Foundations of Constructivism Philosophy in Classroom Learning

Cecep Sumarna[1], Heri Gunawan[2]
[1]IAIN Syekh Nurjati Cirebon, Indonesia
[2]UIN Sunan Gunung Djati Bandung, Indonesia
Email: cecepsumarna71@gmail.com

Abstract

The presence of constructivism philosophy brought significant changes in learning in the classroom, especially the paradigm shift in learning, namely the paradigm of teacher centre to the student centre. Students are encouraged to use all of their abilities constructively by building meaning according to their understanding. This has also brought changes in the learning process, where teachers only act as facilitators, mediators and motivators who help active learners with their knowledge. One of the constructivism-based learning models is Contextual Teaching and Learning, which tries to link the material students learn with their real lives to find meaning.

Keywords: *Constructivism, Learning, Educators, Students.*

– – – – – – – – – – ◆ – – – – – – – – – –

A. INTRODUCTION

Philosophy has an essential role in the educational process because philosophy is the basis for how education is built (Hung et al., 2019). The philosophy of constructivism is one of the streams and foundations of education, especially in building an educational process that prioritizes students in taking the initiative (Matthews, 2020). In education, constructivism requires students to use their abilities constructively to adapt to the demands of the development of science and technology (Pande & Bharthi, 2020). Based on this, students must be active in developing knowledge, not just waiting for what is conveyed by the teacher. This is in line with the concept that students are active learners, so the task of educators is not to instruct but to stimulate independent activity through sensory training (Hyde, 2021).

This thinking has become a paradigm in the educational process today. Education which was originally teacher-centred, turned into student-centred; thus, the learning process focuses more on students; they are required to be active in the learning process (John, 2018). Thus, students will achieve meaning in learning by actively forming their knowledge. This thought is certainly strongly influenced by one of the schools of philosophy, namely, the philosophy of constructivism.

In constructivism philosophy, students are given the freedom to build meaning following the experience they have had, requiring a series of awareness of the meaning that knowledge is not objective or stable but is constantly evolving (temporary) depending on individual subjective perceptions and knowledgeable individuals interpret and construct concept relationships based on experience and

interaction with the environment. Knowledge is helpful if it can be used to solve a problem (Hagg & Kurczewska, 2021; Lincoln & Hoffman, 2019).

Thus, the learning process based on the philosophy of constructivism requires students to be active and independent in learning, take the initiative to explore their learning needs, find information for themselves to answer their needs, and build and present their knowledge (Ekpenyong, 2018). This paper comprehensively examines the philosophical foundations of constructivism in learning Islamic religious education in schools.

B. METHOD

This study uses a qualitative approach which is a descriptive study because this study attempts to describe the data in words or sentences separated by categories to obtain conclusions (Ven Bergen & Parsell, 2019). The research method used is the library research method. It is used to develop concepts and implications of constructivism theory for learning in the classroom. The data sources in this study were obtained from reference sources such as journals and books.

C. RESULT AND DISCUSSION

One of the schools of educational philosophy that have now influenced the world of education in recent decades is the philosophy of constructivism. It contains big philosophical ideas in learning approaches and strategies. Therefore, the philosophy of constructivism has a significant influence in the world of education, giving rise to various new methods and strategies.

1. Understanding Constructivism Philosophy

In general, the term constructivism comes from the word construct, which means an idea or constructs. Hung et al. (2019) said that constructivism is one of the schools of philosophy of knowledge that emphasizes that our knowledge is the result of our construction. Humans obtain knowledge from the construction of something based on their life experiences. Knowledge is always the result of a cognitive construction of reality from one's construct. The formation process runs continuously, faithfully holding reorganizations because of a new understanding (Gnutova, 2020).

According to Anderson (2022), and Sari & Priatna (2020), constructivism is one of the schools of educational philosophy based on the belief that in learning, learners actively build knowledge and do not accept it passively, cognition is an adaptive process that organizes the learner's experience, and all knowledge is built based on social values.

