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A Critical Discussion of Vygotsky and Bruner's Theory and Their Contribution to Understanding of the Way Students Learn

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ABSTRACT

Vygotsky and Bruner's theory , as a significant guidance in the field of education, make a influence for many students and teachers. This paper uses the ways of description and discussion to explore the implication from Vygotsky and Bruner's theory on teaching and learning.

1. Introduction

The purpose of this essay is to carry out a critical discussion of the way students learn by applying Vygotsky and Bruner's theory. In order to achieve this, the essay begins with a description and discussion of the definition of the two theories, their assumptions and premise, their application, and contribution to the field of education, and finally a discussion of their contribution to our understanding of how students learn. The essay ends with a discussion of the implications the Vygotsky and Bruner's theories to teaching and learning in our schools.

2. Critical Discussion

2.1 Vygotsky and Bruner's Theories Contribution to Understanding How Students Learn

Vygotsky is one of the social learning theorists, whose (1962; 1978) theory postulates that people learn from social interactions, which leads to the step-by-step changes in the learning processes and behaviours of students [19,20]. The theory equally points out that in learning, the manner in which students solve problems and advance their learning development is dependent on their social interactions. These premises led to the theorist to develop their zone of proximal development (ZPD) theory, which indicates that people with less and lower advanced skills can learn more from those with more advanced skills through modelling displayed in the behaviour of more experienced and advanced individuals. Therefore, as Nelson (2016) noted, students tend to learn from observation, training, modelling, and mentoring from advanced and experienced students, making them their role models in enhancing their skills and knowledge [11]. A second important theory in learning is Bruner's theory, who in (1960) focused

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on how knowledge is organised and presented in different modes of thinking by the learner [3]. Based on a research on the cognitive development in children, Bruner (1960) proposed that there are three representations of knowledge including enactive or action-based, iconic or image-based, and symbolic or language-based, leading to the constructivist theory of learning. In this theory, Bruner (1960) suggests that learning is more effective when the student is faced with new learning materials starting and following a progression from enactive or action-based learning, to iconic or image-based knowledge and ending with symbolic or language representation [3]. This calls for the proper organisation of learning and instructional materials and plays a critical role in our understanding of the manner in which students learn.

Vygotsky's theory postulates that people learn more from social interactions, from observing others, from the interaction and communication they have with those with more advanced skills, knowledge, and experiences. This explains why students learn better in the classroom from direct discussion and interaction from social-learning activities like role play, simulations, teamwork and group work, blackboard activities with other students with advanced knowledge, skills, and experiences. Moreover, it explains why the behaviour and process of learning of students changes when they are in interaction with others, from coaches, mentors, teachers, and students with higher knowledge levels. According to Katz and Rezaei (1999), the social learning theory postulated by Vygotsky proposes that this explains why dialogue in the classroom an important tool through which individuals is individually and collectively negotiate conceptual information and learning [8]. It explains why students learn better when an individual of higher experience and knowledge is able to explain to them concepts, work with them on projects and problems, much more than when they work alone.

The social learning theory proposed by Vygotsky explains why students learn complex theories and knowledge better in discussion groups, team working projects, and with one-on-one discussion with tutors and teachers than with classroom texts. This is because the students are more likely to try out their ideas with other students in discussion groups or team work activities than independently, they are able to discuss concepts and knowledge, improving their critical thinking skills that when they work independently. Moreover, it explains why students learn and gain new knowledge better from interactive instructional methods than the teacher-blackboard instruction method. Katz and Rezaei (1999) notes that students have been identified to learn and gain concepts better from role-play, from simulations, from discussion groups and focus groups discussion activities with other students, mentors, and tutors than from teacher-blackboard instruction method owing to the ability of the social-learning practice to allow students learn from discussion, observation, engagement, and mentorship [8].

Fourie (2013) noted that Vygotsky's theory presents the concept of the ZPD or the zone of proximal development to explain the learning development of children [5]. The theory argues that children in the zone of proximal development can perform the task independently but are not there yet, hence will need some help to successfully perform the task. The theory identifies that while children and students are able to visualise new information, they cannot conceptualise this information as their own knowledge without the assistance of a more experienced individual, perpetuating the fact that we learn from social interactions and learning occurs from external stimuli in the environment. A student while visualising numerical figures on the blackboard cannot perform mathematical calculations without the assistance of an experienced teacher, tutor, or parent to assist them understand, conceptualise, and perform the calculations. In the same manner, while a child can mount and sit on a bicycle, they cannot successfully balance and ride it without the help of an adult or a more experienced elder sibling. The zone of proximal development underscores the main premise by Vygotsky that we best learn from social influences, from the instructions and guidance of others.

