

The measurement paradigm and role of mediators in dynamic assessment: A qualitative meta-synthesis

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As dynamic assessment (DA) continues to come to prominence as a procedure that endeavors to ameliorate learner performance and further development through mediators' assistance with the intent of discerning learning potential, a plethora of research has delved into the applicability of DA in second/foreign language education. This article employed methodical procedures for qualitative meta-synthesis of the target research domain to synthesize available quantitative and qualitative primary research reports. The discursive reading and systematic review of research findings and discussions across study reports revealed a primary theme, that is, 'DA: Shifting Focus from Postpositivism to Pragmatism', and a shared set of 2 secondary themes, that is, 'Classroom-Based L2 DA: Post-Achievement Test Condition' and 'Mediators' Sense of Accountability' that can provide a refined worldview on DA and a window on contemporary opinions on the relevance of assessment to classroom context and can develop a more informed understanding of the ascendancy of mediators over the effectiveness of DA.

Keywords: Qualitative Meta-Synthesis; Dynamic Assessment; Interactive Assessment; Mediation; Zone of Proximal Development; Classroom Assessment; Classroom-Based L2 DA

1. Introduction

Until the late 1960s, narrative accounts and vote-counting techniques were among the frequently used traditional reviewing approaches to the summation of primary research. Despite all the merits, the “dissatisfaction with precisely the idiosyncratic and impenetrable quality of traditional reviews” (Norris & Ortega, 2007, p. 807) urged social scientists in the early 1970s to look for novel secondary research methods that could add more systematization, transparency, consistency, and reliability to the value of reviewing primary research reports (ibid). Since the late 1980s, in tandem

with the continuous evolution of primary research methods, research syntheses have been carried out adopting a diversity of objectives, methodologies, styles, and perspectives, also referred to as eclecticism.

Informed by Noblit and Hare's meta-ethnography (1988), qualitative research synthesis, which is often referred to as qualitative meta-synthesis in the health sciences, adopts an interpretive approach to construct interpretations and develop a full understanding of a phenomenon, rather than trying to generate predictive theories (Sandelowski, 2002). In fact, "meta-synthesis contributes to coming to a point about a specific phenomenon in practice" (Poggenpoel & Myburg, 2009, p. 61). Qualitative meta-synthesis, as a subset of meta-study (Paterson, Thorne, Canam, & Jillings, 2001; Zhao, 1991), which is a type of secondary research, is a means of analyzing, synthesizing, interpreting, and combining empirical findings (Major & Savin-Baden, 2010) while reducing the inevitable subjectivity associated with traditional methods of reviewing and combining individual research findings (Cooper & Rosenthal, 1980; Glass, 1976).

Moreover, being well aware of its potential subjectivity, researchers interested in qualitative research synthesis refrain from using a prior conceptual framework, and they tend to make the whole process of synthesis inductive (Suri & Clarke, 2009). By so doing, researchers determine to regard each selected research report as "an individual 'informant', and create a metasynthesis across all individual research reports, using procedures familiar to qualitative researchers" (Scruggs, Mastropieri, & McDuffie, 2007, p. 395). Hence, "a synthesis can only be as good as the quality of the primary studies it is built on" (Norris & Ortega, 2007, p. 810).

Since the early 1980s, Socio-Cultural Theory (SCT), developed by Vygotsky, has become renowned for its potential to spell out the process of individuals' cognitive development. Vygotsky's understanding of development and assessment has also given insight into the way intricacies and complexities of human cognitive abilities are to be conceived of, which is known under the general term Dynamic Assessment (henceforth DA). Rooted in theories of situated cognition, the epistemological underpinnings of SCT have profound impacts on the understanding of human learning as well as on that of the assessment of learning and language testing (Reiber, 1999; Vygotsky, 1978).

Given that meta-synthesis research into SLA, in general, and DA, in particular, is scanty, the present meta-synthesis sets out to the aggregation of a gamut of relevant studies on DA with the intent of discerning their hallmarks and offering reflections upon a set of emerging themes that can transform "the original results into a new conceptualization" (Schreiber, Crooks, & Stern, 1997, p. 314).

2. Background

Within the realm of second language acquisition, previous research has devoted a great deal of attention to different aspects of DA, including its applicability to the development of learners' word recognition and reading comprehension (Carney & Cioffi, 1990; Dorfler, Golke, & Artelt, 2009), the value of mediation in promoting writing development (Alavi & Taghizadeh, 2014; Nassaji & Swain, 2000; Shrestha & Coffin, 2012), effects of DA on diagnosing and promoting listening comprehension (Ableeva & Lantolf, 2011; Alavi, Kaivanpanah, & Shabani, 2012), the effectiveness of implementing dynamic speaking assessment (Hill & Sabet, 2009) (see Appendix 1), and other issues pertaining to the pedagogical usefulness of DA practices. To avoid verbosity and duplication, Appendix 1 is allotted to the provision of an abridged account of a number of prominent studies on DA, each and every single one of which is not spelled out once again under this very title.

In short, to date, summing up accumulated literature and identifying important variables, a considerable plethora of research has been carried out to address questions pertaining to the implementation, effectiveness, usefulness, and success of DA practices in second/foreign language teaching/learning, and the majority of them has "used SCT as a theoretical lens through which to interpret questions related to SLA rather than a theoretical motivation for designing L2 pedagogies" (van Compernelle & Williams, 2013, p. 277). For the time being, the research base on DA consists largely of individual inquiries with few genuine attempts to summarize accumulated literature, discern important themes, identify commonalities and dissonances among various research findings, or synthesize findings in this strand of research. To fill this void, the present work attempts to investigate how previous research has alluded to the central role of mediators in the effective implementation of DA, and how it has gone about elucidating psychometric aspects of DA which allow for a broader understanding of the way SCT can be discerned in pedagogy and classroom assessment.

This research attends to synthesis, analysis, and interpretation of findings of previously conducted, primary research on DA to answer these two research questions: 1) How has the lure of rigor and quantification in traditional second/foreign language testing shaped/affected the way DA is conceived of today? 2) How have primary research studies on DA conceptualized the role of mediators?

