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The relevance of Vygotsky's constructivism learning theory with the differentiated learning primary schools

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ABSTRACT

The purpose of this study is to analyze in depth the relevance of Vygotsky's constructivism learning theory in differentiated learning in elementary schools. Differentiated learning is an effort to adapt the learning process in the classroom to meet the learning needs of each individual. This adjustment is made by considering the interests, learning profiles, and readiness of students to improve learning outcomes. With this adjustment, students can learn according to their respective abilities and find understanding from their own experiences. On the other hand, constructivist learning theory states that learning is a process in which students can build their knowledge. One of the constructivists learning theories was proposed by Vygotsky, known as social constructivism. Vygotsky's constructivism emphasizes the interaction of interpersonal (social), cultural-historical, and individual factors as the key to human development. The constructivist theory has relevance to differentiated learning in terms of meaningful learning and student activity. Differentiated learning applies constructivist theory in learning by considering the individual characteristics of students. In addition, the concept of the zone of proximal development (ZPD) and scaffolding are highly relevant in differentiated learning that accommodates the full potential of students and considers the individual abilities of students.

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1. INTRODUCTION

Education is important for humans because, with education, humans can develop their potential. In addition, indirectly humans can interact with other people as social beings [1]. Education is carried out from elementary education to university. The elementary school education level is one of the formal education that functions to educate the nation's life by developing the abilities of students who are in themselves [2]. The level of basic education is also the basis for forming individuals at the next level of education [3], [4]. If it is observed that currently, the education curriculum implemented in Indonesia is an independent curriculum with its characteristics, namely differentiated learning [5], [6].

The goal of differentiated learning is to modify the classroom learning process to suit the needs of each individual student. The modification, specifically taking into account students' learning profiles, interests, and willingness to attain higher learning goals [7]. In line with Marlina's [8] statement that differentiated learning is an adjustment to interests, learning preferences, and student readiness to create an effective learning process that can improve student learning outcomes. Differentiated learning is not individualized learning, however, tends to learn that accommodates all potential and learning needs of

students with independent learning strategies.

A 21st-century perspective on teaching and learning is called differentiated learning. In the field of education, differentiated learning is not a novel concept. Differential learning, is a motor learning paradigm based on the dynamic systems theory of human movement and connected to the significance of movement variability [9]. Differentiation learning is commonly used in the context of motor learning, according to several research [10]–[12]. According to earlier research, differential learning has also been demonstrated to be more effective at the learning level than more conventional teaching strategies that engage students' cognitive and activity [11], [13]. Differentiated learning seems to emerge as a promising approach to increase creative behavior related to the construction of self-knowledge by students [14]. Further benefits of a differential learning strategy were detailed by Santos *et al.* [15] as following: learning that encourages diverse adaptations based on knowledge, supports regularity in behavior, and facilitates the development of creativity components. It also significantly reduces failure. Recently Gray [16] also stated that the differential learning approach is designed to encourage self-organization (self-organizing). In addition, differentiated learning can also accommodate students in building their knowledge through creative experiences [17], [18]. These studies show that differentiated learning is very closely related to the cognitive activities of each student in building their knowledge through a process of creative experience. From this, it can be described that differentiated learning is closely related to constructivism theory.

Constructivism theory emphasizes the process of finding knowledge, ideas, and ideas rather than the results of answers from each student. Constructivist learning theory states that learning is a process in which students can build their knowledge. The knowledge that already exists certainly cannot be transferred, but through the process of imparting knowledge that occurs between teachers and students [19]. Constructivism learning is also based on the understanding that students get through a process that is passed in construction. The process of constructing is from the experience gained by learners [20]. In constructivist learning, the teacher acts as a facilitator who gives freedom to students in developing their potential. Thus, students become the center or as an active role in developing the knowledge they have. This is in line with the principle of differentiated learning which accommodates all the individual potential of students and places students as learning subjects. Students are allowed to be creative in providing ideas or ideas they have. This is intended so that students can understand learning material with their learning style so that it is easier to gain understanding [21].

