White Paper

Teaching in the Zone

An introduction to working within the Zone of Proximal Development (ZPD) to drive effective early childhood instruction

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Children's Progress

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Introduction

In a classroom of 30 students, each student has a learning pace and style that is most appropriate for him or her, yet differentiating instruction for all 30 can be a formidable challenge. At the same time, we also know that teaching without taking into account what students already understand and what they still need to work on is ineffective.

This white paper introduces teachers and educational specialists to the concept of the zone of proximal development (ZPD) and explores its role in students' educational experiences. Understanding how to locate and use each student's ZPD can help educators plan more targeted instruction for the whole class, small groups, and each individual. Ultimately, aligning classroom teaching strategies to students' ZPDs can help educators more effectively guide all students toward achieving learning goals.

What is the Zone of Proximal Development (ZPD)?

We can think of the zone of proximal development (ZPD) as the difference between what a child can do independently and what he or she is capable of doing with targeted assistance (scaffolding).

Psychologist Lev Vygotsky coined this term in the 20th century to describe the sweet spot where instruction is most beneficial for each student – just beyond his or her current level of independent capability.
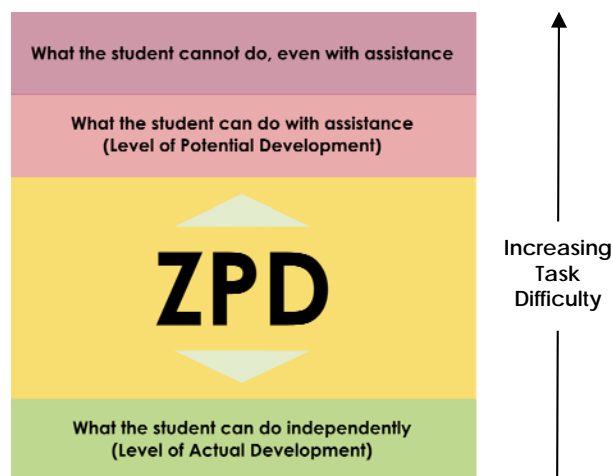
> *What the child is able to do in collaboration today, he will be able to do independently tomorrow.*
>
> **Lev Vygotsky**

Instruction focused within each student's ZPD is not too difficult or too easy, but just challenging enough to help him or her develop new skills by building on ones that have already been established. Students are most receptive to instruction within their ZPD because it represents the next logical step in their ongoing skill development. In contrast, without reliable information on students' constantly evolving ZPDs, it is difficult to identify who is ready for more challenging material and who needs additional assistance.
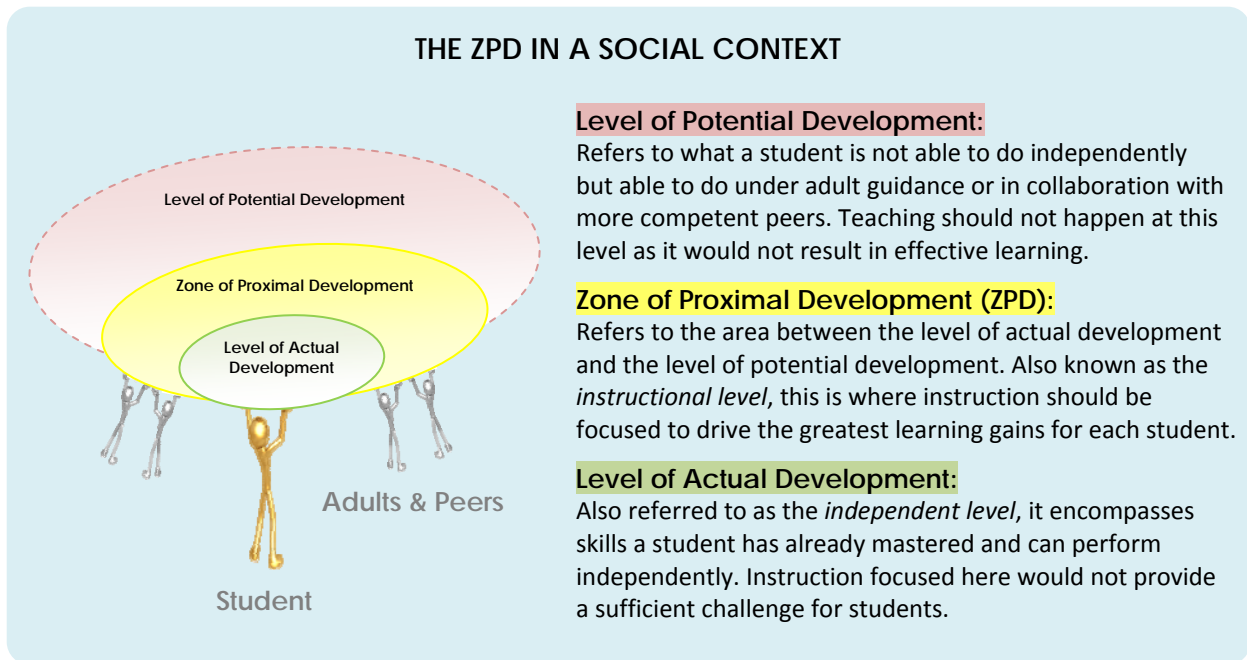
The concept of the ZPD was originally established as a framework to describe the process of self development (Chaiklin, 2003; Van der Veer, 2007) as it occurs with the guidance of adults and peers in the learning environment. This concept arose as Vygotsky's