The birth of constructivism philosophy, as stated by Hoidn & Reusser (2020), has its embryo from the research of John Dewey, Jean Piaget, Lev Vygotsky, and Jerome Bruner and includes Gestalt psychologists (Max Wertheimer, Kurt Kafka, and Wolfgang Kohler). The basic principle of constructivism philosophy is that all human knowledge is constructed (built) from cognitive processes with their

interactions with the world of material objects, not directly perceived by the senses (olfactory, tactile, hearing, and so on). Human experience consists of a meaningful interpretation of reality and not the reproduction of reality (Hagg & Kurczewska, 2021).

One's abstraction of something forms the structure of the concept and becomes one's knowledge in that matter. For example, someone's abstraction about the characteristics of tigers and deer will bring up someone's knowledge of tigers and deer. Likewise, with human abstractions about the nature they live in, knowledge about nature will emerge. Based on this abstraction, it becomes a concept that can be used in analyzing animals and other environmental conditions they encounter (Ekpenyong, 2018).

Peter L. Berger and Thomas Luckman wrote a book entitled "The Social Construction of Reality, a Treatise in The Sociological of Knowledge". Although in the school of philosophy, the idea of constructivism has existed since the time of Socrates, who discovered the soul in the human body, and since Plato discovered reason and ideas. The idea continued by Descartes has succeeded in doubting everything that can be doubted, including specific things even if he doubts. Descartes is famous for his words "Cogito, Ergo Sum" /I think that is why I exist. He said that after doubting his body and the exact sciences, including mathematics. Descartes' famous words have become the development of constructivism paradigm ideas to date (Morris, 2019; Hyde, 2021).

The following figures who developed this school were Jean Piaget (1896-1989), a Swiss national psychologist and Ley Vygotsky (1896-1934), a Russian national psychologist. Although these two figures have different views, they depart from the same understanding that knowledge is built. Piaget explained that knowledge is built in the child's mind through assimilation and accommodation. Assimilation is the absorption of new information in mind. Meanwhile, accommodation is rearranging the structure of the mind because of the new information so that the information has a place (Wilkinson et al., 2019).

While Vygotsky stated “the fundamental role of social interaction in the development of cognition” (Hyde, 2021), he believed strongly that community plays a central role in the process of "making meaning." So, according to Vygotsky, social interaction has a very fundamental role in building knowledge. Because constructivism assumes that our knowledge is the result of our construction, it is doubtful that there will be a transfer of knowledge from one person to another as a whole, as is the understanding of the person who gave it. The knowledge that reaches a person-results from interpretation, transformation and construction through previous experience.

This constructivist view is very opposite to the "realist" group, which says that the truth is out there (the reality that exists). Therefore, one can observe reality objectively using appropriate, accurate and reliable methods. This view gave birth to the philosophy of positivism which is the most extreme form of view of this world view (Rillo et al., 2020). According to positivism, the world works according to the

law of definite cause and effect. Because scientific thought is used to test theories about these laws and then reject or accept them in a provisional direction towards a single one.

2. Constructivism in Learning

As stated above, that constructivism is a flow that gives freedom to humans to build their knowledge freely and independently. The knowledge formed is the result of several interactions that make the experience. So based on this experience, humans can build concepts from existing or new concepts. McGaghie & Harris (2018) state that constructivism sees learning as an active process of students constructing meaning through text, dialogue, physical experience, or other forms. Glance et al. (2018) state that learning is not a manifestation of a stimulus-response relationship from a constructivist perspective. Learning requires self-regulation and the formation of conceptual structures through reflection and abstraction. This constructivism learning theory holds that learning is an active and constructive process. Students build their knowledge, look for meaning, and conclude new concepts and ideas by linking the knowledge already in them.

Furthermore, constructivism is a philosophy of knowledge that emphasizes knowledge obtained based on one's construction or formation (Allen & Bickhard, 2022). In other words, I argue that learning according to constructivism theory is that children build their knowledge, not the teachers who feed them. The teacher's job is to provide scaffolding and facilitate so that children can experience learning through relevant learning approaches and methods, with which children can discover and construct their knowledge.

The characteristics of constructivism learning theory are as follows. First, students are more active in learning activities; Second, the role of the teacher is not dominant (the teacher provides scaffolding/footing); Third, learning is more process-oriented; and, Fourth, students, construct and gain knowledge on their own through the learning experiences they get.