3. Method

By and large, meta-synthesis aims at (a) interpreting research findings with regard to the central themes that emanate from the studies and (b) conceptualizing a particular phenomenon, adopting a fresh approach (Major

& Savin-Baden, 2010; Thorne et al., 2004). Following the classic method of Noblit and Hare's (1988) meta-ethnographic methodology, Walsh and Downe (2005) delineated the process of meta-synthesis, which guided carrying out the present work, as one which undergoes the following stages: (a) locating relevant papers, (b) deciding what to include, (c) appraisal of studies, (d) translation of one study's findings into another while taking heed of their commonalities and oppositions, and (e) "synthesizing the translations to elucidate more refined meanings, exploratory theories and new concepts" (ibid, p. 209). Therefore, this meta-synthesis is concerned with systematic sampling of relevant primary research studies into DA having various data-analytic procedures, careful scrutiny, comparison, evaluation, and classification of the substantive patterns of the selected studies, as well as the analysis, aggregation, interpretation, and synthesis of their findings pertinent to the research questions raised (see Zhao, 1991).

3.1. Data collection

3.1.1. Search terms and procedures

After identifying the research domain and finalizing the research questions to be addressed in the present meta-synthesis, the initial literature was purposefully searched for. Selected articles on DA were retrieved by searching several relevant electronic databases including ProQuest, Education Resources Information Center (ERIC), PsycINFO, Modern Language Association (MLA), Academic Search Complete, Web of Science, Springer, JSTOR, and Social Science Citation Index.

The keyword descriptors 'dynamic assessment (DA)', 'sociocultural theory (SCT)', 'activity theory', 'zone of proximal development (ZPD)', 'ZPD-based assessment', 'mediated learning experience (MLE)', 'scaffolding', 'classroom assessment', 'classroom teacher assessment', 'instructional conversation (IC)', 'Vygotsky', 'second/foreign language acquisition/learning/teaching' as well as their variations, combinations, and wild cards were initially used to locate potential research reports for synthesis in this study. Author searches were also conducted with the names of eminent researchers who were publishing in the field of DA.

To make the meta-synthesis more inclusive of this particular content area, a focused search among the academic journals devoted to DA, for instance, Journal of Cognitive Education and Psychology, was also conducted to ensure the inclusion of the relevant study reports that might have been unwittingly overlooked. To ensure "methodological inclusivity (by including studies with diverse qualitative and quantitative designs)" (Suri & Clarke, 2009, p. 403), further studies were also located by consulting reference lists and

bibliographies of a number of prominent published papers, reviews, and state-of-the-art articles, and all the relevant experimental, quasi-experimental, qualitative, theoretical, and argumentative articles as well as case studies and mixed-method research on DA were retrieved and included. The initial search yielded a total 82 research studies published from 1987 to 2014.

3.1.2. Quality considerations: Inclusion criteria

In view of the fact that the quality of the selected studies is an important consideration in research synthesis, also referred to as research “credibility or trustworthiness” (Brantlinger et al., 2005, p. 200), a predetermined set of quality considerations were employed to increase the quality of this meta-synthesis. To start with, all potentially relevant studies, initially retrieved from the literature, were examined by two readers, that is, one of the researchers and a Ph.D. candidate of TEFL whose area of academic interest was DA, to ensure that they were relevant to the research questions raised and matched the purpose of this meta-synthesis.

Therefore, those articles that despite being devoted to DA, dealt with the application of DA methods and procedures to assessment of language disordered children (e.g., Pena & Iglesias, 1992), language-learning aptitude (e.g., Grigorenko, Sternberg, & Ehrman, 2000), the identification of the gifted (e.g., Stanley, Siegel, Cooper, & Marshal, 1995), intellectual assessment of school-aged children (e.g., Frisby & Braden, 1992), and the assessment and instruction of at-risk foreign/second language learners (e.g., Schneider & Ganschow, 2000) were left out unless they had been regarded as highly influential in the literature (e.g., Kozulin & Garb, 2002, which worked on a group of at-risk students).

Moreover, non-published research literature and research studies reported in languages other than English were excluded from the sample of the present work, and among all available electronically posted research and Web-based reports, only those scholarly articles published in refereed and peer-reviewed journals which had the “scientific merit” (McCormick, Rodney, & Varcoe, 2003, p. 935) and had enjoyed “at least one layer of quality control” (Major & Savin-Baden, 2010, p. 49) were included. This was done to ensure that all included studies had already been “subjected to professional scrutiny by peers” (National Research Council, 2002, p. 5). Book chapters, conference proceedings, technical reports, and dissertations were also excluded because “they are unevenly reviewed” (Waxman, Lin, & Michko, 2003, p. 14). However, the primary search was not limited to studies conducted in a certain country, nor was it restricted to a given educational, pedagogical context.

Finally, the relatively large initial collected pool, also referred to as the “initial

'net' of potentially relevant study reports" (Norris & Ortega, 2000, p. 431), was narrowed down by circumscribing a time frame for inclusion, and only those studies which were published between 1990 and 2014, a time period which coincides with the proliferation of influential, quality studies on DA in SLA, were included in the final data set. This was done after consulting with academic peers who were affiliated with the line of research which was about to be conducted to increase the trustworthiness of the study (Paterson et al., 2001).

As a result, the final data set was comprised of 42 peer-reviewed, published research reports, all marked with an asterisk in the reference list. Appendix 1 displays a sample description (i.e., general information) of the 42 selected studies in chronological order.

As can be seen in Appendix 1, many of the selected articles deployed theories to interpret their data, some of them integrated theory and practice to foster development via instruction (i.e., praxis), and delving into (in)compatibility of different theories, a number of the selected articles were purely theoretical, mainly focusing on SCT, Activity Theory, and MLE.

3.2. Data analysis

3.2.1. Coding the data

The interactive and interlocking coding (Major & Savin-Baden, 2010) of the data initially began with labeling clearly endorsed research findings that provided insight into validation in DA practices and the role of mediators. The six codes used in this phase included 'validity', 'reliability', 'objectivity', 'fairness', 'generalizability', and 'mediator'.