LOCATING THE ZPD

What the student cannot do, even with assistance

What the student can do with assistance
(Level of Potential Development)

ZPD

What the student can do independently
(Level of Actual Development)

Increasing Task Difficulty

response to the use of intelligence testing as a measure of student knowledge and skills as well as an indication of what should be taught (Blanck, 1990; Van der Veer, 2007). Vygotsky's pioneering research focused on the role of social interactions in human development. In his investigation of cognition, he examined the complex relationships between language and thought as well as learning and play. What he found was that children's social interactions with significant individuals in their lives (parents, peers, teachers, and other adults) profoundly shape their interpretations of the world and higher order thought processes.

THE ZPD IN A SOCIAL CONTEXT

Level of Potential Development

Zone of Proximal Development

Level of Actual Development

Adults & Peers

Student

Level of Potential Development:
Refers to what a student is not able to do independently but able to do under adult guidance or in collaboration with more competent peers. Teaching should not happen at this level as it would not result in effective learning.

Zone of Proximal Development (ZPD):
Refers to the area between the level of actual development and the level of potential development. Also known as the *instructional level*, this is where instruction should be focused to drive the greatest learning gains for each student.

Level of Actual Development:
Also referred to as the *independent level*, it encompasses skills a student has already mastered and can perform independently. Instruction focused here would not provide a sufficient challenge for students.

Vygotsky suggested that instruction located at or below a student's current level of understanding would not be challenging enough to promote further development; at the same time, instruction that is beyond what a student can comprehend is ineffective for stimulating learning. He postulated that instruction should therefore be targeted somewhere in between, "offer[ing] tasks that are above the child's intellectual level, but not too far above it" (Van der Veer, 2007, p. 79). He proposed that this would enable students to build on current knowledge in order to advance in their learning.

Students' exposure to and interaction with others is a critical element of their educational growth (Gallimore & Tharp, 1990; Tudge, 1990).
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With the level of potential development as a goal to work toward, students' learning can be visualized as their journey – aided by the support of peers, teachers, and family – through the constantly evolving ZPD.