Several learning approaches fall into the category of constructivism, including, First, Inquiry-Based Learning (students construct their understanding based on what they need and want to know). The second is problem-based learning (learners learn and formulate solutions effectively from simple to complex problems). Third, Project Based Learning (students learn through projects in groups with various sources that produce original products).

Based on some of the explanations above, in the view of constructivism, learning emphasizes the process rather than the results. This has profound implications for the learning approach, giving rise to an understanding that "thinking well" is more important than "answering right". Someone who can think well, in the sense that his way of thinking can be used to deal with a new phenomenon, will be able to find solutions to other problems. Meanwhile, someone who just finds the correct answer is not necessarily able to solve a new problem

because he may not understand how to find the answer (Effendi & Hendriyani, 2020).

3. Principles of Constructivism-Based Learning

The basic principle in constructivist philosophy-based learning, as stated by Bardakci et al. (2021) that learning is not an activity of collecting facts but more of a development of thought by making new understandings. Learning is not the result of development, but the development itself, a development that demands the discovery and rearrangement of one's thinking. In this regard, there are several principles in constructivist philosophy-based learning; this is as stated (Supardan, 2016) as follows:

a. Learning is an active process. Learners actively construct themselves to learn from the various inputs they receive. This indicates that learning must be active to be able to learn effectively.
b. Students learn better by resolving cognitive conflicts through experience, reflection and metacognition.
c. Learning is a search for meaning. Because students learn actively, trying to construct meaning. Thus, educators should try to construct various learning activities around big ideas and explorations that allow students to construct meaning.
d. Knowledge construction is not individual because learning is socially constructed through various interactions of students with peers, teachers, parents and people in the surrounding environment.
e. Teachers should have good knowledge of child development and learning theory so that they can more accurately assess what learning is being done.
f. Learning is always conceptualized, and the new learning process relates explicitly to the material it already knows. Seventh, intense learning means constructing knowledge as a whole by exploring and revisiting the material taught.
g. Teaching is a form of empowering students and enabling them to discover and reflect on practical knowledge.

4. Constructivism and Its Implications in Learning

Applying the constructivist philosophical paradigm in implementing learning has had an impact or implication on the learning process. Georgen & Guillermin (2018) states that the implications of constructivism philosophy in learning are (a) in the learning process, the teacher must pay attention to the initial knowledge of students who are brought from outside the school, (b) teaching does not mean passing on the teacher's ideas to students, but is a process to change the ideas they already have which may be wrong. As stated by Ausubel, if the learning process does not heed the ideas brought by students, it will make their misconceptions more complex and stable.

Therefore, based on the constructivist view, Driver and Bell put forward some basic principles of learning (a) learning outcomes are highly dependent on the environment and existing knowledge possessed by students, and (b) learning is the formation of meaning (meaning) by building or constructing the relationship between the knowledge that students already have and the knowledge being studied, (c) this process takes place continuously and actively, (d) learning is also closely related to the willingness of students to accept the knowledge being studied so that they are responsible for about learning, and (e) learning experiences and language skills affect the pattern of "meaning" that is constructed (Matthews, 2020).

In order to find more meaning (meaning) in the learning process, students must be more involved in the learning process. They are not only used as objects but also as subjects. As an implication of constructivism, several meaningful learning concepts emerge, including contextual teaching and learning, cooperative learning and problem-based learning (PBL) techniques.

Based on the several learning approaches above, the concept of learning based on the philosophy of constructivism can be developed as follows:

a. A student-centred approach (student centre). According to Piaget --- one of the figures who developed constructivism --- essentially, the way students think is different in their approach to reality and their perspective on the world around them. Therefore, the teacher must be aware of this and observe the child.
b. Develop activity. To learn something, students need the opportunity to observe the object being studied. Piaget's concept is that the best learning process for students, regardless of age, is obtained through self-initiated activities. Piaget emphasized the need for both physical and mental activity. Therefore, the teacher's task is to encourage students to be active. Teachers should present material in situations that encourage children to design their experiments.
c. Study individually. According to Piaget, the cognitive structure of learners who interact with new experiences will generate interest that stimulates further cognitive development. Therefore, teachers should be able to coordinate between individuals and groups. Students need the opportunity to learn in a rich environment that contains potentially exciting elements.
d. Social interactions. Another factor that influences the development of students is social experience/interaction with other people. Social interaction will direct students to prepare arguments and discussions so that their point of view is questioned, and they must defend and prove the truth.