3.2.2. Developing primary and secondary themes

Informed by the design of Brown and Lan's (2015) meta-synthesis, the codes collected from across the selected studies were analyzed and a primary theme, that is, 'DA: Shifting Focus from Postpositivism to Pragmatism', was devised based on some broad commonalities among studies. Relevant research findings were then synthesized to provide new insights into DA, its view towards psychometric aspects of assessment, and mediators' roles. This process led to the emergence of two secondary themes: 'Classroom-Based L2 DA: Post-Achievement Test Condition' and 'Mediators' Sense of Accountability'.

4. Results and discussion

Through the process of analysis, three themes arose which are discussed below in relation to a number of tacit assumptions about DA. These themes

provided answers to the research questions raised.

4.1. Primary themes

4.1.1. DA: Shifting focus from postpositivism to pragmatism

This theme attends to validation, its psychometric aspects in testing, and how they are to be conceived of in classroom-based L2 DA. The title of the theme implies that in order to gain a better understanding of validation in DA, it is high time we moved away from the putative postpositivist worldview, which is concerned with theory verification and measurement, towards the pragmatic worldview, which is real-world practice oriented and rests on pluralism (see Creswell, 2009). It is believed that the type of assessment that sets out to fulfill pedagogical functions and assessment with measurement intent are distinct phenomena (Torrance, 1995). In fact, psychometric and formative interpretations of assessment vary in terms of their assumptions about the nature of individuals' performance and abilities (Moss, 2003; Poehner, 2011b).

To start with, DA refrains from leaping to hasty conclusions on the basis of individuals' solo performance, which has serious ethical repercussions (Lantolf, 2009) and is concerned with the ethics and appropriateness of its decisions for individuals, pedagogy, and society (see Lantolf & Poehner, 2013). Unlike the ascendancy of standardization in determining objectivity in traditional testing, in DA, objectivity is the fallout of effective mediation emanated from a viable theory of consciousness (ibid).

Given that the primary purpose of DA is to promote learner development, as long as this is fulfilled, the validity of DA which, in essence, emanates from the procedures followed in the administration of the instrument (i.e., appropriate mediation), but not from the assessment instrument, is established (Lantolf & Poehner, 2004). Put another way, validity in DA mainly concerns the consequences of assessment, with a central focus on learners' needs and development. Micro and macro validity of DA stem from the appropriateness of mediating moves and the success of the entire DA session respectively (see Poehner, 2011b). In the same vein, the usefulness of DA emanates from its impact on improved learning.

Learners' ongoing performance and development feeds into the generalizability of DA (Poehner, 2007). Similarly, construct validity of interactionist DA is established through a qualitative analysis of the psychological processes of learners' performance (Feuerstein, Rand, & Rynders 1988; Lantolf & Poehner, 2004), and it has to do with divulging information on the longitudinal progress of learners' assisted and unassisted performance, but not a solo performance or the assessment instrument per

se.

With regard to the concept of transcendence in DA and given that learners' assisted performance is an empirical predictor of their future independent performance, DA enjoys the criteria for having predictive validity. In fact, support lent during mediation can provide assessors with a Learning Potential Score (LPS) (Kozulin & Grab, 2002), which portrays learners' responsiveness to mediation and "may be used as a predictor of readiness to benefit from further instruction" (van Compernelle & Zhang, 2014, p. 395) that is similar to the previously offered mediation. It is important to note that carrying out assessment to predict learning potential is 'assessment of the ZPD', but doing so to analyze teaching-learning processes is 'assessment in the ZPD' or 'teaching in the ZPD' (Allal & Pelgrims Ducrey, 2000; Poehner, 2009a). Predictive validity of DA, however, must be looked at informed by its educational ideology: DA aims to "undo the predictive value of the initial assessment by modifying functioning through the meditational process" (Feuerstein et al., 1988, p. 199) [emphasis in original].

Last but not least, while traditional, formal assessment, with hindsight, tends to maximize stability and reliability of tests to determine learners' actual development, in DA, mediation, with foresight, is after bringing about change (i.e., development of emergent abilities and microgenesis) in the future and transition "from other-regulated to self-regulated functioning" (Poehner, 2012, p. 610) in transfer tasks; so, the role of reliability in effective assessment is to be redefined within the ontology of the ZPD (Lantolf, 2009, Lidz, 1991). Having said that, it is worth nothing that mediation is not offered haphazardly, nor is it offered randomly; instead, it is systematic and carefully calibrated to learner responsiveness and needs (Lantolf & Poehner, 2013) and is aimed at promoting learner development.

4.2. Secondary themes

In order to come up with a whole that reveals more than the sum of its constituents, the multiple readings and translations of primary research findings were synthesized to allow for a higher level of abstraction so as to come up with novel interpretations of the findings and grasp the way the measurement paradigm and mediators' roles in DA can be conceived of.

4.2.1. Classroom-based L2 DA: Post-achievement test condition

Close scrutiny in language testing and assessment for pedagogic purposes heralds a shift from purely statistical concept of validity theory to a sort of *post-achievement test condition* that has the potential for providing a realistic portrayal of the social situation of classroom context and performance-based, dynamic assessment activities. Classroom assessment, also referred to as

'classroom teacher assessment' (Rea-Dickins, 2004) and 'ZPD-based assessment' (van Compernelle & Kinginger, 2013), has already been regarded as "an alternative or supplement to standardized testing" (Hill & Sabet, 2009, p. 537) in the literature. Poehner's (2008) *teacher-implemented DA*, Lidz's (2000) *curriculum-based DA*, and the *cognitive enrichment advantage* developed by Greenberg (2000) denote the need for other forms of assessment in classroom context, other than formal testing situations, and "DA has the potential to enhance assessment and intervention due to its interactive nature" (Yeomans, 2008, p. 113).

Being informed and inspired by Kumaravadivelu's (1994) contention regarding the postmethod condition and Vygotsky's notions of SCT, ZPD, and DA, the post-achievement test condition can help bridge the gap between the theory and practice of classroom assessment, re-conceptualize the relationship among classroom test providers, teachers, and test takers, and provide new insights into the way we conceive of the measurement paradigm in the social context of classroom, which is a promising vein for the implementation of DA (Kozulin, 2009).

