A Descriptive Overview of Dynamic Assessment

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Abstract

Dynamic assessment (DA), deriving from the Vygotskian Sociocultural theoretical approach, has attracted considerable attention from researchers in the fields of psychology and general education, but it is still regarded as a novel approach within the field of second language acquisition. DA can be defined as an approach not only focusing on assessment as its name suggests but also aiming to instruct learners through hints or prompts, which are forms of mediation within the framework of sociocultural theory. With the increasing number of studies on DA in the field of second language teaching, DA seems to have promising effects on language teaching and learning processes. This study aims to provide a brief overview of what DA is by addressing the theoretical framework of DA, the fundamental principles of DA, its principal components, the criticisms leveled at DA, and the advantages DA offers. The data was collected through the literature review method (Machi & McEvoy, 2016). As a result of the literature review, it was found that although DA has been criticized in some ways, it has been found useful in not only uncovering success in past learning but also furthering it by discovering the underlying reasons for poor performance and intervening to improve it through dialogic interaction. It can be suggested that DA can be used effectively in formal language learning environments to reveal learners' abilities at a certain time, to promote their growth, and to predict their future potential.

Keywords: Sociocultural Theory, dynamic assessment, zone of proximal development, mediated learning.

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Introduction

Being an essential component of teaching, assessment has attracted substantial attention from second language researchers due to the powerful interface between these two components as both aim to contribute to learners' progress (Alderson, 2005). Assessment, in general terms, is defined by Russell and Airasian (2012, p.3) as "the process of collecting, synthesizing, and interpreting information to aid in classroom decision-making". Accordingly, teachers make use of assessment to make important decisions about students, instruction, classroom management, etc. It is essential that teachers know what is already known by learners, what has been learned as a result of the instructional period, and learners' strengths and weaknesses, which enables teachers to plan instruction that is attuned to learner needs, to provide guidance for the points to be improved, and to provide learners with feedback (Alderson, 2005). This illustrates how important assessment is for an effective language teaching program.

One of the primary goals of assessment is to inform all stakeholders. For one thing, looking at assessment results, both teachers and learners get an idea of the existing abilities of learners and the abilities that need to or can be improved. What is more, teachers and program developers receive feedback on the effectiveness of the instructional program. However, what is critical here is that in addition to its role as a performance indicator for learners, teachers, and program developers, assessment is also, intentionally or unintentionally, the driving force behind the teaching and learning process, which indicates its washback effect on teaching and learning (Hughes, 2003).

There are different types of assessment used for a variety of purposes like formal/informal, formative/summative, implicit/explicit, self/other, etc. (CoE,2001). Teachers usually make use of these assessment types in their teaching contexts by employing different assessment tools such as exams, unit tests, quizzes, graded assignments, oral interviews, portfolios, journals, and observations in classrooms depending on their purposes. Hence, the assessment covers obtaining not only quantitative indicators of learner performance but also qualitative ones like observation (Oosterhof, 2003). However, with the increasing attention to learner-centered teaching approaches that place importance on learner agency and self-regulation skills in the learning process, assessment types applied in classrooms have been changing. Today, assessment practices that support the learning process with a more learner-centered, dynamic, and collaborative approach have been more appealing within the context of teaching and learning (Jones, 2014).

Theoretical Base of DA

One type of assessment focusing on continuous learner assessment and development through a collaborative practice is DA. With its long history, DA has attracted the attention of researchers in different fields like psychology and general education (Poehner, 2005). As for the founder of DA, which derived from the Vygotskian theory of mind and was established by Feuerstein in a project on the learning potential of low-achievers, both Vygotsky and Feuerstein are regarded as the father of DA (Lidz, 2004). Thus, DA is basically grounded in Vygotsky's theory of mind, that is Sociocultural theory of mind (henceforth SCT). In order to achieve a thorough understanding of what DA is and how it works, it is essential to first develop an understanding of its underlying theory.

Having its origins in the works of Vygotsky, SCT aims to explore the higher mental activities of people such as memory, planning, execution and monitoring, and social settings. Although SCT is mainly associated with the ideas of Vygotsky as its base, his colleagues and former students Alexander Romanovich Luria and Alexei Nikolaevich Leontiev made substantial contributions to the development of SCT. Indeed, Vygotsky and his two colleagues were known as the "troika" of the Vygotskian School (Wertsch, 1985, p.9). It was the efforts of Luria and Leontiev that contributed to the development of Vygotskian ideas even after his death.