Based on some of the explanations above, Piaget developed a cognitive learning model. This learning model has three learning phases: The first phase is the exploration phase. Students learn through their actions and reactions to new situations in this phase. This new phenomenon should raise questions or complexities that cannot be solved independently. The second phase is the concept introduction phase. This phase usually begins by introducing concepts related to the

phenomenon under investigation. The third phase is the concept application phase. In this phase, the teacher provides opportunities for students to use the concepts introduced to investigate different concepts.

5. Student Activities in Constructivism-Based Learning

The philosophy of constructivism is the basis for the emergence of various learning strategies, especially student-centred learning. With this strategy, the term known is learning, not teaching and learning. This needs to be understood based on the basic premise of constructivism which prioritizes student activity in constructing knowledge based on their interactions in the learning experience. In this case, the students and the student learning process are the main focus, while the teacher functions as a facilitator and, together with the students, are also involved in the learning process. Based on constructivism, teachers and textbooks are not the only sources of information in learning.

According to constructivism, learning is an active process of students constructing the plain meaning of texts, dialogues, physical experiences and others. Learning is also a process of assimilating and connecting the experience or material learned with the understanding that someone already has so that understanding is developed. The process is characterized, among others, as follows: (a) learning means forming meaning, then it is created by students from what they see, hear, feel, and experience. The construction of meaning is influenced by the understanding that he already has, (b) construction is a continuous process. Whenever dealing with a new phenomenon or problem, reconstruction is carried out, both strong and weak, and (c) learning outcomes are influenced by the student's experience with the physical world and the environment (Veldhuizen, 2021).

Thus, it is clear that learning activities are operational activities for constructivism, where students build their knowledge. Students look for their meaning in what they learn. It is a process of adapting new concepts and ideas to their existing frame of mind (Lincoln & Hoffman, 2019).

According to constructivism, students themselves are responsible for their learning outcomes. They bring their old understanding into new learning situations. They make reasoning on what he already knows and resolve the tension between what he already knows and what he needs in the new experience. Learning is an organic process of finding something, not a mechanical process of gathering facts. Learning is the development of thought by creating a different framework of understanding. Students must have experience making hypotheses, testing hypotheses, "manipulating" objects, solving problems, looking for answers, describing, researching, having dialogues, holding reflections, expressing questions, expressing ideas, and forming new constructions. Students must form their knowledge, and the teacher helps as a mediator in the formation process. Meaningful learning occurs through reflection, resolving conflicts of understanding, and in a process that is constantly updating incomplete levels of thinking (Fosnot, 1989).

This is certainly different from behaviourism, which emphasizes that knowledge is a passive collection of subjects and objects reinforced by their environment. For behaviourists, knowledge is static and ready-made. Teaching for behaviourists is to regulate the environment so that it can help to learn.

Every student has a way of understanding. Therefore, each student must understand his or her uniqueness and strengths and weaknesses in understanding something. They need to find the right way of learning for themselves. Each student has a suitable way of constructing his knowledge, sometimes very different from other friends. Therefore, understanding one's specialty is crucial in advancing one's learning. Within this framework, students must be enabled to try different ways of learning that are suitable. It is also important that teachers create various situations and methods that help students. One teaching-learning model alone will not help students much.

When students first come to class, students already carry a specific meaning about their world. This is their basic knowledge to be able to develop new knowledge. Also, they carry intellectual, personal, social, emotional, and cultural levels. This all affects their understanding. The background and understanding by previous educators brought by students are essential to be understood by educators to help advance and develop them by following more scientific knowledge.

In constructivism, educators are not "omniscient", and students are not ignorant and must be informed. In the learning process, students actively seek to discover by forming their knowledge, while educators help make the search run well. In many ways, educators and students build knowledge together; in this sense, both are partners who jointly build knowledge.

6. Constructivism-Based Learning Strategy Models

As stated above, the birth of constructivism philosophy has brought tremendous influence, especially with the birth of various learning methods and strategies that lead to the formation of students' knowledge. Among the learning strategies born based on constructivism are Contextual Teaching and Learning, known as CT.