While SLA tends to draw a distinction between theory/research and pedagogy/classroom practice (see Lantolf, 2009), Vygotsky has debunked this dualism and has contended that the two notions can be dialectically unified. Theory-driven practice can inform theory, and theory can be tested in practice. In fact, "if a theory is not closely connected to pedagogical practice it is problematic theory" (Lantolf, 2009, p. 358). Post-achievement test condition strives to bridge the gap between the theory of static assessment (henceforth SA) in general and achievement testing in particular and the practice of DA in classroom.

The term 'achievement test' is used in the title of this very secondary theme because as noted by Bachman (1990), it is a kind of progress and grading test, which is syllabus-based, provides information about the effectiveness of learning, and identifies learners' areas of strengths and weaknesses that can inform determining required modifications in the instructional procedures, lesson development (Bailey, 1998), and/or "alternative learning activities" (ibid, p. 60). The reason why the term 'diagnostic test' is not used is partly due to its coverage of both theory- and syllabus-based tests. Although the definition of achievement test bears an uncanny resemblance to some of the procedures and purposes of DA, it does not entail assisting test takers to modify their performance (see Lussier & Swanson, 2005, p. 66), nor does it encompass an attempt to understand examinees' learning potential and optimally affect learner development (see Poehner, 2009a, p. 253).

As far as the relationship among test providers, teachers, and test takers is concerned, based on the conventional concept of testing, to which

achievement test is no exception, test developers design language tests, having independent test items, to be answered over a relatively short period of time by anonymous test takers in order to ensure fairness. The independent responses are then added up, at times by machines, to give a score, the interpretation of which reflects on the ability of the learner on the targeted linguistic constructs. Here, the context of the test is the environment in which it is given, including the temperature, lighting, seating arrangement, proctors, etc., which may affect test scores and make the variability in the construct-irrelevant scores (see Fulcher & Davidson, 2007). The teachers, if present, mainly have the role of an invigilator, and learners are informed about their scores once the process of numerical number assignment comes to an end.

Conversely, in classroom-based L2 DA, which signifies a platform for the post-achievement condition, assessment occurs in the social context of the class, where “the context is part of the construct” (Fulcher & Davidson, 2007, p. 25) because what is assessed is learners’ cooperation and involvement in collaborative interactions to gain control over their unassisted performance. Here, the performance tasks are interlinked to preceding and following tasks with the aim of pushing learners beyond what they can currently do, and learners’ ability is assessed over a somewhat lengthy period of time, which can be extended to the whole term. The teacher/mediator, who plays a leading role in constantly fine-tuning mediation based on learners’ needs and responsiveness to assistance, has the opportunity to become familiar with each and every learner’s abilities, level of participation, demographic information, and type and amount of required assistance throughout the assessment procedures. Also, learners are not distant test takers, but rather their evaluative reflection on their own performance and their attempt to achieve self-regulated functioning (Poehner, 2012) is of great importance.

Given that there is no such general trait of learning potential in post-achievement condition, it is concerned with learners’ domain-specific responsiveness to intervention (see Haywood & Lidz, 2007; Kaniel, 2010). Moreover, unlike SA, in which to ensure the reliability of the assessment instrument, examiners provide examinees with little/no feedback on the quality of their performance until the assessment comes to an end, DA provides them with mediated assistance, as a specific form of feedback (Sternberg & Grrriorenko, 2002).

Unlike traditional testing in which teachers are passive administrators of tests developed by test designers, who are at times adamant about the effectiveness and usefulness of what they craft, mediators actively seeks to bring about change in learners’ development and undo predictions based on a single assessment performance (Poehner, 2011a), a stance which is very

much in line with the underpinnings of humanistic views of assessment (see Feuerstein et al., 1988). Like the postmethod condition, the post-achievement test condition signifies teacher/mediator autonomy and accountability (see below). Because a learners' inability to appropriately respond to a given mediational move per se does not signify his/her low level of language ability and/or inability to progress and may equally pertain to the inappropriateness of the provided mediation, teachers are to continually reflect on their teaching practice, try giving other types and degrees of mediation, remain vigilant to monitor the effect of an array of mediation on learner performance, and keep an eye out for observing learners' ability to apply what they have already learnt to subsequent, more complex tasks. Therefore, promoting mediators'/teachers' autonomy, reflective thinking, and self-evaluation is, in itself, an attempt to achieve the main purpose of classroom assessment: to inform more effective teaching and more efficient learning.

Traditional testing contexts tend to label wrong answers as 'incorrect' without trying to avail students of a learning opportunity. Vygotsky contends that despite showing the same level of actual development as determined by learners' independent performance in an aptitude or a proficiency test, two individuals' future or potential level of development who have gained the same score may bear little/no resemblance. It is, in fact, their responsiveness to mediation and what they are able to do with negotiated mediation which can provide us with an accurate portrayal of their development and a glimpse of what they will be able to do in the future without mediation.

Having its roots in DA and adapting a pedagogical rather than psychometric orientation, post-achievement test condition is not concerned with psychometric properties of an achievement test; it has to do with locating learners' problems and helping them to sort them out. In fact, DA is concerned with learners' cognition, which is a developing process, but SA taps more into a developed state (i.e., learners' intelligence) (Hill & Sabet, 2009). Similarly, Feuerstein, Rand, and Hoffman's (1979) concept of DA is based on the theoretical framework that the onus is on assessment to establish the degree of students' cognitive modifiability rather than their present level of functioning. Traditional assessment helps us amass information about learners' matured abilities while overlooking their maturing abilities as well as those that are yet to emerge. DA, however, simultaneously brings to the surface all the aforementioned abilities and provides opportunities to enhance them (Ableeva & Lantolf, 2011).

4.2.2. Mediators' sense of accountability

Many research studies have underscored the beneficial effects of mediation on promoting learner development while, at least partly, overlooking the fact

that it is through the agency of the mediator/teacher that the practicality of DA is brought about. By the same token, in the majority of the experimental research conducted on DA, the researcher(s) played the role of the mediator. If we want to implement the principles of DA in the reality of classroom contexts, we will need as many mediators (i.e., primary researchers) as the number of classrooms, which is absolutely formidable, if not impossible unless plenty of erudite mediators are trained to carry out DA. Therefore, due heed is to be paid to training mediators and ready them for taking the primary responsibility of implementing DA in practice.