One of the originators of constructivism learning theory is Lev Vygotsky. Lev Vygotsky is an educational figure who sees how learning occurs from a social perspective [22]. Children's cognitive and language development does not develop in a social vacuum [22], [23]. Lev Vygotsky, a Russian psychologist, recognized this important point about the child's mind more than half a century ago. Vygotsky's theory received increasing attention towards the end of the 20th century. According to Vygotsky, every individual develops in a social context. All intellectual development which includes the meaning, memory, thinking, perception, and awareness moves from the interpersonal to the intrapersonal area. The mechanism that underlies high-level mental work is a copy of social interaction [24]. In Vygotsky's view, all higher-order cognitive work in humans has its origins in the social interactions of each individual in a particular cultural context. Cognition is the internalization of social interaction. Vygotsky's theory of social cognition encourages the need for a new social basis for understanding the educational process [25].

Thus, the concept of learning according to constructivism, namely pouring ideas or ideas from students who found themselves both from experience and information obtained through the creative process. Vygotsky's constructivism emphasizes the interaction of interpersonal (social), cultural-historical, and individual factors as the key to human development [26]. This learning theory focuses on students (student-centered). The teacher acts as a facilitator. Of course, each student has different understanding abilities [27]. This relates to the statement that each individual has many potential and unique [28], [29]. This is closely related to the principle of differentiated learning which is characteristic of the independent curriculum applied in Indonesia. The independent curriculum was born as a reaction to a decrease in student understanding due to online learning during the pandemic so there is a need the restoration of learning [30].

The independent curriculum is implemented in stages in Indonesia starting from the preschool level to higher education. All school institutions in Indonesia have implemented an independent curriculum by instructions from the government and the local education office. The curriculum began to be implemented gradually in grades 1 and 4, while others still used the previous curriculum, namely the 2013 curriculum. Learning in grades 1 and 4 was carried out in a differentiated manner according to the principles of the applied independent curriculum. Applied learning is oriented towards the formation of students who have the profile character of Pancasila students.

This study examines the relevance of Vygotsky's constructivist learning theory to differentiated learning in elementary schools. Previous research has explored the relevance of sociocultural learning theories to differentiated learning, where the implementation of differentiated learning is heavily influenced

by the social and cultural context of the learners' environment [31], [32]. Differentiated learning appears to be not only relevant to sociocultural theory but also to constructivist theory. This indicates that differentiated learning is highly multiperspective, resulting in broader positive impacts that can be viewed from various perspectives. Vygotsky's constructivist theory emphasizes both cognitive and socio-cultural aspects simultaneously.

Based on this explanation, a relevance was found between Vygotsky's constructivist learning theory and differentiation learning which was applied especially in elementary schools. As is known, the curriculum implemented in Indonesia must refer to learning theories that are relevant to the lives and characteristics of students today. Several learning theories, including Vygotsky's learning theory, provide as inspiration for differentiated learning, which is a crucial component of the independent curriculum. This study aims to analyze more deeply the relevance of Vygotsky's constructivism learning theory with differentiation learning in the independent curriculum in elementary schools.

2. METHOD

The type of research used in this research is qualitative research, with descriptive methods. The descriptive method is a method that places more emphasis on the power of data analysis obtained through various sources obtained from various books and other writings by relying on existing theories to be interpreted clearly and in-depth to produce theses and antitheses [33], [34]. This research also refers to the library research model in which the object of study comes from books, notes, journals, transcripts, research reports, and other documents that can be found and related to Vygotsky's constructivist learning theory and differentiated learning. In this study the technique used to collect data was documentation, in this technique, the researcher identified discourse from books, papers or articles, magazines, journals, the *web* (internet), or other information related to Vygotsky's constructivism learning theory and learning differentiated or directly related to the title of writing. After the data is collected, the data is analyzed and then reduced. After that, the data presentated is carried out and the conclusion is obtained.

