0.000 (< 0.05) which can be concluded that there is an influence of learning independence on students' learning outcomes of higher order thinking. Students who have high learning independence have an impact on the acquisition of higher order thinking learning outcomes.

Table 1. Group Statistics.

	higher order thinking	
	learning independence	
	High	Low
N	99	71
Mean	82.9616	47.7563
Std. Deviation	6.03450	9.67462
Std. Error Mean	.60649	1.14817

Table 2: Independent samples test.

			Higher order thinking	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances		F	24.513	
		Sig.	.000	
t-test for Equality of Means		t	29.166	27.112
		df	168	108.480
		Sig. (2-tailed)	.000	.000
		Mean Difference	35.20528	35.20528
		Std. Error Difference	1.20705	1.29851
	95% Confidence Interval of the Difference	Lower	32.82234	32.63154
		Upper	37.58822	37.77901

The results of this study are in line with research conducted by Anita Z, et al (2015) the results of study show that there is a significant positive impact on learning independence on learning outcomes. According to Suhendri (2011) independence is a positive mental attitude of an individual for the convenience of carrying out planning activities to achieve goals by positioning or conditioning himself so that he can evaluate himself and his environment (Abdujalilova & Qorayev, 2020). The independence that students have is to foster self-confidence which is very important for students (Wofford, 2021) and to be faster in receiving learning materials so as to shape the character of students for the better. In general, there are several reasons related to the importance of learning independence for students in mathematics learning process. One of the problems faced by students in classroom and outside classroom is curriculum guidance which is useful for reducing student dependence on other people who are increasingly complex in everyday life. The principles of learning independence that can be used by lecturers in the classroom are in the category of self-assessment, as a reflection of how lecturers analyze their learning styles and cognitive monitoring models. According to Johnson (2009), learning independence gives students the freedom to discover how academic life is compatible with everyday life (Tanjung, Hidayat, & Syarifah, 2019). Students organize and adjust their actions to achieve the desired goals and make their own decisions and are responsible for their decisions. Each individual takes the initiative, without the help of others in terms of finding learning activities such as formulating learning objectives, learning resources, learning needs and controlling the learning process themselves.

Mindset of each human is different, but if the individual is able to solve problems faced relatively easily, then the individual is able to master critical thinking. Because thinking at a higher level is the ability to solve problems by exploring the intelligence possessed. Students with high learning independence will have maximum self-confidence and are not easily provoked by the opinions of others. Calmness in dealing with problems is one of the characteristics of learning independence. Consistency is one of the keys in facing and solving existing problems, not

giving up or giving up. Confidence, consistency will arise by itself when student learning independence increases. Students with good learning independence will still face problems by not avoiding even though they feel it is difficult. Confidence is the main key in finding solutions.

In addition, a sense of responsibility in completing tasks is one of the factors of independence. Collect assignments on time, be diligent, persevere, be a small example of responsible behavior. Responsibility is present on human consciousness in carrying out obligations, whether intentional or unintentional. The tasks given by the lecturer in learning activities will be carried out in accordance with existing procedures. And it has reflected a sense of responsibility in students. The independence of students must form and build their own knowledge (Silalahi & Hutauruk, 2020), not only rely on the lecturer as a "Science Warehouse". There are lots of learning resources in the environment. In addition, lecturers can give students freedom to explore to find out for themselves existing knowledge, as an effort to train students' independence in accordance with constructivism theory.

Conclusions

Learning independence impacts learning outcomes of higher order thinking. High learning independence is needed in learning process. Because students who have a high level of independence will be able to make positive decisions to overcome the problems they face in school and outside of school, students will have a sense of confidence in completing or answering the tasks given by the lecturer. Students must form and build their own knowledge, not just relying on lecturers as "Science Warehouses". There are lots of learning resources in the environment. In addition, lecturers can give students freedom to explore to find out for themselves existing knowledge, as an effort to train students' independence in accordance with constructivism theory.

References
1. Abdujalilova, S., & Qorayev, S. (2020). The Role of Pedagogical Technologies in the Formation of Students' Scientific Outlook. *European Journal of Molecular & Clinical Medicine*, 4377-4384.

2. Aslan, S. A., & Duruhan, K. (2021). The effect of virtual learning environments designed according to problem-based learning approach to students' success, problem-solving skills, and motivations. *Education and Information Technologies*, 2253–2283.