Unlike SA in which examiners take a neutral stance on the assessment process, in DA, mediators are after creating an atmosphere of teaching and helping (Sternberg & Grigorenko, 2002) and intervening in the assessment procedure. Having said that, the provision of dialogic interaction in DA is different from formative assessment because the latter “tends to be intuitive on the part of the teacher rather than guided by principles of learning theories, such as proposed by Vygotsky” (Lantolf & Poehner, 2004, p. 68) and being emotionally supportive to learners does not suffice to encourage development.

Assessors’ role in pedagogy is so crucial that it is said that “the assessor should feel the kind of responsibility for each child that a brain surgeon feels (Kaniel, 2010, p. 104). In Vygotsky’s terminology, the mediator/teacher is to assume a role of the ‘tram-driver’, who organizes the social environment of learning, rather than taking on a role of the ‘rickshaw-puller’, who is merely concerned with his own pedagogical machine. Kaniel (2010) proposed that the dynamic assessor must assume a role of the case manager by availing learners of all the required professional services (e.g., teachers, parents, school advisors, etc.) and administer supervised intervention while constantly revising and re-examining information about the assessment process, which may either confirm or reject the initial assessment results.

Not only are mediators expected to identify remedial interventions finely tuned to the diagnosis of learners’ problems, but also they must mediate learner efforts to self-assess their own performance (Poehner, 2012), which makes their task even more arduous and formidable. Similarly, issues like being constantly attentive to students’ responsiveness to mediation, blending incidental, formative assessment with instructional interactions, and providing learners with ongoing intervention tailored to their areas of difficulty place considerable demand on mediators. It is the mediator who seeks diagnostic and/or developmental opportunities and provides learners with certain prompts and leading questions, which stimulate students’ responses to mediation and help mediators debunk, amend, or confirm their early tentative diagnoses. Therefore, as stated earlier, the micro and macro

validity of DA (see Poehner, 2011a) is determined by the mediation provided by the mediator either item-by-item or task-by-task. To Feuerstein, the crux of the matter in MLE is the mediators' sensitivity to learners' inquiries and replies as depicted in learner responsiveness to mediation.

In DA, it is the mediator who must find learners' problems, reveal their learning potential, provide them with relevant, appropriate mediation during the instruction phase of educational intervention (Kozulin & Grab, 2002), and design additional activities to figure out the extent to which learners are able to put scaffolded strategies to use in doing new transcendence tasks and narrow the gap between their present and potential abilities. Mediators must attentively assess learners' uptake, that is, their utterances which constitute a reaction to the mediator's attempt to draw students' attention to a linguistic aspect of their initial utterance (Lyster & Ranta, 1997) not only in the very subsequent language-related episode, but also during the transfer session(s).

In DA, especially in the cake format of DA and in the interactionist orientation towards it, which are favored in classroom contexts, mediators are to make every effort to engage collectivity with learners and meet their needs throughout the activities and interactions. Mediators are, therefore, responsible for the creation of ZPD, that is, "a diagnostic that promotes learning" (Poehner, 2011a, p. 104) throughout the dialogic and open-ended procedures of DA, which are neither prescribed nor scripted. The success of interactions in the ZPD depends on both the mediators and learners who work towards a common goal: learner development (poehner & Lantolf, 2005).

Cooperative interaction, which unifies assessor's observation and intervention of/in learner response process, unveils both matured and emerging competencies (i.e., ZPD) and furthers their continued development in an assessment task. Mediators, however, are advised not to downgrade the applicability of ZPD merely to a novice's cognitive development under expert guidance. Instead, refraining from creating a 'pedagogical duet' between themselves and the learners (Vygotsky, 1997), they must conceive of ZPD as collaborative interaction (Lantolf, 2000) -either between experts and novices or peers- which dialogically constructs knowledge; the mediator and students are equally responsible for co-constructing a ZPD and participating in co-creating connected discourse (Van Compernelle & Williams, 2012).

Moreover, the mediator decides on the relative complexity of the tasks, and in Group DA (henceforth G-DA), the teacher/mediator must assign activities that no individual can do independently but for which all group members need mediation, at different levels though. Also, "the teacher must actively engage the entire group in G-DA interactions" (Poehner, 2009b, p. 477) to facilitate all

members' development and must offer mediation to both primary and secondary interactants. Teachers must consider how pedagogical tasks and appropriate forms of mediation can emanate cooperation and collectivism among learners participating in G-DA (Poehner, 2009b).

Mediators determine when and how to offer and withdraw mediation. Given that the goal of DA is for learners to take on responsibility for their linguistic performance, teachers/mediators must willingly relinquish control to the novice in due course (Aljaafreh & Lantolf, 1994), mediate their performance through implicit means, and avoid providing them with too much guidance. How mediators perceive their role reflects on their concern over making students more independent and autonomous language learners (Gagné & Parks, 2013; Parks, Huot, Hamers, & Lemonnier, 2005). Since development towards gaining autonomous control over various features of a new language is both gradual and revolutionary (Aljaafreh & Lantolf, 1994; Vygotsky, 1978), mediators must exercise forbearance and vigilance in tracking development.

The fact that, even in interventionist approaches to DA, mediators' understanding of DA, acquaintance with their classroom context, and familiarity with their students feed into their use of DA fleshes out the interrelation of theory and practice, as underscored by Vygotsky. Owing to the fact that a mediator should conceptualize the relationships among teaching, assessment, and development while jointly engaging with learners, providing prompts, encouraging learners to engage with the language, motivating them to take over their performance, and deciding when and how to offer explicit/implicit assistance (Lantolf & Poehner, 2010), it is worth noting that the implementation of DA leans more on the mediator than anything/anyone else, and DA is not a generic, pre-specified method of assessment.

The dynamic assessor also plays a leading role in reducing biases to a minimum and fighting inequality in education by providing learners with equal opportunities of effective intervention. Similarly, mediators play a central role in ensuring fairness by providing learners with systematic forms of support, and the validity and reliability of DA lies with their practices. It is important to bear in mind that "the overall success of DA is tied to the mediator's skill in preparing and, in some models, negotiating mediation with learners according to their needs" (Lantolf & Poehner, 2013, p. 146). This lens frames mediators as educational activists mainly because "validation is not only a concern for assessors but also for teachers seeking to organize classroom activities to meet the needs of all learners" (ibid, p.147). Mediators are held responsible for ensuring the systematicity of mediation, its appropriateness to learners' responsiveness and needs, as well as its alignment with a guided theory of mind which is a determining factor regarding the reliability of DA.