Contrary to Vygotsky's theory, Bruner constructivist theory argues that students are active learners, trying to solve problems in their own way by making sense of the world as noted by Barth (2015) [2]. This occurs with the student trying to construct their own knowledge by categorising and organising information rather than taking up everything given to them by the teacher. The student will take this new information and organise it first in enactive or action-based, iconic or image-based, and symbolic or language-based knowledge. The student will take the information from actions such as role play, simulations, computer games, stories and narratives, group discussion and team projects among other actions, use this information to firm images or icons to represent key points in their mind to ease in memory development and storage, and then turn these image into symbolic or language-based knowledge where they apply and use the knowledge as noted by Baracskai et al. (2019) [1]. For example in the video game and simulation exercises in the classroom, the student will take the player's narrative using actions, interpretations of the game's context, and goals of the game, immersing themselves in the game by activities hence experiencing a learning process. In this

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learning context and through these activities, they form iconic or image based information easily processed and stored by their brains, later used in speech or applied in other situations. Fuchs (2018) argues that by applying Bruner's theory it is possible to explain why when students are learning there is no separation between movement, perception, and recognition [6].

According to Liu et al. (2005), Bruner's theory provides an excellent explanation of the manner in which students learn, explaining how students represent knowledge in their learning process and explains the cognitive development of students in the learning environment [10]. In essence, the main theme behind Bruner's theory is that the learner is an active learner rather than passive, as the learner constructs new ideas and concepts or knowledge from their representation of information given to them. This learning is computational and shaped by culture. This implies that the student will use their mind to process and organise information into enactive, iconic, and finally symbolic-based information but are equally influences by their cultural background since culture affects their experience and development. The student will have a motor response in activities, in the manipulation of objects in the environment, learning how they behave and react, they then visualise the properties of these events and objects in their mind, and create language symbols of this information. To best explain Vygotsky's theory, Liu et al. (2005) draws attention to how students learn from online social games and simulations, where the interaction with other players in the online environment, enables the student to gain knowledge and experience from the gaming environment and activities, from the interactions and friendships among the players [10].

The theories of Vygotsky and Bruner can explain other learning behaviour in students as noted in theory. For example, these theories explain the use of negative and positive reinforcement to discourage and enforce negative and positive behaviour respectively in the classroom. The theories are able to explain how students learn from social interaction and from analysing information, changing their behaviour in the classroom from their interaction with others and information owing to the fact that learning ideally is a response to external stimuli leading to a change in behaviour as explored by B.F. Skinner (1974) and that cognitive development occurs from a series of invariant and universal stages as noted by Piaget (1973) and as pointed out by Peter et al. (2010). In essence, the theorists Skinner (1974) recommend that learning can take place from operant conditioning or reward and punishment to produce the desired behaviour, while Piaget's theory postulates that learning takes from a balance of accommodation and assimilation [13-14,17]. According to Slavin (2012), students learn behaviour from negative reinforcement or punishment, which seeks to discourage students from practicing certain negative behaviours by using removal punishment and presentation punishment. In removal punishment, the teacher will withdraw pleasant consequences like break time and play time or will use presentation punishment which is the presentation of unpleasant consequences like cleaning the classroom, caning, suspension and expulsion [15].

Either way, the student learns to avoid certain negative and unwanted behaviour in the classroom like unfinished homework, unnecessary speaking in the classroom or making noise, inability to repeat what they have just been taught by the teacher. Positive reinforcement is meant to reinforce positive behaviour using affirmations, recognition, congratulatory remarks, and rewards, which are meant to make the student repeat positive behaviour like completed assignment, correct answers to questions, cooperation in discussion groups among others. In each of the reinforcements, be it negative or positive, the social learning theory recognises that students will learn appropriate classroom and learning behaviour from each other and mentors as reported by Slavin (2012) [15]. Such that a student will strive to complete assignments and get good grades to receive awards and recognition similar to another student, will avoid negative behaviour to avoid the punishment given to others who exhibited the same negative behaviour previously, will strive to get high grades to get scholarships and bursaries like a mentor and a coach.