According to Wertsch (1985), intellectual and cultural circumstances of the time resulting from the Russian Revolution of 1917 enabled Vygotsky to develop all his innovative ideas since Vygotsky and intellectuals like Vygotsky were devoted to creating a new society based on socialist principles, which associates Vygotskian theory and Marxist principles. What is more, Vygotsky was also interested in

finding solutions to practical problems in the USSR. His main studies were on massive literacy, cultural differences among the people of the future Soviet, and the absence of services given to mentally retarded people to which the problem of defectology was later added (Wertsch, 1985). Vygotsky mainly worked on disadvantaged children with impaired hearing ability or learning disabilities. These two goals can be claimed to lay the foundations of the Vygotskian theory. Wertsch (1985) outlined the base of Vygotsky's theory of mind around the three interrelated tenets: "It relies on a genetic or developmental method, mental processes in the individual have their origin in social processes and mental processes can be understood only if we understand the tools and signs that mediate them" (pp. 14-15). Thus, it can be stated that the theory emphasizes the social nature of higher cognitive processes which can only be developed through the use of mediational tools and signs in social interaction and tracked using genetic analysis. Wertsch (1985) views one's social and intellectual settings as inseparable phenomena that could be tied through semiotic means.

SCT has received broad recognition since it brought an innovative perspective on child learning and development. Diverging from naturist, behaviorist, and constructivist theories with respect to how learning occurs, the theory posits that children's learning and development result from adult mediation, which indicates the involvement of children in age-appropriate activities during which adults provide support to promote their development (Lidz, 2017). SCT aims to provide an understanding of the role of the environment in the learning process. According to Vygotsky (1978), higher mental functions are rooted in social interaction because Vygotsky views learning as a collaborative process in which more capable peers help less capable ones demonstrate a higher level of cognitive functioning (Elliot, Lauchlan & Stringer, 1996). SCT argues that "humans utilize existing tools and create new **cultural artifacts** that allow them to **regulate**, or more fully monitor and control, their material and symbolic activity" (Lantolf, Poehner, & Thorne, 2020, p. 223, emphasis in original). This means that mental development does not occur on its own, rather it is realized in a social environment that offers interaction through cultural artifacts or other individuals. What is more, SCT does not stress learners' past learning which represents their zone of actual development (ZAD), but their possible future learning which represents their ZPD, which is the core concept of SCT. While Vygotsky originally developed his theory for the development of children, it is used to explain the second language acquisition processes as well. From the framework of SCT, the acquisition of a second language is not only mastering the linguistic properties of another language; it is beyond linguistic boundaries. It involves social interaction which improves one's understanding of the language through forms of mediation, which functions as a bridge from the interpersonal to the intrapersonal layer of internalization (Lantolf et al., 2020).

Importance of ZPD within the framework of SCT

Within the framework of SCT, knowledge is in constant change through collaboration and interaction in the social environment, and therefore the ZPD is not a fixed feature of an individual, which can be altered through the use of interaction with the social environment and mediation. Vygotsky (1978) defines the ZPD as "the distance between the actual developmental level [of a person or group] as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p.86). Haywood (2012) explored the notion of ZPD based on the questions of "what is" or "what could be". That is, it is the gap between what one can do at present independently and what one can possibly do with the guidance of a more capable individual through interaction.

Vygotsky views development in two levels: actual and proximal. According to him, an individual can have two types of developmental areas, the zone of actual development (ZAD) and the zone of potential development. The former refers to one's already attained mental abilities whereas the latter indicates the potential maturity of these abilities with the assistance of a more competent individual (Lantolf &Pavlenko, 1995). For Vygotsky, what a child can possibly do in the future is more important than what the child can do at present since Vygotsky is development-oriented and believes in the continuous transformation of cognitive functions. He gives importance to the possible cognitive functions of the child because they are the true representatives of the child's abilities. What is highlighted in the notion