It is also worth noting that “any dynamic assessment that includes an element of intervention depends on the quality of mediation provided by the assessor” (Kozulin & Grab, 2002, p. 122). Since mediators’ unique mediational styles may promote a certain array of learning abilities in a given group of learners, the more a mediator is adept and fully-fledged, the more learners’ learning potential can be pushed forward. If a mediator is deprived of a theoretical understanding of the relationship of assessment to learning and that of the process of development, he/she will not be able to effectively intervene in the process of development (Poehner & Lantolf, 2005; Torrance & Pryor, 1998). The type of assistance mediators offer students “crucially depends on how they conceptualize learning in their subject, what they regard as evidence of students learning, and what they see as the necessary next step to help students to move on” (Leung, 2007, p. 272).

For mediators to conduct systematic, consistent, and graded mediational moves, appreciation of dynamics of development is needed to inform their moment-to-moment interpretations of learners’ emergent abilities (Poehner, 2009b). Teachers’ beliefs and conceptions of DA principles is what Tierney (2006) referred to as internal mediating sources of influence between research on the one hand and classroom assessment practices on the other. Mediators’ sense of accountability, which is their personal conceptualization of their dual role of a teacher and a mediator, may be influenced by the instruction and professional pre- and in-service training they receive (e.g., teacher-training/education courses), the demands of the educational context their work in, peer advice, as well as their own cognition, tacit knowledge, and social constructivist worldview as practitioners.

The final point worth mentioning is that Prabhu (1990, p. 172) referred to teachers’ sense of plausibility as “subjective understanding of the teaching they do. Teachers need to operate with some personal conceptualization of how their teaching leads to desired learning”. Mediators’ sense of accountability connotes that the onus is on mediators to constantly conceptualize how their assistance leads to learner development. As accountable mediators, having the required knowledge and autonomy, teachers can constantly reflect on their classroom performance, the efficacy of their mediational moves in the collaborative interactions they have with learners, and the types of their instructional mediation as well as interaction patterns to evaluate how successful they are in noticing learners’ needs, factoring in their responsiveness to mediation, unifying instruction and assessment, designing transcendent session, and propelling learner development and independence. From this perspective, learned mediators simultaneously perform the role of a mediator, a test (i.e., an assessment instrument)/performance task provider, an instructor, and a task designer.

5. Conclusion

The recent movements towards the policy-making processes using evidence-based or scientific research in education in some countries like the U.S. have expedited the growth in the number of published meta-analyses and research synthesis in social sciences and education (Ahn, Ames, & Myers, 2012). It is hoped that the results of the present meta-synthesis will cast light on the paramountcy of the role of mediators in language pedagogy and will place DA on a practical footing to solve intractable pedagogic problems by enabling stakeholders to understand better substantive implications of DA for classroom assessment.

The main educational implication of the present meta-synthesis lies with the two secondary themes as presented above. The central tenet of post-achievement test condition is that in the ascendancy of traditional achievement test, language teachers' primary goal is to teach the instructional material on time while observing the teaching steps and employing appropriate techniques. Deciding about learners' ability and assessing it is the responsibility of end-of-course achievement tests, which usually give a total test score and do not identify what information each and every item of the test carries. Since the test contents and its intended constructs are not attended to after its administration, it is not clear what problem areas exist in learners' language ability at the end of a course. The subsequent instructional course, quite naturally, targets other instructional materials, teaches, and tests them. So, what is focused on in achievement tests is not learners' problem areas, but rather a numerical account which signifies the existence of unattended, unspecified problems in learners' language ability.

It is very much like having a blood test, whose result heralds a physical condition requiring treatment, and wrongly believing that having the results would suffice. In fact, the prolonged preoccupation with the accuracy of language test results and psychometric aspects of rigor and quantification has, at least to some extent, digressed the ultimate goal of language pedagogy, which, doubtless, is not marking learners' test scores down, no matter how strictly accurate they are. To Vygotsky (1998), the task of assessment is not to measure individuals but to interpret them. Promoting DA in classroom assessment is one way to alleviate the problem of overlooking development in the pursuit of enhancing the validity of static assessment.

It seems that educators and assessors in general and those involved in classroom assessment in particular should not be given the simple task of tracking down how learners came to be what they are, nor are they expected to accept them as they are (Feuerstein et al., 1988). Instead, the onus is on educators to discover how learners can become what they are not yet (Leontiev, as cited in Bronnfenbrenner, 1977). To approach classroom

assessment matter, it seems that it is high time we adopted the pragmatic worldview (i.e., a problem-centered, real-world, practice-oriented approach) instead of remaining preoccupied with the postpositivist worldview, further theoretical verification of measurement, and reductionism (see Creswell, 2009).

As far as the limitations of this meta-synthesis are concerned, although an all-out effort was made to retrieve all relevant studies on DA in the first place, the inadvertent omission of a number of relevant, prominent work remains a possibility. The overrepresentation of studies done by certain key figures in this strand of research (e.g., Lantolf, Poehner, van Compernelle, etc.) was inevitable, and even though the inclusion of all published leading articles on DA was a high priority, it was found out that those studies that had been carried out before 1990 did not either satisfy the criteria for selection or serve the purpose of the present meta-synthesis; hence, as for the delimitation of the study, it was decided that the articles that have been published from the early 1990s onwards, a time span during which research on DA was in vogue and movements towards its implementation in classroom context expedited, should be included.

Further attempts in the domain of qualitative research synthesis can assist with bringing the voices of individual students, teachers, and administrators into the forefront of research and help tear down the barriers to DA finding its way into the mainstream of language teaching and assessment. Further research can delve into investigating the viability of the proposed themes in creating computerized language tests, which hold considerable promise for large-scale DA and accommodate a large number of test takers; working within individuals' ZPD, such tests can maintain the provision of psychometric assessment results. Finally, informed by what Kumaravadivelu (1994) did in the realm of language teaching, further studies can delve into proposing a strategic framework for L2 DA, including macro and micro strategies, to achieve desired assessment and instruction outcomes.