3. RESULTS AND DISCUSSION

3.1. Vygotsky's social constructivism learning theory

According to Vygotsky's theory, human development is primarily determined by the interplay of interpersonal (social), cultural-historical, and individual elements [26]. Central to the concepts and principles in Lev Vygotsky's constructivism theory put forward by Ormrod [35] is that humans can use their mental functions to enhance learning, memory, and logical reasoning. According to Vygotsky's view, the basis of human mental functions is built biologically, and to develop these mental functions, humans need the role of society, and culture.

Furthermore, Vygotsky expressed important ideas in his theory, namely: i) informal and formal interactions between adults and children will give children an understanding of how children develop; ii) each culture has meaning to improve children's cognitive abilities, and cultural significance for children aims to guide children in living their lives productively and efficiently; iii) the ability to think and speak develops in the early years of child development. Vygotsky's cognitive development is very dependent on the development and mastery of language; iv) the development of complex mental processes occurs after children carry out social activities, and will gradually be internalized in the child's cognition that can be used freely. Vygotsky argued that complex thinking processes are highly dependent on children's social interactions. As children discuss events, objects, and problems with adults and others who are more knowledgeable, so do gradually the results of the discussion will become part of the child's thinking structure; and v) children will be able to do challenging tasks if given more challenging tasks by competent individuals. Regarding important concepts in Lev Vygotsky's theory of constructivism, apart from social interactions that play a role in building children's knowledge, Schunk [26] focuses his explanation on the four main concepts of Vygotsky's theory of constructivism which consist of the zone of proximal development (ZPD), scaffolding, as well as language and thought.

3.1.1. Zone of proximal development and scaffolding

Lev Vygotsky's constructivist theory includes the ZPD as one of its central ideas. He asserts that there are two stages to an individual's ability growth: the actual development stage and the potential development stage. The ability to finish activities or find solutions to different difficulties on one's own is a good indicator of someone's true developmental stage. Potential development is demonstrated by a person's capacity to finish activities and find solutions under adult supervision or in cooperation with more experienced peers. The zone of proximal development, or ZPD for short, is the distance between the two, that is, the level of current development and the level of potential development [36]. ZPD is the difference

between the actual level of development ascertained by solving problems on one's own and the prospective level of development ascertained by solving problems under the supervision of an adult or in cooperation with more experienced peers [37]. Therefore, it may be said that the ZPD is the difference between the actual developmental level demonstrated by the capacity to solve problems on one's own and the potential developmental level demonstrated by the capacity to solve problems with the assistance of peers or adults who are more experienced.

ZPD is Vygotsky's term for a series of tasks that are difficult for children to master independently but can be learned with help from others such as teachers or more capable friends. So, the lower limit of ZPD is the level of a problem that a child can solve independently. The upper limit of the ZPD is the level of responsibility or additional work a child can accept with help from an instructor or teacher. This is in line with Ormrod's [35] opinion that the ZPD is a regional concept that indicates opportunities for children's abilities to understand tasks as a form of developing children's cognitive abilities. The concept of ZPD in Lev Vygotsky's theory of constructivism has four stages as follows [38], [39]

Stage I: by depending on others, like instructors, to complete tasks, students get a comprehension of the language relevant to their studies and the fundamentals of the subject matter being studied. Stage II: the learner completes the job independently in this stage by drawing on prior knowledge. Between the first and second stages is when ZPD happens. When students practice independently, it means they carry out certain tasks without help. They occasionally require assistance nevertheless, as they are not yet at the level of flawless skill. Stage III: a performance is established during this phase. This indicates that kids have advanced to the independent stage at this point. A learner does not currently require assistance from adults or additional practice to solidify prior information. Stage IV: students execute a performance in the fourth stage that culminates in the process of repeating functions, applying them through the ZPD each time to the outcomes of the stage before. Every person's lifelong learning follows a controlled ZPD process that progresses from receiving aid from others to repeatedly doing self-help to developing new skills.