3. Azmiyah, U., & Astutik, A. (2021). The Role of the Movement Teacher in Preparing Indonesia's Excellent Generation. *Nazhruna: Jurnal Pendidikan Islam*, 396-408.

4. Beyth-Marom, R., Austin, L., Fischhoff, B., Palmgren, C., & Jacobs-Quadrel, M. (1993). Perceived Consequences of Risky Behaviors: Adults and Adolescents. *Developmental Psychology*, 549-563.

5. Blustein, D. L., Walbridge, M. M., Friedlander, M. L., & Palladino, D. E. (1991). Contributions of psychological separation and parental attachment to the career development process. *Journal of Counseling Psychology*, 39-50.

6. Cast, A. D., & Burke, P. J. (2002). A Theory of Self-Esteem. *Social Forces*, 1041-1068.

7. Chaplin, J. (2002). *2Dictionaryof Psychology.* New York: Dell Publishing Co. Inc.

8. Gunawan, A. (2006). *Genius Learning Strategy.* Jakarta: Gramedia.

9. Hadis, B. F. (2005). Why are they better students when they come back? Determinants of academic focusing gains in the study abroad experience. *The Interdisciplinary Journal of Study Abroad*, 57-70.

10. JenniferSumsion, & CatherinePatterson. (2004). the emergence of community in a preservice teacher education program. *Teaching and Teacher Education*, 621-635.

11. Kolin, K. (2011). Social Informatics Today and Tomorrow: Status, Problems and Prospects of Development of Complex Lines in the Field of Science and Education. *tripleC*, 460-465.

12. Mustaji. (2017). *Model dan Desain Pembelajaran: Teori dan Implementasi Problem Based Learning dan Collaborative Learning.* Surabaya: Unesa University.

13. Pekrun, R. (2006). The Control-Value Theory of Achievement Emotions: Assumptions, Corollaries, and Implications for Educational Research and Practice. *Educational Psychology Review*, 315–341.

14. Plowman, L., McPake, J., & Stephen, C. (2008). Just picking it up? Young children learning with technology at home. *Cambridge Journal of Education*, 303-319.

15. Putra, A. (2019). Metode Konseling Individu Dalam Mengatasi Bolos Sekolah Siswa Kelas VIII SMPN 3 Lengayang Sumatera Barat. *HISBAH: Jurnal Bimbingan Konseling dan Dakwah Islam*, 112-126.

16. Rafiola, R. H., Setyosari, P., Radjah, C. L., & Ramli, M. (2020). The Effect of Learning Motivation, Self-Efficacy, and Blended Learning on Students' Achievement in the Industrial Revolution 4.0. *iJET*, 71-82.

17. Sanders, M. G. (1998). The effects of school, family, and community support on the academic achievement of African American adolescents. *Urban Education*, 385-409.

18. Silalahi, T. F., & Hutauruk, A. F. (2020). The Application of Cooperative Learning Model during Online Learning in the Pandemic Period. *BIRCI-Journal*, 1683-1691.

19. Singh, C. K., Singh, T. S., Ja'afarc, H., Tek, O. E., Kaur, H., N. A., & Yunus, M. M. (2020). Teaching strategies to develop higher order thinking skills in English literature. *International Journal of Innovation, Creativity and Change*, 211-231.

20. Stapa, S. H., & Ibaharim, N. I. (2020). The Use of Edutainment in Promoting Higher Order Thinking Skills in ESL Writing among Malaysian University Students. *Arab World English Journal*, 49-66.

21. Suhendri, H. (2011). Pengaruh kecerdasan matematis–logis dan kemandirian belajar terhadap hasil belajar matematika. *Formatif: Jurnal Ilmiah Pendidikan MIPA*, 29-39.

22. Tanjung, S., Hidayat, & Syarifah. (2019). the Effect of Multicultural Approach and Independent Learning Strategies on Learning Outcomes History Education. *IOSR Journal of Research & Method in Education*, 45-52.

23. Waterman, A. (1981). Individualism and Interdependence. *American Psychologist*, 762-773.

24. Weinstein, C. S., Tomlinson-Clarke, S., & Curran, M. (2004). Toward a Conception of Culturally Responsive Classroom Management. *Journal of Teacher Education*, 25-38.

25. Wofford, A. M. (2021). Modeling the Pathways to Self-Confidence for Graduate School in Computing. *Research in Higher Education*, 359–391.