As an extension of this concept, Wood, Bruner, and Ross used the term *scaffolding* to refer to the instructionally supportive activities and social interactions that occur between the child and other individuals as they guide effective learning and development in the ZPD.
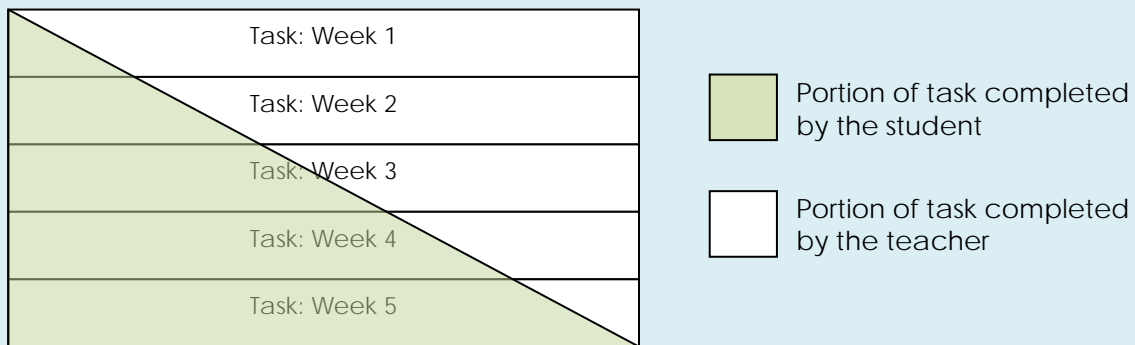
Instructional scaffolding may include skill modeling, initializing and maintaining interest and motivation, and simplifying problems to a level that the student understands (Wood, Bruner, & Ross, 1976)

As illustrated in the figure below, with the aid of appropriate scaffolding, students can gain skills and knowledge by completing tasks (with assistance as needed) until they are eventually able to complete them independently. Over time, components initially performed by the teacher are completely taken over by the student. As

Morrissey and Brown (2009) state, "the aim of scaffolding is the ultimate transfer of responsibility for the task to the child as adult support decreases and child capability increases" (p.107).

BUILDING STUDENT SKILLS THROUGH SCAFFOLDING: GRADUAL RESPONSIBILITY TRANSFER FROM TEACHER TO STUDENT

Task: Week 1

Task: Week 2

Task: Week 3

Task: Week 4

Task: Week 5

Portion of task completed by the student

Portion of task completed by the teacher

The concept of the zone of proximal development has emerged in discussions of other theories and instructional practices, such as the use of formative assessment as a teaching tool (Heritage, 2010; Shepard, 2006). The common thread between formative assessment practices and the practice of identifying and teaching within the ZPD is the idea that in order for teaching and learning to be effective, instruction should focus on skills and knowledge that are attainable for students (not too easy, not too difficult, but *just right*). With constant feedback, or scaffolding, we know that students' learning and understanding can continue to develop at an appropriate pace.

What are the benefits of teaching in the ZPD?

While the goal of teaching in the ZPD is ultimately to benefit students, maintaining this type of teaching and learning dynamic can also provide substantial benefits for teachers and administrators.

TEACHING IN THE ZONE: BENEFITS FOR STUDENTS, TEACHERS AND ADMINISTRATORS

Students are provided with…	Teachers could…	Administrators could…
• challenging but reasonable tasks that stimulate thinking and motivate efforts to learn • meaningful instruction and feedback that helps drive further development at an appropriate pace • a learning environment where they are valued as individuals, a collaborative group, and a class • a learning environment where their creativity and thought processes are acknowledged and accepted	• identify and use areas of strength and weakness to tailor learning experiences at the individual and group level • engage students in social interactions to enable learning • better understand students as individual learners, learners in a small group setting and learners in a larger social setting • discover unique thought processes that different students may use to solve problems	• promote higher quality differentiated instruction in schools • emphasize better teacher-student relationships • work with more motivated teachers and students

How can I locate and teach in the ZPD?

Locating the ZPD requires a close examination of each student as an individual learner. In turn, teaching in the ZPD involves providing scaffolding that is appropriate for these learners. With an entire class, this can be a challenge. On the next page, you'll find six questions and tips for teachers and instructional specialists to use as a guide as you make your way identifying and teaching in the ZPD.

CHECKLIST: AM I TEACHING IN THE ZPD?