The interpretation of Vygotsky's socio-cultural approach to cognitive development is that one must understand the two main principles of Vygotsky's work, namely more knowledgeable knowledge (MKO) and ZPD. MKO refers to someone who has a better understanding or a higher level of ability than the learner concerning a particular task, process, or concept [39]. According to ZPD, children can only address some problems at a given developmental stage when they collaborate with classmates and engage with teachers. Problems that were initially resolved with assistance and collaboration from others can be taken on individually once the learner has internalized their problem-solving practice. Vygotsky said that "what is in the ZPD today will be the actual stage of development tomorrow, that is, what the learner can do with help today, he will be able to do himself tomorrow" [40]. According to Vygotsky, if a learner receives the appropriate support while in the ZPD for a given activity, they will make progress toward accomplishing the goal [24]. After students are assisted in their assignments, assistance can then be removed and students can then complete their assignments. This is what is called the scaffolding process.

Scaffolding is closely related to ZPD, which is a technique for changing the level of support [25], [41]. During teaching sessions, more skilled people (teachers or students who are more capable) adjust the amount of guidance to the level of student performance that has been achieved. When the task a student is about to learn is a new one, more skilled people can use direct instruction techniques. When students' abilities increase, less guidance is given. Vygotsky considered that children have rich concepts but are unsystematic, disorganized, and spontaneous. Children will meet systematic and logical and rational concepts that are owned by people who are more skilled at helping them.

3.1.2. Language and thought

Human development occurs through cultural tools (language and symbols) which are then passed on from one person to another or are often referred to as the transmission of cultural tools [26]. Language is the most important cultural tool. Language is obtained from social speech, then to be stored in private speech, and finally becomes hidden (inside) speech [42]. Vygotsky believed that language was not only for social communication but also for planning, and monitoring behavior in its way called "inner speech". According to Piaget, inner speech is egocentric and immature. But according to Vygotsky's theory, *inner speech* is an important tool for thinking during childhood (early childhood) [24]. Children communicate with others using language before they can focus on their thoughts [43]. Children use language to communicate with the outside world for a somewhat long period before the transition from external to internal (inner) speech.

The transition period occurs between the ages of 3 and 7 and sometimes children at this age often talk to themselves. After some time, the habit of talking to themselves can be lost and they do it without having to say it. When this happens, the child has entered egocentric speech into inner speech, and this inner speech will then become their thoughts. Vygotsky's theory suggests that a child who uses inner speech is in

the initial process of becoming socially communicative and also confirms that a child who uses inner speech will be more socially competent than a child who does not use it [41]. Because it holds that knowledge is collaborative and situationally impacted, Vygotsky's theory is highly interesting. This implies that information is shared by individuals as well as by the environment, which includes things like tools, books, groups, and physical spaces. This demonstrates that engaging in group activities with others might be a good way to acquire knowledge. Based on the description of the application of Lev Vygotsky's theory of constructivism above, several things need to be emphasized in its application, namely: i) learning must start from the lower zone boundary in the ZPD; ii) the use of scaffolding techniques is used when students need help; iii) empower peers as experts; and iv) learning will be more effective by involving a community of people learning.

3.2. Differentiated learning

One strategy used by teachers to address students' needs and expectations is differentiated learning. According to Tomlinson [7], differentiated learning is an effort to modify the classroom learning process to satisfy each student's unique learning needs. Differentiated learning does not, however, require teachers to instruct 32 pupils in 32 distinct ways. It also doesn't imply that educators must assign more questions to pupils who finish assignments more quickly than others. In order to improve the quality of learning in the classroom through differentiation learning, teachers must be creative in their selection of models, learning techniques, and strategies. Teachers play a critical role in determining the success of learning [44].

