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Using Research-Informed Pedagogical Practices to Maximize Learning in Youth Cognitive Behavioral Therapy

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Abstract

Cognitive-behavioral therapy (CBT) for youth is an evidence-based treatment that typically starts with some form of psychoeducation, during which the patient is taught in a didactic manner about their presenting problems and strategies to ameliorate their symptoms. The learning process continues over the course of treatment as patients consolidate and attempt to utilize their acquired knowledge in their daily life. Manuals provide helpful structure and strategies to facilitate this learning process (e.g., using metaphors, personalized coping cards); however, there is variability across patients in terms of what presented content they will be able to access and understand, how they can most effectively transfer what they learn into their everyday life, and why they will become engaged in this learning process. The purpose of this paper is to connect CBT and pedagogy by outlining the research-informed pedagogical framework known as Universal Design for Learning (UDL) as it relates to the teaching and learning that takes place in CBT. First, we describe UDL as a lens through which clinicians can conceptualize evidence-based pedagogical principles that undergird common CBT teaching practices. Second, we recommend that clinicians use UDL as a guiding framework when they are faced with barriers to learning due to the variability that exists in how patients engage in, access and understand, and utilize the material. We posit that UDL can help clinicians ensure that more patients are able to successfully access and benefit from CBT.

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Keywords

Cognitive-Behavioral Therapy; youth; psychoeducation; Universal Design for Learning; pedagogy; dissemination

Cognitive-behavioral therapy (CBT) is an evidence-based treatment (EBT) for a variety of youth internalizing and externalizing concerns (Chorpita et al., 2011). Unlike other, less directive psychotherapeutic approaches, active learning is a central component of CBT. Treatment typically begins with psychoeducation, as clinicians teach patients about causes and maintaining factors relevant to their symptoms and functional impairment (Chorpita & Daleiden, 2009) as well as the relationship between thoughts, feelings, and behavior. The learning process continues throughout treatment, as patients are introduced to new strategies for understanding, noticing, and managing cognitions, emotions, and behavioral patterns. Subsequently, they take on the task of applying their acquired knowledge and skills in their daily life. Thus, teaching and learning are important components of CBT. There are clear parallels between the teaching and learning that take place in CBT and that which occurs in the classroom, which is why Kendall (2006) has described CBT clinicians as taking on the role of educator. Therefore, it is important for CBT clinicians to recognize domains that support the learning process, including *why* patients feel a meaningful connection to material learned through treatment, *what* content is accessed and understood, and *how* acquired knowledge and skills can be transferred successfully into daily life (Meyer, Rose, & Gordon, 2014).

Given the importance of teaching and learning in CBT, treatment manuals and evidence-based practices provide a helpful structure to teach strategies that often align with pedagogical practices in education (Meyer et al., 2014), such as relating content to one's prior knowledge (e.g., anxiety alarm-system; Chorpita & Weisz, 2011). Furthermore, CBT clinicians are encouraged to take a patient-centered approach by recognizing individual differences that exist between patients (Kendall, Gosch, Furr, & Sood, 2010). For instance, some patients may not be able to comprehend the content of more complex concepts and protocols, and adolescents may find certain child-oriented workbooks to be too childish. The importance of adapting to individual differences is reflected by the vast literature suggesting that strict adherence to manuals is not a panacea (Webb, DeRubeis, & Barber, 2010). For such reasons, clinicians have been encouraged to teach concepts in a variety of ways in order to meet diverse patient needs, while simultaneously remaining adherent to evidence-based principles, which has been described as "flexibility within fidelity" (Chu & Kendall, 2009). Practical examples include connecting content to people who are personally meaningful to the patient, using patient-generated acronyms, and varying the way in which content is visually depicted (e.g., Chu & Kendall, 2009; Kendall et al., 2008), which are consistent with best teaching practices (for a review, see American Psychological Association, Coalition for Psychology in Schools and Education, 2015).

Despite the teaching and learning that is inherent to CBT, and recommendations to use patient-centered teaching approaches that seem to be in line with pedagogical principles (e.g., Kendall et al., 2008), little work has addressed the use of pedagogical principles when

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faced with barriers to learning during youth psychotherapy (Nelson & Tusaie, 2011). The purpose of this paper is to connect the teaching and learning that takes place in CBT to Universal Design for Learning (UDL), a nationally-implemented pedagogical framework that guides educators on how to facilitate three central principles of the learning process: 1) engagement in learning, 2) accessing and understanding presented content, and 3) successful transfer or use of acquired knowledge (Meyer et al., 2014).