of ZPD is the interaction between the ZAD and the ZPD. Vygotsky maintains that to understand one's level of mental functioning, we must have an idea of both one's ZAD and ZPD since the former is the reflection of the latter within the framework of this theory. To achieve the transition from the ZAD to the ZPD, the person must be mediated, which unites the cognitive and social areas for development to occur. Thus, this notion lays the foundation of the Vygotskian theory, which underscores the co-construction of knowledge in the social setting that one lives in through collaboration or interaction with another party. Thus, the ZPD is a developmental, interactive, and social construct (Sternberg& Grigorenko, 2002). According to Vygotsky (1981, p. 163), "any mental function is distributed between two individuals (e.g., novice and expert) as intermental activity; it later becomes intramental activity as it is appropriated by the novice in the zone of proximal development" (cited in Lantolf & Pavlenko, 1995).

Vygotsky regards the individualistic nature of a child as critical for development and believes that no two individuals can be treated in the same way. Although they could seem to have similar abilities when superficially looked at, their level of true development can only be unearthed through the use of mediation because it allows seeing the future potential of the child (Poehner, 2005). The following quote demonstrates how Vygotsky views the unique cognitive maturity of two children:

> Imagine that we have examined two children and have determined that the mental age of both is seven years. This means that both children solve tasks accessible to seven-year-old. However, when we attempt to push these children further in carrying out the tests, there turns out to be an essential difference between them. With the help of leading questions, examples, and demonstrations, one of them easily solves test items taken from two years above the child's level of [actual] development. The other solves test items that are only a half-year above his or her level of [actual] development. (Vygotsky, 1956, p. 446-47, cited in Wertsch, 1985).

As revealed, despite the equal look of the two children, they are indeed very different in terms of what they can achieve when the appropriate amount of support is given. Then, it is evident that achieving the ZPD is dependent on the presence of mediation, which is therefore another essential ingredient of Vygotskian thinking.

The Role of Mediation in Achieving Potential

Closely associated with the ZPD, mediation is considered vital to attain higher cognitive functions since the human mind, according to Vygotsky, consists of lower mental processes like attention and memory which are biologically endowed and similar to those of other species that also give automatic responses (Lantolf et al., 2020). Echoing the views of Arievitch (2017), Lantolf et al. (2020) argue that what makes humans unique is their consciousness which leads to attention to relevant features of a situation, further planning, rational thinking, and risk evaluation of actions before carrying them out. In order to achieve higher mental processes one needs mediation, which is defined by Lantolf and Thorne (2006) as a "process through which humans deploy culturally constructed artifacts, concepts, and activities to regulate the material world or their own and each other's social and mental activity"
(p.79). That is, human mental functioning is organized by three basic cultural factors, which are "activities (e.g. education, play, work), artifacts (e.g. physical tools, books, weapons, eating utensils, and computers), and symbolic tools (e.g. language, numbers, diagrams, charts, and art)" (Lantolf, 1995, p. 69). It is argued that humans do not directly interact with the world but use different kinds of mediation. To explain the role of mediation in enhancing the abilities of humans, Lantolf and Thone (2006) present the example of the action of digging as in the following:

> If we want to dig a hole in the ground in order to plant a tree, it is possible, following the behaviour of other species, to simply use our hands. However, modern humans rarely engage in such nonmediated activity; instead, we mediate the digging process through the use of a shovel, which allows us to make more efficient use of our physical energy and to dig a more precise hole. We can be even more efficient and expend less physical energy if we use a mechanical digging device such as a backhoe. Notice that the object of our activity remains the

same whether we dig with our hands or with a tool, but the action of digging itself changes its appearance when we shift from hands to a shovel or a backhoe. (p. 199)

Accordingly, higher mental processes of individuals are mediated through mediating agents of different natures including objects, physical tools, or another human being (Kozulin, 2003). According to SCT, it is essential to mediate learners to help them develop cognitively and internalize learning mechanisms (Tzuriel, 2011), which allows us to get a thorough understanding of one's matured and maturing abilities. Regarding this, Poehner (2005) maintains that it is possible to trace one's cognitive development by means of mediation since it mirrors one's potential future cognitive functions. Within the framework of SCT, language is the most powerful mediating agent, which humans use to mediate their connection to the environment, to one another, and themselves (Lantolf et. al, 2020). What this means is that people use language as a mediating tool to organize their functioning within the social circle and within themselves through inner speech, which is defined by Lantolf et al. (2020) as "the inward or self-directed use of language as a symbolic tool for cognitive regulation" (p. 227). Using language, more competent individuals help those who need other-regulation to achieve higher mental functioning through interaction. The one who assumes the role of mediator in interaction can employ various mediational techniques while assessing learners' ZPDs like asking a question, request for clarification, modeling, explanations, etc. In the case of inner speech, one can use language to organize his or her thinking by talking to himself or herself, which puts the person in the roles of the learner and the mediator at the same time.