In simple terms, differentiated learning is a series of common-sense decisions made by teachers that are oriented to student needs [16], [45]. In order to maximize learning outcomes, a teacher distinguishes instruction by adding, increasing, and modifying time in response to the needs of the pupils. Marlina [8] claims that the learning objectives are differentiated as follows. First, to help all students in learning. In order for teachers to become more cognizant of students' capacities and ensure that all students can meet the learning requirements; Second, to increase motivation and student learning outcomes. In order for pupils to achieve learning objectives that correspond to the degree of difficulty of the teacher-provided content. Students are more motivated to study when they are taught in accordance with their capacities; Third, to establish a harmonious relationship between teachers and students. Strong relationships between teachers and students are fostered via differentiated learning, which makes kids excited about learning; Fourth, to help students become independent learners. When pupils get instruction autonomously, they become accustomed to and recognize the variety of potentials; Fifth, to increase teacher satisfaction. When an educator implements differentiated instruction, they are forced to grow as a teacher and become more innovative.

According to earlier research, applying progressively differentiated learning strategies in mathematics classes can raise students' learning activities from being less active in initial reflection to being active. Similarly, differentiated learning is an interest adjusment, learning profile, and student learning readiness to achieve increased learning outcomes [6]. Not only that, Bauer *et al.* [46], reported that the application of differentiated learning in professional conversation training conducted in Germany provides practical advantages in three aspects of conversational competence namely: i) compiling conversations, ii) advancing problem solutions, and iii) building positive interpersonal relationships. Meanwhile, in the context of classroom learning, differentiation learning is related to three things, namely interest, learning profile, and learning readiness.

Firstly, pupils need to be motivated by curiosity to be 'actively involved' in the learning process. Teachers may design engaging and relevant classes by taking into account the interests of their students. Acknowledging pupils' interests can encourage them to study more. According to Robbins [47], motivation is a process that considers the tenacity, focus, and intensity of each person's attempts to accomplish their goals. Meaningful learning occurs when new ideas emerge personally, new information is connected to something students already know [48]. Students feel that their variety is acknowledged and valued when teachers take into account their interests and connect them to the curriculum. According to Tomlinson [7], taking into account students' interests when designing learning has the following goals: i) assisting students in realizing that school and their desire to learn align; ii) demonstrating the interconnectedness of all learning; iii) utilizing students' existing knowledge as a bridge to acquire new or unfamiliar concepts; and iv) boosting students' motivation to learn.

Second, a student's learning profile is influenced by a variety of variables, including language, culture, health, family dynamics, and other particulars. Furthermore, a person's learning style and learning profile are connected. Tomlinson [7] defines student learning profiles as the preferred methods of learning that a student chooses, based on factors like as thinking style, IQ, background, gender, and culture. Students become more cognizant of their learning requirements and strengths when they are provided with continuous opportunity to reflect on and discuss the most effective ways for them to learn. Additionally, teachers grow more perceptive to the unique needs of each pupil. This is consistent with Marlina's [8] assertion that the differentiation class differs from the standard classroom in that the instructor acknowledges the presence of

many intelligences because learning is centered around student learning profiles, readiness, and interest.

Third, readiness to learn (readiness) is the capacity to learn new material [15], [49]. Students will be forced to step outside of their comfort zone by an assignment that takes their preparation level into consideration. However, they are still capable of mastering the new subject given the proper learning environment and sufficient assistance. One key idea in differentiation learning is the comprehension of student learning readiness. For instance, some students are prepared to study challenging topics, while others require more time to fully understand the subject. The teacher can relate students' favorable perceptions of the new subject to be taught and the teacher's potential to improve the learning process if they have a solid understanding of the students' readiness for learning. Furthermore, if the teacher knows the readiness of students for a concept, the teacher can introduce and implement the concept according to the needs of students, and create assignments that best suit student skills.