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The authors of this paper, four experts in CBT and one (authors' names redacted for blind review) expert in UDL, worked together to connect pedagogical practices with CBT to generate a framework which might optimize treatment. The aim of connecting CBT with UDL is two-fold. First, the UDL framework provides a lens through which clinicians can conceptualize how CBT teaching practices already occurring in treatment align with evidence-based pedagogical principles, potentially facilitating the learning process. Second, the UDL framework can be used as a guide to develop alternative teaching practices and approaches that can prevent barriers to learning that emerge due to learner variability. Since a substantial number of youth are classified as non-responders after receiving CBT treatment, these strategies also may increase the efficacy of CBT for youth (Chorpita et al., 2011; Walkup et al., 2008). For example, patients may have learning disabilities, which often co-occur with internalizing and externalizing problems (Willcutt et al., 2013), or varied cognitive abilities leading them to require accommodation to comprehend certain concepts or protocols. Engagement in learning may also naturally fluctuate day to day. The goal of this paper is to provide theoretical and practice guidelines, and an example of strategies, for clinicians to be more thoughtful in their delivery of psychoeducation in order to optimize CBT.

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Universal Design for Learning

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Universal Design for Learning (UDL) is an educational framework encompassing three pedagogical principles, each built upon a corresponding neural network for learning: the affective network, the recognition network, and the strategic network (Meyer et al., 2014). Each of these networks is derived from research in the fields of education, neuroscience, and cognitive science. The affective network represents why one engages in the learning process (Meyer et al., 2014). In CBT, this network may be involved in the degree to which patients make meaningful connections with presented content and material to sustain their efforts and motivation in learning. The corresponding principle by which this network is activated is to "provide multiple means of engagement," meant to help learners become purposeful and motivated (Meyer et al., 2014). The recognition network is involved in what presented content a learner is able to access, perceive, and understand (Meyer et al., 2014). In CBT, this network may represent whether or not patients perceive, follow, and comprehend the material presented to them and consolidate acquired knowledge and skills. The corresponding principle is to "provide multiple means of representation," which helps learners construct knowledge from presented material (Meyer et al., 2014). Lastly, the strategic network represents how one utilizes acquired knowledge or demonstrates what has been learned (Meyer et al., 2014). This network corresponds with the principle, "provide multiple means of action and expression," which leads learners to effectively use acquired

knowledge (Meyer et al., 2014, p. 90, 103). In CBT, this network may play a role in how well patients are able to transfer what they have learned into daily life.

UDL recognizes that individuals can reach a learning goal through the same three principles of learning, but in different ways. UDL started in the field of special education by providing aid for students with high support needs (through scaffolding or extending learning opportunities) (Rose et al., 2006). By providing such supports, the team at the Center for Applied Special Technology (CAST) recognized that what was beneficial and necessary for a marginalized population of learners could potentially be beneficial for all learners. With the concept of Universal Design in Architecture (Mace, Hardie, & Place, 1991) in mind, CAST suggested that, “designs that increase accessibility for individuals with disabilities – those who are typically in the margins – tend to yield benefits that make everyone’s experience better” (Rose et al., 2006, p. 20). Thus, the CAST team developed guiding pedagogical principles that promote access to curriculum and optimize learning experiences for *all* learners (Rose et al., 2006). Educators who view teaching practice through the lens of the UDL framework recognize variability as a constant in the learning environment and consider potential barriers that curriculum may present *before* designing learning experiences. This approach anticipates potential roadblocks to learning and provides options to bolster successful learning opportunities. In this manner, it is similar to the pre-session treatment planning and case conceptualization work engaged in by CBT therapists (Beck, 2011).