Internalization

Another core element of Vygotsky's Sociocultural Theory is internalization. According to Yaroshevsky (1989, p. 230), "internalization accounts for the organic connection between social communication and mental activity and is the mechanism through which we gain control over our brains, the biological organ of thinking" (cited in Lantolf & Thorne). Vygotsky believes that the precondition for development is social learning, and every function in development appears on two levels, initially on the interpersonal level- between people and later on the intrapersonal level- within the individual (Lantolf & Thorne, 2006). Initially, a learner may need the support of a more capable person like a teacher, parent, or peer to complete tasks that are within their ZPD. Over time, the learner can eventually develop his or her ability to perform these tasks alone thanks to the interactions with this teacher, parent, or peer, which is referred to as internalization (Gal'perin, 1992). Accordingly, higher mental processes occur in the social circle at first and then are internalized and finally become an intrapersonal function of the individual who can carry out complex tasks without showing a need for mediation (Lantolf et al., 2020). That is, a learner's development can be tracked from other-regulation to self-regulation, which shows the path of internalization. However, internalization does not refer to just learning material very well and leaving it in the mind. A learning material or an ability can only be internalized on the condition that this recently acquired ability or material is tried in new contexts independently (Ableeva, 2010). DA aims to help learners internalize what has been taught through mediation and use that new knowledge in a different domain independently.

What is Dynamic Assessment?

Grounded in the notion of the ZPD, DA proposes an alternative or complementary approach to static standardized tests by fusing instruction and assessment into a single activity during which learners are given some level of support attuned to their needs with the purpose of developing their cognitive functions which could become internalized by the learners in the future (Lidz & Gindis, 2003). Lantolf and Poehner (2004, p. 50) define DA as a "procedure for simultaneously assessing and promoting development that takes account of the individual's (or groups') zone of proximal development". Thus, it can be asserted that DA prioritizes potential for growth with assistance over solo performance. Although DA was grounded on the principles of the Vygotskian theory of mind, it was not formally established by Vygotsky himself (Poehner & Lantolf, 2005). It was developed by Feuerstein who was interested in promoting the learning potential of disadvantaged children who had brain impairment and therefore performed poorly on traditional tests and as a result were categorized as low achievers in the 1950s (Anton, 2009). To reduce these educational inequalities for these children and improve their

cognitive functioning through the application of an intervention program called instrumental enrichment program, Feuerstein proposed the theory of structural cognitive modifiability and mediated learning experience (MLE) for disadvantaged children by stating that one's level of mental functioning could be modified depending on the nature and amount of mediated learning experiences he/she received. Hence, his theory seems to underscore the role of mediation in learning enhancement.

Looking at the general framework of his theory, it is suggested that Vygotskian SCT and Feuerstein's MLE share common grounds in their approach to promoting higher mental processes in individuals. Similar to SCT, Feuerstein's theory assigns great roles to the human mediator who provides mediation to the individual in varying quantity and quality to transform his or her attained abilities. DA was also introduced by one of Vygotsky's influential colleagues, A.R. Luria (1961) in a paper that contrasted static and dynamic approaches to assessment.