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Appendix 1: Descriptions of Included Articles

Author (Date)	Purpose, Method/Data Sources, Participants/Context
Carney & Cioffi (1990)	This article identified some DA instructional episodes that can be used by mediators to help learners promote their word recognition and reading comprehension capacities.
Aljaafreh & Lantolf (1994)	This study investigated the effects of other-regulation on the microgenetic development of an L2 among adult learners. Participants included three students enrolled in an eight-week second level (the most advanced level) ESL writing and reading course. Intent of the study was to illustrate how the negotiation of other-regulation in the ZPD promotes learning.
Blachowicz (1999)	Reporting on two case studies, this paper described a model for assessment of vocabulary difficulty within the framework of DA. Two seventh grade students were the participants. Purpose of the article was to examine the influence of unknown words on reading comprehension.
Allal & Pelgrims Ducrey (2000)	Examining the role of assessment in pedagogy, this paper gave critical appraisal to the way in which the two following perspectives on ZPD interpret Vygotsky's writings: (a) it is possible to measure learners' ZPD as an individual trait showing stability across instructional settings and (b) assessment intervenes in the ZPD which is constructed by a learner's ongoing interactions in a certain instructional context.
Nassaji & Swain (2000)	This case study investigated whether help provided within learners' ZPD was more effective than assistance provided randomly. Writing compositions of two adult, female Korean learners of English were used for data collection. The study aimed at signifying the importance of consciousness-raising and collaborative feedback in language learning.
Swanson & Lussier (2001)	This article summarized a meta-analysis of 30 published studies on DA. It aimed at (a) investigating whether DA outcomes are merely an artefact of design and (b) offering an explanation for the significant variations among effect sizes of the selected studies, which was found to be due to the function of ability group, chronological age, sample size, and type of assessment procedure.
Kozulin & Garb (2002)	This article delved into the implementation of DA in such curriculum-based areas as EFL in the pre-academic classroom.

Participants included 23 academically at-risk students. The intent of the study was to discuss how DA procedures can shed light on students' learning potential and provide information to help develop efficient individual learning plans to meet their needs.

- Laing & Kamhi (2003) This paper looked at problems and recent solutions to the use of norm-referenced testing for culturally and linguistically diverse populations, with a focus on processing-dependent and DA procedures.
- Lantolf & Poehner (2004) This paper presented a theoretical framework for the application of DA procedures to L2 assessment and pedagogy. It reviewed the major approaches to DA and discussed some of the criticisms levelled against it. The paper concluded with recommendations for further research into the potential contributions of DA to applied linguistics.
- Poehner & Lantolf (2005) This paper focused on the implementation of DA in the L2 classroom setting. It also discussed the concept of the ZPD and its realization in DA procedures and the work of Reuven Feuerstein. Finally, it compared DA to formative assessment (FA), and suggested how FA might be reconceptualised according to DA principles.
- Lantolf (2006) This article explored the potential compatibility and connections between emergentism, chaos/complexity theory and dynamic systems theory (ECCTDST) and Vygotskian sociocultural theory (SCT). It also attended to the potential for the two theoretical perspectives to illuminate each other.
- Murphy & Maree (2006) This study conducted a meta-analysis on seven primary empirical studies to achieve a two-fold purpose: first, to assess the significance of the synthesized effect size from a number of South African studies aiming at the investigation of the significance of DA interventions, and, second, to compare two meta-analytic software programs available online.
- Tierney (2006) This methodical review investigated how six sources, that is, educational research, evaluative inquiry, large-scale assessment, educational policy, professional development, and teachers' beliefs can influence and mediate assessment practices. It analyzed a group of purposively selected research articles and discussed cross-currents relating to research perspective, collaboration, and time.
- Guk & Kellogg This paper presented evidence that the way in which learners

- (2007) mediate tasks differs from the way in which teachers do, and argued that this suggests learner-to-learner mediation is in important ways closer to 'internalization'. Participants included a group of EFL Korean pupils. Purpose of the article was to discuss why T-S and S-S interactional mediation do not create two different ZPDs but instead lies within a single, whole class ZPD.
- Leung (2007) This article attempted to provide a description of DA, discuss some of the criticisms raised by DA to conventional approaches to assessment, point out the differences and similarities between DA and FA, and discuss some of the implementation issues a DA perspective can raise in language learning and assessment.
- Poehner (2007) This article reconceptualized the problem of assessment generalizability from a qualitatively different perspective, that is, SCT. In this article, transcendence in the L2 domain was illustrated with examples of advanced learners of French.
- Yeomans (2008) This article outlined the challenges to the development of links between assessment and intervention and proposed three conditions that were likely to ensure this link.
- Anton (2009) This article reported on the implementation of diagnostic assessment, giving particular attention to the use of DA practices as a way to assess language abilities, intervene in learning, and document learners' growth. Participants included five third-year Spanish language majors in an advanced Spanish language program at the university level. Purpose of the article was to illustrate the potential of DA for L2 learning contexts.
- Dorfler, Golke, & Artelt (2009) This paper looked at a number of constraints on the DA of reading competence. It discussed how item response theory (IRT) models can (a) tackle the main problem of a train-within-test assessment of reading competence, which concerns dealing with performance changes induced by the test procedure itself, and (b) provide detailed measures of performance and learning ability in the domain of reading.
- Hill & Sabet (2009) This article described an attempt to employ DA methods in classroom speaking assessments. The study involved four cases of speaking assessment of a first-year speaking and listening class at a Japanese university with 18 students. Purpose of the study was to discuss the effectiveness of four particular applications of dynamic speaking assessment.
- Lantolf (2009) This article argued that development in formal educational activity is a fundamentally different process from development

that happens in the everyday world. It analyzed two examples of interactionist DA between a mediator and an advanced L2 learner of French. The goal of this paper was to consider a new point of view on the relationship between language instruction and language assessment.