Contextual Teaching and Learning (CTL) is a learning concept that tries to "link" the material being taught to the "real world" situation of students and encourages them to make connections (connections) between their knowledge and its application in their lives, both as family members, and community members (Mattar, 2018). John (2018) states that CTL is based on a philosophical view that students can absorb lessons if they catch the "meaning" in the material they receive. They catch the "meaning" in assignments if they can relate to the information they receive—new information with their previous knowledge and experience. CTL emphasizes the process of full student involvement (student active) to find the meaning of the material being studied and relate it to real-life situations, thus encouraging students to apply it in their lives.

CTL learning is influenced by the constructivism philosophy of J. Piaget, who designs learning on the assumption that knowledge is constructed humane, thus opening the broadest possible opportunities for students to empower themselves. According to this school of philosophy, --- as stated above --- a good way of learning is that students actively construct their understanding (Lincoln & Hoffman, 2019).

Based on this concept, three things can be understood in CTL learning. First, CTL emphasizes involving students in finding material, meaning that the learning process is oriented to the process of direct experience. The learning process in CTL does not expect students to only "receive" the subject matter; however, the process of finding and finding the subject matter for themselves. Second, CTL encourages students to find the relationship between the material being studied and their real-life situations, meaning that students are required to be able to capture the relationship between learning experiences at school and real life. This is important because the material is not only functional, but the material learned will be firmly embedded in the students' memory, so it will not be easily forgotten. Third, CTL encourages students to be able to apply it in life, meaning that CTL not only expects students to understand the material they are learning but how the subject matter can colour their behaviour in everyday life. Therefore, this contextual learning is more learning for students.

The CTL-based learning process takes place naturally in the form of students working and understanding activities, changing the learning paradigm from what educators usually act on the learning stage and students watch to active students working and learning to act on the learning stage, while educators guide them closely. This is in line with the birth of CTL, which aims to change the learning process so that educators do not dominate it; on the contrary, it is students who have more activities. Because learning will be more "meaningful" for students if they are looking for information and analyzing the information obtained, either individually or by discussing it in groups. Therefore, in the CTL-based learning process, there are various roles and benefits that students get in contextual learning, including the following, (1) students act as active learners to manage themselves, develop their interests or work in groups, learn through actions and mutual learning; (2) students form "relationships" or linkages between the material learned in class with life in society and the world of work, (3) students do important and meaningful jobs for themselves, and others, make choices, gives visible and invisible results, (4) students can use high-level thinking, critical thinking, creative, analyze, synthesize, solve problems, make decisions using logic and facts, (5) develop students' ability to work together, while educators help them work effectively in groups, understand others, communicate, and help each other.

CTL was also developed to make the learning process more productive and meaningful. The discovery of meaning is the main goal and characteristic of contextual learning (Stipanovic & Pergantis, 2018). Based on these objectives, CTL has the following characteristics, (1) learning is carried out and directed at the achievement of skills in the context of real life or learning carried out in a

natural environment (learning in real-life settings), (2) learning provides opportunities for students to do meaningful tasks (meaningful learning), (3) learning is carried out by providing meaningful experiences for students (learning by doing), (3) learning is carried out through group work, discussion, mutual correction between friends (learning in a group), (4) learning provides opportunities to create a sense of togetherness, work together, and understand each other deeply, (5) learning is carried out actively, creatively, productively, and emphasizes cooperation (learning to ask, to inquiry, to work together), (6) learning is carried out in a pleasant situation a (learning as enjoy activity).

Based on this, according to Rabetino et al. (2021), CTL applies the following learning principles, (1) learning is not memorizing, but the process of constructing knowledge according to the experience they have, and (2) learning is not just collecting facts, (3) learning is a problem-solving process, (4) learning is a process of self-experience that develops gradually from a simple to complex, (5) learning is essentially capturing knowledge from reality. Therefore, the knowledge obtained is the knowledge that has meaning for students' lives.

Therefore, according to Mukhalalati & Taylor (2019), the implementation of CTL-based learning pays attention to three scientific principles: First, the principle of interdependence means that everything in the universe is interdependent and interconnected. Everything, both human and non-human, living and non-living things, are connected. They all play a part in a complex network of relationships. This principle invites educators to recognize their relationship with other educators, their students, society, and the natural environment. This principle asks them to build a relationship with everything they do.