When using differentiation in the classroom, teachers must consider that each student has unique and varied learning needs. In order to convey to their students how they may learn, teachers need to be proactive in thinking of and organizing different ways to do so. According to earlier research, practicing more open-ended skills was reported by Savelsbergh *et al.* [50] in a differential learning study so that suggestions of the need for curriculum and learning adaptations can be made for pupils with diverse features. Additionally, group formation in differentiation-based classes will be flexible, allowing students with strengths in particular areas to join and collaborate with friends. Students that excel in one subject may not necessarily excel in other subjects as well. For instance, the student might excel at comprehending a text but struggle with writing; he might be able to spell words correctly or write sentences correctly, but he might also struggle with counting and other skills. Within this accommodating group, the instructor will recognize that certain students may be working slowly on brand-new projects and will provide guidance to help them work more quickly, while others may be learning but working slowly.

Groups in differentiation learning are continually subject to change in response to students' needs and experiences. Additionally, differentiation learning makes the assumption that students' internal and external environments are constantly changing, allowing them to learn about the full solution space [16]. Through differentiated learning activities, all their needs are accommodated according to their interests or learning profiles. This is in line with previous findings which reported that differential learning training methods are designed to encourage the self-organization of the trainees [16]. The concern of students in paying attention to their learning strengths and needs is the focus of attention in differentiation learning. Learning profiles accommodate students' learning needs so differentiated learning requires teachers to pay attention and provide activities to meet students' learning needs. Teachers in differentiated learning must be able to develop student learning methods to obtain, manage, use and communicate the necessary information. Students must be actively involved in the learning either individually or in groups.

Indicators of student activity, according to Suryosubroto, include: i) taking steps to fully understand the subject matter; ii) learning, understanding, and discovering for themselves how to acquire knowledge situations; iii) assessing how the teacher assigned tasks to him; iv) studying in groups; v) trying out specific concepts on oneself; and vi) verbally or visually communicating the results of thoughts, discoveries, and appreciation of values [51]. Thus, the successful implementation of differentiated learning depends on the teacher's role in managing to learn. The teacher plays a very important role in the differentiation learning process in directing students' potential, therefore it is important to show their role in helping students.

3.3. Relevance of Vygotsky's learning theory in differentiated learning

Constructivism theory emphasizes students as active learners so in its application constructivism theory is often referred to as a student-centered instruction strategy. In a learner-centered classroom, the teacher becomes the “guide on the side” and not the “sage on the stage”, by helping students find their meaning rather than controlling all activities in the classroom [15]. Meanwhile, differentiated learning is learning that adjusts the interests, learning profiles, and readiness of individual students [7]. This distinction will lead to meaningful experiences and learning for students because it adapts to individual characteristics. From this explanation, the theory of constructivism has relevance to differentiated learning in terms of meaningful learning. Differentiated learning applies constructivism theory in learning by taking into account the individual characteristics of students.

In addition, the concept of differentiated learning has relevance to Vygotsky's constructivist learning theory in terms of student activity. In a constructivist view, children construct knowledge as a result of interactions with experiences and objects they encounter. In this process, the focus is on individual activity in forming knowledge [52]. Students are expected to always be active and be able to find a way of learning that suits them. Teachers function as mediators, facilitators, and friends who create a conducive situation for the construction of knowledge in students [53] This demonstrates the value of viewing students as active learners

who can customize their education to suit their needs. We can refer to this as independent learning. Critical learning is characterized by quality, expressed (quickly), transforming, effective, diversified, progressive, actual, and factual learning through independent learning. Learners who embrace independence will always be vivacious, upbeat, perceptive, imaginative, and unafraid to attempt new things. They are forced to deal with learning challenges, they don't rely on parents, teachers, schools, systems, or rules, and they always want to be able and never give up before trying. Everywhere they go, they turn into interesting, powerful, and helpful people. Ki Hajar Dewantara emphasized repeatedly about the freedom of learning, "...independence should be imposed on the way children think, that is, don't always be "pioneered", or told to acknowledge the ideas of other people, children will still be accustomed to seeking all knowledge by themselves using his mind. Children are able to think to "find" a knowledge" [54].