- Poehner (2009a) Presenting examples involving learners of French, this article tapped into DA in education and its role in L2 development and classroom teaching.
- Poehner (2009b) This article attended to a major challenge to implementing DA in L2 classrooms: constraints on the possibility of having the one-to-one interactions with learners. It explored the use of G-DA with groups of L2 learners. Transcriptions of concurrent and cumulative G-DA interactions involving L2 classroom learners were presented. Intent of the article was to explore how the group's ZPD could be promoted while supporting the development of individual learners.
- Kaniel (2010) This article examined the scientific answer to the question of how far human mental activities and capabilities are domain general/domain specific, and drawing some main conclusions, it attended to DA to give a concomitant answer to the question raised. The principles on which selection and development of assessment tasks can be based were also discussed.
- Lantolf & Poehner (2010) This article reported on the efforts of a full-time elementary school L2 Spanish teacher to implement principles of DA in a normal (i.e., non-experimental) classroom setting. Participants included six third- through fifth-grade students (aged ranging approximately 8-11 years). Intent of the article was to illustrate how interaction in the ZPD could redirect our attention from a focus on the product of development to its process.
- Poehner & Lantolf (2010) Adopting a DA approach, this article concerned a particular application of ZPD in language education. Participants included learners of French as a second language. Purpose of the article was to indicate how DA can have profound implications for formal testing and educational, given that it posits a dialectical relation between instruction and assessment.
- Ableeva & Lantolf (2011) This study investigated the effects of DA on diagnosing and promoting listening comprehension. Seven intermediate university L2 learners of French participated in the study. It aimed at tracking learners' improvement in listening ability as a result of mediation and discussing how learners were able to transfer their ability to more complex texts.

- Poehner (2011a) This argumentative paper sought to strengthen dialogue between DA advocates and the broader assessment community by examining potential contributions DA may offer to answer such important questions as how assessment may support teaching and learning and how fairness in education may be pursued.
- Poehner (2011b) This paper underscored the need for a systematic and principled approach to evaluating claims about learner abilities and their development. Relying on the key validity notions of evidence, interpretations, and consequences to consider the process of mediator-learner dialoguing, the paper expounded on a proposed model of validation in L2 DA.
- Poehner & van Compernelle (2011) Underlining the importance of conceiving of ZPD as a transformative activity, which dialectically unifies assessment and teaching, this paper outlined readings of the ZPD that have motivated many current approaches to DA. It transcribed interactions between a mediator and L2 learners, and identified how collaborative and cooperative interactional frames and be co-constructed between mediators and learners.
- Alavi, Kaivanpanah, & Shabani (2012) Adopting a microgenetic, longitudinal, and interactionist methodology, this study developed an inventory of mediational strategies offered by a mediator during his G-DA interactions with L2 listeners. Participants included 15 L2 learners. The study aimed at testing the applicability of G-DA in co-construction of knowledge in the context of listening.
- Poehner (2012) This article approached learner self-assessment from a Vygotskian perspective, with a focus on the proposal of the ZPD. Data were collected from undergraduate university learners of L2 French as they composed a narrative while participating in a DA program. Purpose of the study was to explore how learner development regarding reflective evaluation of their performance occurred and to investigate challenges learners might experience as they endeavored to regulate not only their use of the L2 but also their performance.
- Shrestha & Coffin (2012) This qualitative study explored the value of tutor mediation in the context of academic writing development among undergraduate business studies students in open and distance learning, within a DA framework. Participants included two business studies students. The study aimed at analyzing tutor mediation and learner reciprocity and considering them alongside students' writing development.

- van Compernelle & Williams (2012) This article investigated the microgenetic development of learners' understanding of sociolinguistic variation in French during an instructional conversation (IC) by providing appropriate mediation that was sensitive to the class's ZPD. Participants included fourth-semester U.S. university French students. Purpose of the article was to illustrate how teacher-student collaborative interaction can develop learners' conceptual understanding of variation and orient the development of their performance.
- Davin (2013) This article explored how a primary school teacher utilized DA and instructional conversation (IC) frameworks to navigate dual goals of instruction and assessment while providing mediation attuned to learners' ZPD. The classroom in which the study was conducted was comprised of 17 students of Spanish as a foreign language, who ranged in age from 10- to 12-years-old. The study aimed at contributing to a deeper understanding of the use of Vygotsky's ZPD construct to guide interaction within the classroom context.
- Davin & Donato (2013) This article examined learners' collaboration during small-group tasks. Participants included 14 young language learners studying Spanish as a foreign language; six non-heritage language learners were selected as focus students, whose language proficiency ranged from novice-low to novice-high. Purpose of the article was to determine whether learners were able to mediate their peers during a collaborative writing task after receiving five days of classroom DA, and if so, in what ways such assistance was provided and whether this mediation was similar to or different from teacher mediation during DA.
- Gagné & Parks (2013) This study investigated how children in an intensive ESL class scaffolded each other while doing cooperative learning tasks. It focused on an intact class of 29 sixth-grade students (10-11 years of age). Purpose of the study was to examine the employed scaffolding strategies both qualitatively and quantitatively with regard to classroom culture and the structure of the cooperative learning tasks.
- Lantolf & Poehner (2013) This paper considered DA as it relates to L2 development. It discussed a number of key issues regarding L2 DA research such as the ontology of mediation, validity of DA procedures, interactionist DA, and interventionist DA.
- van Compernelle & Kinginger Implementing DA, this case study represented principles to assess and promote L2 metapragmatic capacities via engaging

- (2013) learners in cooperative interactions. The data were collected from US university students of French. Purpose of the article was to illustrate how support provided by a tutor around one questionnaire items both assessed and promoted a learner's developing conceptual knowledge about social distance.
- van Compernelle & Williams (2013) This paper looked into the importance of pedagogical activity for SCT and discussed pedagogy from an SCT perspective.
- Alavi & Taghizadeh (2014) This study looked into DA of writing. Participants included 32 male B.S. students. The study aimed to investigate the impact of DA on L2 learners' internalization of writing content and organization skills and strategies.
- van Compernelle & Zhang (2014) This case study described the design, administration, and scoring of an initial attempt at developing an elicited imitation test of grammatical competence in L2 English that integrated mediation through DA. The participant was an advanced Korean L2 English learner. Purpose of the study was to show how an item analysis can be used to track microgenetic development over the course of the test and consider the implications of DA to doing elicited imitation tasks.
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