Although it was initially proposed for the development of children, DA is now applied in psychological and educational research with different groups of learners. DA puts the potential growth of learners at the center of the approach, which is commensurate with the notion of the ZPD within the framework of SCT. Learners' potential growth is promoted through interventions that emerge in the cooperative dialogue between the mediator and the learners when they come across a difficulty leading to performance breakdowns (Poehner, Davin, & Lantolf; 2017). Although it is viewed as an approach to assessment, DA aims to trigger the transformation of individuals' cognitive abilities using intervention, which indicates another focus besides assessment, which is instruction. From a Vygotskian stance, an assessment not only diagnoses attained abilities, but also attempts to foster development based on the diagnosis (Anton, 2009). In parallel with SCT, DA argues that an assessment that is focused on an individual's present abilities demonstrated through independent performance ignores what the individual can do with assistance, which is the true representation of their scope of mental functioning. That is, DA helps gauge the extent of one's cognitive functioning by opening a window to their potential cognitive abilities. It is not possible for static assessment to provide this kind of information since the only purpose of static assessment is to reveal what one can do at present, not to anticipate his or her future capacity. How does DA provide a more complete picture of one's abilities? It is through interaction with the social environment, which is the source of mediation for individuals to achieve higher mental capacities.

DA applications mainly differ in terms of how mediation is offered, that is, whether mediation is provided based on a priori set of moves or in a flexible manner. There are two fundamental approaches to DA, namely interventionist and interactionist. In interventionist DA, the most well-known proponent of which is M. Budoff, learners are provided hints or prompts from a list with predetermined moves usually with the purpose of increasing the validity and reliability of the procedure (Lantolf & Poehner, 2004). What is important in interventionist DA is the quantification of the process concerning the help provided. Because the process offers a more valid and reliable interpretation, interventionist DA is used widely in the fields of general education (Budoff, 1987; Guthke, 1992). During the dialogic interaction, the mediator uses a list of mediational prompts or hints which are prepared beforehand and offered to learners in a fixed order. This approach allows the mediator to manage interactions more efficiently and statistically analyze the level of development each learner has attained (Lantolf & Poehner, 2004).

The second approach to DA is referred to as interactionist DA. As its name suggests, in interactionist DA, which has no concerns for validity or reliability, mediational strategies are offered based on the dialogic interaction in a more flexible manner, rather than strictly following a list (Poehner, 2005). That is, the mediator does not use a pre-determined set of moves since it is against the nature of its basic tenet, which is achieving an extensive understanding of what the learner can do at a given point and how that ability can be promoted through the provision of contingent feedback attuned to learners' emergent needs during dialogic interaction. The most important proponents of this approach are Feuerstein and his colleagues. The main purpose of the interactionist approach to DA is not to quantify learner growth or make a comparison between learners based on scores obtained from a list of predetermined prompts but to foster learners' cognitive development through mediation which focuses on the need of the individual determined by his or her responsiveness, not on a priori list. In

interactionist DA, collaborative act and interaction are central concepts, which help the mediator to diagnose one's needs and provide immediate feedback attuned to his or her needs (Ableeva, 2010).

Basic tenets of DA

1. *DA embraces a unified understanding of instruction and assessment.*

The integration of instruction and assessment into a single process is associated with DA's purpose of seeing the actual to realize the possibilities. That is, since the important thing is the possible cognitive maturity individuals can reach with support, it is not enough to only diagnose the attained abilities, it is also essential to further develop these abilities by eradicating the gaps in their actual knowledge and potential knowledge (Linds & Gindis, 2003). This central focus of the approach is addressed by Bronnfenbrenner (1977, p.528) in an excerpt taken from a conversation with Leontiev, a colleague of Vygotsky, as follows: "American researchers are constantly seeking to discover how the child came to be what he is; we in the USSR are striving to discover not how the child came to be what he is, but how he can become what he not yet is.' (cited in Poehner, 2005).

2. *DA is change-focused.*

As its name suggests, DA gives importance to the dynamic nature of one's abilities by viewing them not as fixed traits that one possesses but as constantly changing. Therefore, it aims to transform learners' already matured abilities to further foster their development in order to reach their potential through mediation. In line with SCT, which envisages the transformation of both mind and environment through interaction, DA is primarily concerned with learners' ZPDs.