This principle urges the academic unit as a living system, which in parts of the system, such as students, educators, artisans, administrative staff, gatherers, security officers, parents and community friends, are in a network of relationships that create relationships in study. The principle of interdependence is in everything, enabling students to make meaningful connections. Critical and creative thinking becomes possible. This principle also supports students in working together; by working together, students will be helped in finding, designing plans, and solving problems. Working together will help them that listening to each other will lead to success. In essence, the principle of interdependence helps to create relationships, not closed isolation. Educators who act according to this principle will apply the principles of contextual learning in helping students make connections to find meaning.

Second is the principle of differentiation. Differentiation refers to the constant drive to produce infinite diversity, difference and uniqueness. The principle of differentiation encourages mutualistic symbiotic cooperation. If educators believe that this dynamic principle of differentiation pervades and affects all living systems, they will want to teach according to that principle. They will see the importance of academic units in emulating these principles towards creativity, uniqueness, diversity and cooperation.

Student-centred active learning will support the principle of differentiation towards uniqueness. It gives students the freedom to explore their talents, develop their way of learning, and develop at their own pace. Naturally, the principle of differentiation will continue to create diversity, resulting in infinite and innumerable combinations of different entities.

The third is the principle of self-regulation, which asks educators to encourage all students to bring out their full potential. In keeping with this principle, the main objective of contextual learning is to help students achieve academic excellence, acquire career skills, and develop character by linking schoolwork with personal experiences and knowledge. When students relate academic material to the context of their circumstances, they engage in activities that contain the principle of self-regulation. They accept responsibility for their own decisions and behaviour, assess alternatives, make choices, develop plans, analyze information, create solutions and critically assess the evidence. They join forces with others to broaden their view. In these circumstances, students discover their interests, limitations, abilities, and the power of their imagination. They discover who they are and what they can do. They create themselves.

D. CONCLUSION

The philosophy of constructivism has significantly influenced the learning process; the learning process demands more constructive active learning strategies and student-centred learning (student active learning or student centre). Such learning will become more meaningful because many students are directly involved. So, what they experience will go into long-term memory, not short-term memory. So, what is said by psychologists is, "I hear, I forget, I read, I memorize, and I do I understand". Constructivism-based learning is modelled with contextual teaching-learning, which links the material that students learn with their real life in the field so that what they learn in class will find its meaning.

REFERENCES

1. Allen, J. W., & Bickhard, M. H. (2022). Emergent Constructivism: Theoretical and Methodological Considerations. *Human Development*.
2. Anderson Jr, J. A. (2022). Review of Student-Centered Research: Blending Constructivism with Action Research. *Education Review*, *29*.
3. Bardakci, S., Karakose, D. C., Alkis, D. C., & Alkan, M. F. (2021). How to Become a Constructivist Teacher?: The Impact of Philosophical Thoughts on Constructivist Learning Beliefs. *Research in Pedagogy*, *11*(1), 214-233.
4. Effendi, H., & Hendriyani, Y. (2020). The Conceptual and Hypothetical Model of Interactive Blended Problem Based Learning. *JPI (Jurnal Pendidikan Indonesia)*, *8*(2), 285-292.