The use of reinforcement classroom behaviour relates to the social learning theory proposed by Vygotsky because students learn from observation and interaction with other students, mentors and teachers, and will strive to get positive reinforcement from their teachers rather than negative reinforcement. Additionally, scholars like Woollard (2010) support the theories of social learning theory, constructivist theory proposed by Bruner, and behaviour reinforcement in learning by proposing that students can learn from requirement to learn in silence, carrying out repetitive activities to improve their accuracy, learning from chanting, rhyme, song, and physical actions, receiving extrinsic and intrinsic rewards for completing tasks, being recognised and praised, using charts and displays [21]. In learning effectively from charts, physical activities, and displays or illustrations, students tend to use Bruner's constructivist theory, where they gain information from actions creating action-based knowledge, which they visualise as iconic or image-based knowledge, and is stored in their memory and later retrieved as symbolic or language-based knowledge. The successful ability

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to elicit the correct knowledge in this learning process leads the student to receive a positive reinforcement or reward from the teacher, hence reinforcing this learning behaviour in the classroom.

Despite evidence from literature on the role of Vygotsky and Bruner's theories ability to create an understanding of the way students learn, it is evident there are shortcomings in both theories. According to Ogunnaike (2015), Vygotsky's theory especially on the zone of proximal development has been criticised for its unclear or lack of account for the precise learning needs of children or students, their present capability level or their background knowledge, and their motivational influences [12]. The zone of proximal development assumes that the learner are able to visualise new information, they cannot conceptualise this information as their own knowledge without the assistance of a more experienced individual. It ignores the fact that many students may have background knowledge on a certain topic or subject, may have past experiences within a certain field, hence influencing how quickly they gain new knowledge, conceptualise ideas and information. The students may also have particular learning needs like attention disorder among others and have different capabilities affecting how fast they acquire new knowledge, innovate and conceptualise ideas and for this reason affecting their learning speed and capability. At the same time, children or students have different motivational influences in learning, with some motivated by the desire to achieve and gain social recognition for good performance, learn to compete with their peers among other motivating factors affecting how they learn and the speed of acquiring new knowledge. Furthermore, as Ogunnaike (2015) and Chaiklin (2003) noted in their critical studies, the zone of proximal development does not actually explain the process of learning development or explain how learning development actually takes place in learners, hence cannot fully explain the way students learn [4.12].

Additionally, in critically analysing the social learning theory proposed by Vygotsky, Lui and Matthews (2005) noted that this theory overlooks the role of the individual in the learning process by assuming that learning takes place in the collective. The theorist asserted that the mind of the individual cannot be separate from the group and hence learning takes place in a social-cultural environment or collective where the student learns from others [10]. The theory overlooks the fact that students and individuals can rise above the social norms and learn on their own based on their ability to cause personal understanding of concepts, as depending on their gifts and cognitive ability. Secondly, as Saifer (2010) noted, the social learning theory proposed by Vygotsky does not apply to all cultural and social groups, meaning that not all learners gain meaningful engagement for their social interactions. The collaboration and participation of learners in social groups varies, leading to inequality in learning [15]. Moreover, different learners have different skills set affecting their learning process or the way they learn. For example, the social learning theory overlooks the fact that learners with learning difficulties like attention disorder and autism may not gain meaningful learning from group interactions owing to their learning and personality disabilities.

On the other hand, Bruner's constructivism theory of learning identifies the progression by which students acquire knowledge from enactive, to iconic, to symbolic knowledge but has inherent disadvantages and challenges which the teacher must consider when applying its principles to teaching and learning processes in the classroom. According to Ogunnaike (2015), Bruner's theory can easily cause students to be frustrated and confused in learning since it requires the students to form abstracts and relationships between knowledge, the lack of identification that students have prior knowledge which they build up on with new knowledge, that knowledge is not independent from the knower and they develop this knowledge from information they receive from the external world [12].