3. *DA is realized through collaboration and interaction.*

In DA, a learner's performance entails the joint contribution of the mediator and the learner to create meaning through ongoing negotiation. As suggested by SCT, the social environment plays an essential role in helping learners achieve their proximal capacities, which also indicates the central role of collaboration and interaction in DA. Learners need the assistance of more capable individuals to extend their attained level of cognitive functioning (Elliot, Lauchlan & Stringer, 1996; Ableeva, 2010)

4. *DA views mediation and reciprocity as integral components of the teaching and learning process.*

DA prioritizes the further growth of learners' mental functioning through the involvement of the social environment which forms the basic source of mediation for learners. If we consider language, which is accepted as the most powerful mediating tool (Lantolf et al., 2020) as the mediating agent, learner development can be outlined based on the quality and quantity of mediation provided to learners and their reciprocity to these mediations. Since interaction involves at least two parties and learners are also the active shapers of the interaction (Poehner, 2005), their reciprocity gives essential information about the extent of their ZPDs. Vygotsky stresses the critical role of responsiveness to mediation in order to grasp cognitive functions as it reflects one's future performance (Poehner, 2005b).

5. *DA considers transcendence (transferring an ability) a necessity for independent functioning.*

Feuerstein et al., (1979, p.92) assert that "true development *transcends* any specific task, and the results of development should be visible in a variety of ways under differing conditions" (cited in Poehner, 2005). The term transcendence, which can be defined as expanding the scope of ability to a more challenging context (Ableeva, 2010), is conceptualized in Feuerstein's MLE (Feuerstein, Rand & Hoffman, 1979) and is also called transfer in Brown's Graduated Prompt Approach (Brown & Ferrara 1985). According to Vygotsky, development is not limited to the completion of a difficult task, but it is the application of an attained ability in newer contexts other than the one in which that ability has been learned (Poehner, 2005). Transcendence of mental ability is essential to reveal if the ability has been internalized or not.

How does dynamic assessment differ from the non-dynamic assessment?

Evaluation of students' learning has always been an integral part of the educational field to shed light on the effectiveness of the learning and teaching process. According to Gould (1996), assessment emerged as a domain that attracted researchers and educators in the 19th century, and widespread practices of assessment began in the 20th century (as cited in Poehner, 2008). Herman and Golan (1991) stress that the proponents of testing advocate the use of testing for educational purposes based on a variety of arguments like holding schools and teachers more responsible for students' learning, designing classroom instruction based on tests results, and providing meaningful standards to which schools, teachers, and students can adhere. Standardized tests have always been the most popular forms of assessment, and they aim to reveal how successful learners are with respect to their past learnings and to find out to what extent program goals have been met through the standardization of the process of test administration and analysis of the results.

Standardized assessments regard assessment and instruction as two separate practices and prioritize assessment, which 100% contradicts the underlying principle of DA, which views assessment and instruction as two inseparable gears of the wheel. Next, traditionally in standardized static tests, learners are evaluated on the basis of their solo performance which is assessed at the end of the learning process (be it a chapter, a unit, or an academic term) to reveal what the learner knows or is capable of doing independently during the testing time. However, DA does not confine itself to certain subjects as it is in nondynamic assessment. What is more, learners' independent performance is considered vital for the effectiveness of standardized tests, which perceive any external assistance provided to the learner as a threat to the reliability of the whole testing procedure since it is not the learner's solo performance that is assessed in case of assistance but the performance jointly constructed by both the learner and the helper. What matters in static tests is the outcome. For this reason, what causes learners to perform poorly or if their performance could be augmented are not relevant to the assessment goals. This view of assessment is totally not commensurate with that of DA, which has no interest in the final product of learners. What DA is indeed concerned with is diagnosing learners' abilities through interaction and mediation and providing the necessary assistance to the learners to foster their abilities. DA doesn't regard receiving external help as a threat to the testing conditions because it does not recognize any other assessment practices as a sufficient way to illustrate learners' true development. Additionally, standardized tests do not ensure equal treatment for learners, because they aim to measure what learners know at a certain time and to categorize learners based on the results. Usually, standardized tests cannot address learners with attention to their individual traits. However, since DA is realized with individual learners considering their responsiveness, it can treat individuals separately, mediate them to the extent they require, and promote their development. This is especially essential for disadvantaged learners who perform poorly on standardized tests due to an impairment they have, their deprived sociocultural background, etc. (Ascher, 1990; Lidz & Pena, 2009). In brief, while standardized tests have offered many benefits since their introduction, their reliability and validity are still questioned (Herman & Golan, 1991). Despite their evident differences, it must be clearly noted that DA didn't emerge to completely replace static assessment (Anton, 2009) because there are also situations that require the use of standardized static tests due to several reasons such as being time-saving, easier preparation, and practical administration procedures (Ascher, 1990).