	Questions to Ask Yourself	ZPD Tip	Example
1. ☐	Do I know what I want my students to **understand by the end of this unit**?	Identify the target level of knowledge and understanding you want your students to attain (e.g. for the year, a specific unit or a specific concept).	I want my students to be able add 1-digit numbers by the end of the unit.
2. ☐	Do I have an idea of the **skills and knowledge** that students must have in order to reach this level of understanding?	Work backwards from the end-of-unit goal(s). Ask yourself: "What needs to be understood before this goal can be reached?" Develop a model of the learning progression that you expect students to follow in order to attain the targeted knowledge and understanding (Heritage, 2008).	Before my students can add with understanding, they have to be able to: • Identify numbers 1-20 numerically and conceptually • Count from 1 to 20 • Use representational models and manipulatives (number line, snap cubes, drawings, objects)
3. ☐	Do the **tasks and activities** I have created help me see what my students understand and what they still need to work on?	Create tasks, activities and problems that allow you to gather information about students' understanding of the topic at hand while they are learning.	Whole group meetings will help students review prerequisite skills and introduce the new skill. Small group/partner work will help students get hands-on practice through activities and worksheets. Interactive computer software with scaffolding will gather information about students' independent levels and ZPDs.
4. ☐	Am I **observing, assessing, and listening** to my students in order to understand the thought processes they are using to arrive at their answers?	Observe, assess, and listen to student behaviors and inquiries in response to the topic. Frequent assessments, whether formal or informal, allow patterns of strengths and weaknesses to emerge both at the individual and group level. This will help you identify students' ZPDs.	During whole group instruction, I keep a mental note of the skills students display. During small group or partner work, I walk around, informally observing what they are able and unable to do. Individual conferences, class work and homework allow me to see students performing at their independent level.
5. ☐	Am I **adjusting my instruction** based on what I see my students have grasped and what they still need to work on?	Modify instruction, activities and groups based on information you gather about what your students can do independently, what they can do with peers, and what they are struggling with overall.	Joey, Anne, and Paul were able to follow along actively when we solved a problem as a whole class using objects but not when they worked in small groups using number lines. They will be regrouped so that their strengths in counting objects can guide their number line skills.
6. ☐	Am I **providing feedback** that uses students' strengths to build on their weaknesses?	Work with small groups and individual students. Push their thinking by asking guiding questions, modeling and providing demonstrations as necessary.	To Joey, Anne, and Paul: "How many M&M's are on your table? Where is that on the number line? How many M&M's are in my hand? When you add this to the ones you have, how many do we have all together? Let's try and show this on the number line."

As discussed in the table on the previous page, whole group instruction, small group work, individual assessments, and interactive software could all be used in the classroom to focus on teaching in the ZPD. Knowledge gained from these activities and instructional practices will enhance understanding, help students create new interpretations, and stimulate development (Chaiklin, 2003).

Each of these components is also an opportunity for you to learn more about your students while they work to gain understanding of new skills and information. Research has shown that interactions between a child and a more competent peer or adult in which everyone is actively engaged tend to produce higher student achievement (Darling-Hammond & Bransford, 2006; Pianta, 2006; Wasik, 2008). Common practices among highly effective teachers include tools and activities that:

1. Include clear goals and objectives
2. Use available space and appropriate resources
3. Involve movement around the classroom
4. Include a range of individual, small group, and whole group instruction
5. Promote and encourage inquiries and discussions (Darling-Hammond & Bransford, 2006).

Individual assessments are also necessary in order to identify each child's level of actual development (or more simply, what each child can do independently). Fortunately, due to advancements in technology, individual assessments are no longer limited to paper and pencil quizzes and homework. The following chart provides guidelines for using various instructional methods and tools to identify the ZPD and teach within it in your classroom:

GUIDELINES FOR USING MULTIPLE METHODS & TOOLS
IN YOUR ZPD-CENTERED CLASSROOM

	Method/Tool	Guidelines	Benefits
☐	**Whole Group Instruction**	• Teachers introduce a topic/unit with models of what is expected. • Students share their work and thinking processes. • Teachers and students conclude a topic/unit by sharing thoughts and reflections.	• Mutual objectives can be established by teachers and students upfront. • Opportunities for the development of listening skills increase. • Different ways of approaching a problem are encouraged and explored.
☐	**Small Group Instruction**	• Teachers present specific content most appropriate for each group of students. • Teachers and students use manipulatives to solve problems and communicate ideas. • Teachers assess students' understanding in greater depth.	• Teaching and learning are focused on a more individualized level. • Active student engagement in learning increases. • Opportunities to identify and work in students' ZPDs emerge, as activities are tailored for each group based on student performance.
☐	**Small Group Play/Games**	• Students interact with, teach, and learn from peers. • Teachers allow time for students to explore, discover and create with materials provided to them.	• Opportunities for the development of social skills increase. • Students' feeling of autonomy increases. • Students' creativity, imagination and other strengths can be tapped.
☐	**Formal Individual Assessments**	• Teachers gain instructionally valuable information about students' independent thinking (NOT just for the purpose of obtaining a number or grade).	• Opportunities to identify students' actual level of development emerge. • Opportunities to identify students' strengths and weaknesses arise. • Opportunities for teachers to work one-on-one with students.
☐	**Computer-based Assessments and Tutorials**	• Teachers expose students to the same content in a different (often very engaging) context. • Teachers gather data on students' progress and/or proficiency. • Software that includes scaffolding supports the teachers' efforts to teach within each student's ZPD and helps her do this efficiently on a larger scale.	• Opportunities for students to be exposed to the same material in another context and from a different perspective arise. • Opportunities for students to be more actively engaged in learning through the use of technology emerge. • Opportunities for teachers to individualize assessment and instruction based on every student's unique ZPD emerge without sacrificing valuable instructional time.
☐	**Informal Individual Assessments; Exit Slips**	• Teachers confirm whether or not the planned learning took place, using a few simple questions at the end of a lesson.	• Opportunities for teachers to immediately identify and clarify misunderstandings arise. • Opportunities to differentiate instruction emerge based on students' levels of understanding following the initial lesson.

How does the ZPD apply to 21ˢᵗ Century education?

With a growing focus on differentiating instruction to meet each child's needs in the context of Response to Intervention (RTI), now more than ever, the concept of the ZPD is critical to helping teachers target their instruction and ensure that all students are progressing at an appropriate pace.

Technology-based tools can be indispensable in this regard. New computer-based, web-based and mobile applications are being developed at a rapid pace. As noted in the table above, these tools possess the potential to not only provide students with an engaging virtual learning environment that is in some ways "outside" of the classroom, but to also collect the data that teachers need in order to identify ZPDs and differentiate instruction quicker than ever while alleviating the record-keeping burden.

At the same time, technology cannot and should not replace social interactions between students, peers, and teachers. Communication and collaboration within the classroom is essential for building the learning environment where students' cognitive processes and social and emotional skills can develop.

In choosing appropriate technology-based tools to support our practice and help us locate students' ZPDs, we should always keep in mind the fact that the utility of each tool depends on how well we integrate the resulting data within a broader learning context. As we continue to incorporate the concept of the ZPD into our practice, let us focus on educational technologies that:

- assess the way we teach in the classroom, incorporating timely instructional feedback (scaffolding) and adapting to each child as he or she learns,
- save instructional time by providing rich data that will allow us to individualize instruction quickly and effectively for all students,
- are based on solid research aligned to educational standards.

About Children's Progress

Children's Progress (www.childrensprogress.com) is an award-winning educational technology company. We specialize in developing engaging, adaptive assessments for Pre K – 3ʳᵈ Grade that help you focus on each student's ZPD. Named a Top 100 Product by *District Administration* magazine, the Children's Progress Academic Assessment (CPAA) is grounded in decades of research at Columbia University and MIT. We work with districts, schools and early learning centers nationwide to support the ongoing formative assessment process, inform Response to Intervention (RTI) implementations and drive decision making. In 2012, we became part of Northwest Evaluation Association (NWEA), a global not-for-profit educational services organization providing assessments, professional development, and research.

To learn how we can help you quickly identify student needs and differentiate instruction, request a demo for your early childhood team today: http://www.childrensprogress.com/cpaa/request-demo/**.**

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