5. Ekpenyong, L. E. (2018). Constructivist Approaches: An Emerging Paradigm for the Teaching and Learning of Business Education. *Nigerian Journal of Business Education (NIGJBED)*, *3*(1), 149-158.
6. Fatima, F., & Ali, S. (2020). Philosophical and Biological Foundation of Brain-Based Learning: A Phenomenological Approach. *International Journal of Innovation in Teaching and Learning (IJITL)*, *6*(2), 1-19.
7. Georgen, O. L., & Guillermin, M. (2018). Mastering the Laws of Feedback Contingencies is Essential to Constructivist Artificial Agents. *Constructivist Foundations*, *13*(2).
8. Glance, D., Rhinehart, A., & Brown, A. (2018). Learn, Expand, Engage A Model for Teaching Clinical Skills in the Helping Professions. *Adult Learning*, *29*(3), 104-114.
9. Gnutova, I. I. (2020). From Flipped Classroom to Flipped Learning: Evolution of the Concept and Its Philosophical Foundations. *Vysshee obrazovanie v Rossii= Higher Education in Russia*, *29*(3), 86-95.
10. Hägg, G., & Kurczewska, A. (2021). Toward a Learning Philosophy Based on Experience in Entrepreneurship Education. *Entrepreneurship Education and Pedagogy*, *4*(1), 4-29.
11. Hoidn, S., & Reusser, K. (2020). Foundations of Student-Centered Learning and Teaching. *The Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education* (pp. 17-46). Routledge.
12. Hung, W., Moallem, M., & Dabbagh, N. (2019). Social Foundations of Problem-Based Learning. *The Wiley Handbook of problem-based learning*, 51-79.
13. Hyde, B. (2021). Critical Discourse and Critical Reflection in Mezirow's Theory of Transformative Learning: A Dialectic between Ontology and Epistemology (And A Subtext of Reflexivity Mirroring My Onto-Epistemological Movement). *Adult Education Quarterly*, *71*(4), 373-388.
14. John, P. (2018). Constructivism: Its Implications for Language Teaching and Second-Language Acquisition. *Papers in Education and Development*, (33-34).
15. Lincoln, J., & Hoffman, L. (2019). Toward an Integration of Constructivism and Existential Psychotherapy. *Journal of Constructivist Psychology*, *32*(2), 108-125.
16. Mattar, J. (2018). Constructivism and Connectivism in Education Technology: Active, Situated, Authentic, Experiential, and Anchored Learning. *RIED. Revista Iberoamericana de Educación a Distancia*.
17. Matthews, M. R. (2020). Philosophical Problems with Constructivism: Some Considerations for Student-Centered Learning and Teaching. *The Routledge International Handbook of Student-Centered Learning and Teaching in Higher Education* (pp. 47-64). Routledge.
18. McGaghie, W. C., & Harris, I. B. (2018). Learning Theory Foundations of Simulation-Based Mastery Learning. *Simulation in Healthcare*, *13*(3S), S15-S20.
19. Morris, T. H. (2019). Self-Directed Learning: A Fundamental Competence in a Rapidly Changing World. *International Review of Education*, *65*(4), 633-653.

20. Mukhalalati, B. A., & Taylor, A. (2019). Adult Learning Theories in Context: A Quick Guide for Healthcare Professional Educators. *Journal of Medical Education and Curricular Development*, *6*, 2382120519840332.
21. Pande, M., & Bharathi, S. V. (2020). Theoretical Foundations of Design Thinking–A Constructivism Learning Approach to Design Thinking. *Thinking Skills and Creativity*, *36*, 100637.
22. Rabetino, R., Kohtamäki, M., & Federico, J. S. (2021). A (Re) View of the Philosophical Foundations of Strategic Management. *International Journal of Management Reviews*, *23*(2), 151-190.
23. Rillo, A. G., Martínez-Carrillo, B. E., Castillo-Cardiel, J. A., & Rementería-Salinas, J. M. (2020). Constructivism: An interpretation from Medical Education. *IOSR J Res Method Educ*, *10*, 1-12.
24. Sari, R. M. M., & Priatna, N. (2020, October). Blended Learning: A Strategy of Current Mathematics Learning. In *Journal of Physics: Conference Series* (Vol. 1663, No. 1, p. 012049). IOP Publishing.
25. Stipanovic, N., & Pergantis, S. I. (2018). Inclusive Education for International Students: Applications of a constructivist Framework. *International Education Journal: Comparative Perspectives*, *17*(1), 37-50.
26. Van Bergen, P., & Parsell, M. (2019). Comparing Radical, Social and Psychological Constructivism in Australian Higher Education: A Psycho-Philosophical Perspective. *The Australian Educational Researcher*, *46*(1), 41-58.
27. Veldhuizen, C. (2021). Conceptualizing the Foundations of Sustainability Focused Innovation Policy: From Constructivism to Holism. *Technological Forecasting and Social Change*, *162*, 120374.
28. Wilkinson, B. D., Shank, G., & Hanna, F. (2019). Epistemological Issues in Counselor Preparation: An Examination of Constructivist and Phenomenological Assumptions. *The Journal of Counselor Preparation and Supervision*, *12*(4), 13.