Criticisms against DA

Although DA has been applied for nearly a hundred years, it has not brought about any widespread pedagogical changes, which is also the case even in the field of special education where a substantial amount of research on DA has been conducted (Poehner, 2008). This may be partially true because of the criticism directed to DA by researchers in mainstream psychology, which is grounded on different theoretical frames and makes use of distinct explanatory constructs and research methodologies from the ones favored in SCT. According to Poehner (2008), psychometric tests give importance to measurement and quantification. Gould (1996) asserts that the cognitive abilities of learners are treated as discrete traits that individuals have in different amounts and regarded as stable and predictable traits of learners which can be measured just like their height or weight. On the other hand, DA asserts that human cognition is dynamic in nature and modifiable through intervention, so psychometric tests cannot provide a thorough analysis of one's mental functions by measuring them at a given time

(Poehner, 2008). However, this leads to one of the harshest criticisms leveled at DA by the proponents of psychometrics tests in that interacting with the learners during the assessment and providing assistance to them so that their performance could be enhanced jeopardize the reliability of the testing procedure (Lidz, 1991; Poehner, 2005; Poehner & Lantolf, 2005). If learners are provided assistance during testing, it makes it impossible to correctly interpret their abilities because they are in constant change. In psychometric counterparts of DA, tests are developed so rigorously that they do not cause learners to learn from the items due to any given clues and as a result perform better on subsequent items (Elliot, Lauchlan, & Stringer, 1996). Thus, one of the concerns against DA is that DA researchers fail to ensure the critical test theory constructs like generalizability, validity, and reliability of their procedures. Due to these criticisms, some DA researchers following an interventionist approach have incorporated traditional testing constructs into their procedures by making their procedures more standardized, which could enable them to conduct statistical analyses on the learners' mediated performance (Guthke, 1992). This criticism is leveled particularly at interactionist DA because there is no standardization in its procedures. However, those leveling criticisms of DA miss an essential point about DA, which is that the critical test theory constructs like validity and reliability are not among the goals of DA because of its theoretical orientation. Inspired by Vygotskian thinking, DA attaches greater importance to both diagnosing actual cognitive abilities and developing maturing abilities than psychometric properties of a test and the process of test administration (Poehner & Lantolf, 2004). Within the framework of DA, development does not refer to the completion of a task successfully, but to transforming one's abilities through mediation in interaction. According to Lidz and Gindis (2003), "Traditional standardized assessment follows the child's cognitive performance to the point of 'failure' in independent functioning, whereas DA in the Vygotskian tradition leads the child to the point of achievement of success in joint or shared activity" (p.103).

An additional reason why DA is criticized is that the measurement process has too much ambiguity, which means that it is very difficult to discern the mediator's contributions to students' performance; so, it is impossible to measure one's abilities reliably. (Poehner, 2008). In response to this criticism, supporters of DA assert that DA aims not to measure one's abilities in isolation but to interpret individuals' existing abilities and project the abilities that may emerge and promote the already attained ones to reach the possible abilities through mediation in dialogic interaction. What is more, Vygotsky views development not as an individual act, but as a co-constructed act (Poehner & Infante, 2016). DA posits that one's performance cannot be interpreted in isolation and that the social environment is not considered the only setting for development, but the leading source of development (Poehner, 2008).

Another criticism against DA results from its novelty. In contrast to its counterparts that have a disintegrated approach to assessment and instruction, DA unites instruction and assessment. This causes it to be radically different from others and therefore more difficult for scholars who follow the mainstream research tradition to understand how to apply DA procedures within their setting. Studies conducted on DA, especially interactionist DA, usually fail to illustrate the procedures followed in the study comprehensively. Protocols followed in mediator-learner interactions are not given in detail in many studies, which results in more criticisms from researchers in the non-dynamic assessment tradition.

Furthermore, the tendency to conduct research on the DA of individual learners makes it time-consuming (Anton, 2009). Many classroom settings around the world comprise between 20-30 learners in a class on average, so DA is not considered very practical for testing purposes by some circles. What is more, standardized static tests are relatively easier to administer and score. However, what is imposed in DA is the detailed qualitative analysis of each learner's development, which makes it difficult to be employed for testing purposes in class settings.