Differentiated learning is part of the concept of independent learning. The ability to learn does not imply that everything associated with learning can be done freely or with latitude. Examples of this include not taking learning seriously, not finishing assignments, being late and exhibiting poor behavior, or dressing carelessly [55]. All of this serves as rationalization for using autonomous learning. The spirit of independent learning is incompatible with this mindset and practice, which is why it needs to be changed. Merdeka will allow for flexibility in the pursuit of objectives while adhering to all current policies and guidelines.

A simple illustration to provide a straight understanding of the essence of independent learning is presented below. Mr. Budi is domiciled in Surabaya. One day he plans to visit his grandson in Jakarta. It is hoped that in two weeks the plan can be realized. Following the basic principle of independent learning manifested in the process of achieving goals. There are several options to get to Jakarta, for example by plane, train, bus, travel, bringing a private vehicle, or using other forms of means. Here Mr. Budi has the freedom to choose the means of transportation by considering various conditions and needs, such as cost, time, convenience, or comfort.

It is thought that learning environments that are enjoyable for kids benefit them in a number of ways. Children will begin to experience happy emotions when they are in pleasant surroundings. Pleasure-related emotions serve as a psychological basis for fostering a love of learning and forging learning resilience. Children can learn for a fair amount of time and have a tendency to desire to learn everything that is offered. When presented with difficult content, kids don't quit up easy or become bored easily. Fast-flowing ideas will lead to the emergence of creativity. The learning process that is lived in a fun way allows students to be able to remember more and longer material, in other words, the retention rate is stronger. In Ki Hajar Dewantara's view above, independent learning in turn produces creativity which is an important element for progress.

Vygotsky's constructivism learning theory also has relevance to differentiation learning, especially in the concepts of the *ZPD* and *Scaffolding.* In differentiated learning, students learn according to their respective abilities [8]. Of course, every student does not have the same abilities. In this case, the role of the teacher as a facilitator should be able to accommodate these abilities. There is a question, "Should the child be helped? Can't children learn by themselves?". Assisted (unassisted) conditions are conditions in which the child is at the actual level of development. This condition will be achieved more optimally with assistance if the child still has not mastered what is being learned. The following is an illustration of differentiated learning by paying attention to the student's ZPD. Implications for further research can be in the form of correlations regarding differentiated learning with other perspectives. Furthermore, it is necessary to further explore whether differentiated learning in its implementation has positive or negative impacts.

4. CONCLUSION

In addition to highlighting an individual's cognitive abilities, Vygotsky's constructivism learning theory also takes into account the social interactions between pupils. Constructivism, according to Lev Vygotsky, is best applied in the following ways: i) learning should begin at the ZPD's zone boundaries; ii) scaffolding techniques should be used when students need assistance; iii) peers should be empowered as experts; and iv) learning will be more effective when a community of learners is involved. Constructivism theory is frequently applied as a student-centered instruction technique because it highlights students as active learners.

In terms of student participation, Vygotsky's constructivist learning theory and the concept of differentiated learning are related. Children build their knowledge through their interactions with the experiences and objects they come across, according to the constructivist perspective. The process here emphasizes the role that each individual plays in acquiring knowledge. It is required of students to be engaged learners who can adjust their learning style. The teacher establishes an environment that is favorable for pupils to develop knowledge by acting as a friend, mediator, and facilitator. This demonstrates the value of viewing students as active learners who can customize their education to suit their needs. Differentiation

learning is also relevant to Vygotsky's constructivism learning theory, especially in the concepts of the ZPD and Scaffolding. In differentiated learning, students learn according to their respective abilities. Of course, every student does not have the same abilities. In this case, the role of the teacher as a facilitator should be able to accommodate these abilities.

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