2.2 The Theories Implications to Teaching and Learning

The theories postulated by Vygotsky and Bruner present ideas that have direct implications on effective teaching and learning in the classroom. One of the lessons for teachers as argued by Liu et al. (2013) is that in teaching, for example mathematics, the teacher can apply the principle of knowledge representation, starting from enactive information, followed by iconic and finally language information. The teacher on the chalk-blackboard or digital blackboard presents new information on mathematical multiplication or addition, using physical objects like stones or fruits to present the numbers shown on the board and assist the students to create mental images of the mathematical representations, and using language to explain multiplication and addition of numbers, which the students can easily provide answers for from their visualisation of the objects used. The same can be done for teaching language, sciences, and other subjects where enactive information represents the range of physical activities to present new information like video games and simulations, role play and experiments, the objects and activities assist the student to form images of the new information and language or symbols reinforces their understanding of the new concept. According to Liu et al. (2013), the goal of teaching in classroom instruction must

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be the focus on enabling the student to create the adequate knowledge progression model, starting from enactive information, to image information, to symbolic information. Despite the disadvantages and challenges of the Bruner's constructivism theory, studies find that is has changed the role of the teacher and learner in teaching and learning, with the teacher considered more of a learning guide rather than a dispenser of information enabling students to make their own judgments and conclusions on knowledge. This approach by recognising how students construct and organise information makes the teacher more tolerant to different diversity and cultures in learning as they assist the student to turn information from enactive, iconic, to symbolic knowledge.

In a similar manner, the social learning theory and the zone of proximal development postulated by Vygotsky can be used to improve teaching and learning in the classroom. According to Lee et al. (2014), teaching and learning changes when the teacher considers the principles of social learning in the classroom activities and instruction [9]. In order for effective teaching and learning to occur, a teacher must consider the social learning environment of the student, from the homework they do at home with parents and guardians, to the discussion groups and group projects, the role place and simulation games, to the online activities. In presenting learning instructional materials, a teacher of any subject must incorporate learning activities that encourage students to interact and socialise with others, especially those with more knowledge to encourage knowledge development. For example, the teacher can introduce role play, acting, and stimulation online games in teaching language to second language learners, with students paired with more language proficient learners in the activities. Giving the student more complex mathematical assignments to be completed as a group, which encourages students to discuss, research, and calculate the equations in order to arrive at a correct answer collectively, consequently allowing the weak students to learn numerical and mathematical skills from more advanced classmates. Thirdly, the teacher can provide students in a home economics classroom an assignment to be completed at home, which requires the learner to perform the task with their parents or guardians, consequently leading the learner to acquire new knowledge from their parent or guardian. These examples imply that Vygotsky's social learning theory greatly changes the instruction and learning process in the classroom, encouraging teachers and students to interact more. As Sheffield (2014) noted, this theory encourages greater participation of the learner in as much as they are gaining knowledge from more experienced and advanced persons, for they must observe others from the training, modelling, and mentoring processes [16]. This also means that in order to have effective teaching and learning in the classroom, the teacher must consider the integration of social learning practices, engaging students in discussion, group participation projects, online communities and offline communities of practice, social activities in co-curriculum field and community to increase their ability to gain valuable information and knowledge from external interactions.

3. Conclusion

The critical discussion has found benefits and disadvantages of the Vygotsky and Bruners theories to learning in explaining the way students learn and having an impact on teaching and learning in the classroom. Vygotsky's theory of social learning and zone of proximal development argues that students learn from interactions with others with more advanced knowledge and experience rather than their own, implying that the theory overlooks the critical role an individual's ability, learning disability, and personality in interactions can determine their level of learning from social interactions. Additionally, the theory of zone of proximal development proposed by Vygotsky was noted to lack an account for the precise learning needs of children or students, their present capability level or their background knowledge, and their motivational influences. Bruner's constructivism theory argues that students learn by organising knowledge in progression from enactive information, to iconic or image-based information to symbolic information. This theory postulates that the teacher must focus on giving the student instruction content that engages them in activities like video games and role play games in order to elicit the enactive information, providing visual display and charts or illustrations of the instruction content in order to assist the student develop iconic or image-based information which they can easily memorise and store in their memory. Finally, from the discussion in the classroom and the written content on the blackboard, the student is able to develop symbolic or language-based information which they can easily communicate. However, like Vygotsky's theory, this theory overlooks certain aspects of learning process by students including the lack of identification that students have prior knowledge which they build up on with new knowledge, that knowledge is not independent from the knower and they develop this knowledge from information they receive from the external world.

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