Finally, since DA does not have as a long history as traditional testing, DA needs to prove its advantages over static assessment (Sternberg & Grigorenko, 2002, as cited in Anton, 2009). Although it has been used in psychology and general education for quite a long time, it is still not enough to make certain assertions about the effectiveness of DA in different contexts with respect to the field of SLA.

Advantages of DA

There has been some research conducted on DA in the fields of education and psychology for several decades to reveal its contributions to the learning process. Initially, DA integrates the two key elements in learning, which are teaching and assessment. They are not treated as separate processes, as in static tests. In addition, unlike nondynamic tests, which usually assign a score to each individual as an indicator of how well he/she has performed in the test, DA prevents teachers from overestimating and underestimating learners' abilities (Poehner, 2008). It can be put forward that DA can be applied not only to identify the difficulties that learners come across in the learning process, but also to specify the extent and source of the difficulties, and that DA can help learners to overcome the difficulties met through intervention. According to Poehner (2008), assessments should be *prognostic* rather than simply *diagnostic*, which allows us to go beyond simply acknowledging that learners are challenged and forces us to examine *how* individuals approach certain types of problems and *where* these difficulties emerge (p. 114, italics in original). This helps teachers to design remedial learning plans for each individual to promote their development (Anton, 2009). This is especially beneficial for underprivileged learners like those with low socioeconomic backgrounds or those who have a kind of learning disability. In traditional, standardized tests, the abilities of these learners are often underestimated with no concern for the underlying reasons (Budoff, 1968). However, DA aims to provide a richer account of the abilities of individuals through social interaction and mediation (Poehner, 2005). DA allows tracking learners' development via analysis of the quality and quantity of mediation offered to learners and their responsiveness (Anton, 2009), which makes it easy to identify the changes occurring in their performance.

A final advantage of DA is that it can be used to predict the extent of one's future development. Learners' ZPDs are estimated based on their responsiveness to mediational moves. That is, the more responsive learners are to mediation, the larger ZPDs they are expected to have. This can give teachers an idea while planning their lessons. In addition, DA helps learners become more self-regulated and autonomous by assigning them responsibility in the process. By receiving mediating moves, one can move from object regulation and other-regulation to self-regulation over time (Lantolf & Thorne, 1996; Poehner, 2005).

Conclusion and implications

This study attempted to provide an overview of what DA is by addressing its theoretical base, relevant constructs, basic principles, differences with nondynamic assessment, criticisms directed to it, and its advantages for the field of SLA. The review of the literature on DA suggests that it can yield positive effects on language teaching and learning processes since it aims not only to uncover success in past learning but also to further it by revealing the underlying reasons for learners' poor performance and intervening to help learners overcome the problems they have encountered to achieve better performance. DA, as it proposes, ensures teachers are more aware of their learners' strengths and weaknesses and shape their teaching based on their diagnosis of the learners' needs as a result of the dialogic interaction they have with the learners. This approach may indeed be very useful within the language teaching and learning context because learners must develop their abilities in terms of multiple aspects for different language skills, which makes it essential to gauge the extent of one's abilities and offer appropriate mediation to promote his/her development. Hence, considering its potential contributions, it is suggested that language teachers make use of DA; however, as it is still a novel approach, teachers should be trained on how to apply DA in their teaching through pre-service training and in-service training. In addition, teacher education departments at universities can offer courses or workshops on DA so that their students who are future teachers can be aware of this alternative assessment for classroom use.

Although DA has been applied in developmental and educational research for a long time, there is still a further need to explore it in detail with respect to SLA research (Poehner, 2005). The studies conducted on DA have yielded promising effects for its use in the field of language teaching and learning. However, due to its being a relatively novel practice for the field of SLA, the number of studies conducted on the use of DA in the field of SLA is still limited. Therefore, more research is

warranted on the applications of DA in different contexts. For one thing, employing DA practices to expand the ZPD of an entire class has been underexplored, so DA can be applied in classroom contexts and the efficiency of the approach can be reported. Additionally, comparative studies can be conducted on the interventionist and interactionist approaches for DA to unearth the impact of each on developing different language skills.

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