CAST developed a set of research-based guidelines to support educators creating more flexible learning experiences (Meyer et al., 2014; <http://www.udlcenter.org/aboutudl/udlevidence>). First, UDL was born from fundamental theories of learning and cognitive development, including the zone of proximal development, scaffolding (for a review, see Schunk, 2012), and modeling. For example, research has suggested that making presented content personally relevant enhances engagement (e.g., Assor, Kaplan, & Roth, 2002), that activating prior knowledge benefits comprehension (e.g., Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989), and that motivating factors like setting goals aids one’s transfer and application of knowledge (for a review, see Pugh & Bergin, 2006). Second, UDL implementation studies have provided very encouraging results. A review of 13 studies on UDL implementation within K-12 and post-secondary academic settings suggests that students who are taught by teachers trained in UDL demonstrate enhanced learning and engagement (Rao et al., 2014). Furthermore, Al-Azawai and colleagues (2016) published a meta-analysis of 12 articles published between 2012–2015 on UDL implementation, which found that this framework is effective for making curriculum accessible to a diverse range of students. Third, neuroscience suggests that human brains have three main networks that play a role in learning (described above). For a review of the literature, for instance, on the affective network involved in learning, see Immordino-Yang and Damasio (2007).

Although the application of UDL to youth CBT practice is a novel concept and can be further developed with time, we argue that UDL principles can be effectively employed in any CBT-informed treatment, regardless of the child’s developmental status or presenting problem, or how closely a clinician follows a particular treatment manual. CBT is based on the premise that problems are caused or maintained by explicit, identifiable factors (i.e.,

maladaptive cognitions or behaviors), and so the more the patient knows about these factors the more empowered they are to enact behavior change. UDL principles may be an effective means to teach a diverse patient population about these core CBT factors.

This paper seeks to provide a broad overview for how clinicians can utilize the three UDL principles to enhance the accessibility of CBT psychoeducation. Each principle will be outlined in detail below, followed by the nine UDL guidelines linked to each principle, with corresponding checkpoints (strategies) that can be utilized in CBT to reduce barriers to learning (see Table 1). For each guideline, several suggestions are provided for how clinicians might assess that domain with their patients. These recommendations are provided to highlight the importance of engaging in the assessment process on an individualized basis. That is, clinicians must determine which strategies are appropriate for each patient, as the specific application of these guidelines and strategies will vary based on individual micro- and macro-level patient characteristics (e.g., developmental level, presenting problem, cultural background). Thus, while it is intended that these guidelines be universally considered, their application is not meant to be a one-size-fits-all approach. In response to both micro- and macro-level threats, such as mistrust of mental health-care and stigma, clinicians should refer to practices that are sensitive to diversity, which may not fall under the UDL framework and is outside the scope of this paper (e.g., Roysircar, 2009). Further, clinicians do not need to integrate every principle, guideline, and strategy at all times; rather, they could consider each component of this framework to enhance learning during treatment. Future research can then investigate the utility and feasibility of implementing the UDL guidelines in this manner.

Principle I: Provide Multiple Means of Engagement

Engagement in learning is defined as “developing interest, purpose, motivation, and, most importantly, strong self-regulation as a learner,” (Meyer et al., 2014, p. 90), meaning that learners feel a personal connection to what they are learning. Increased engagement in the learning process may concurrently engage patients in the treatment process as a whole, such as, “demonstrating enthusiasm,” “initiating discussion,” higher levels of self-disclosure (Chu & Kendall, 2004, p. 822), and higher quality homework completion. Engagement in learning may be one way to combat the high rates of premature termination in community-based treatment settings (Miller, Southam-Gerow, & Allin, 2008). This could have significant implications given the positive relationship between participation in treatment and treatment outcomes (Becker, Lee, Daleiden, Lindsey, Brandt, & Chorpita, 2015; Karver, Handelsman, Fields, & Bickman, 2006). However, there is variability among patients in the way that they connect with presented material depending on their likes, prior experiences, and preferences.

To assess the need for utilizing this principle, clinicians can incorporate explicit discussion with the patient and other informants to identify potential barriers to engagement, including disinterest in learning, threats within the clinician-patient relationship, and macro-level threats. For instance, patients may have been forced into therapy, have had past negative experiences with child protection agencies, or may present with damaged self-concepts shaped by negative stereotypes or mental health stigmas. Patients’ individual symptoms, such as defiance, distractibility, and anhedonia also can be seen as barriers to engagement.

Clinicians can identify signs of impaired engagement (and attrition risk), such as when patients and families seem to be “going through the motions” without effort, appear distracted during discussions, attend inconsistently and resist parental involvement in treatment (Chorpita, 2007). Explicit discussion of goals (extrinsic and intrinsic), perceived resources, and perceptions of how much work patients want and expect to put into therapy (Miller & Rollnick, 2012) also can help clinicians determine indicators of patient engagement. Patients expectations in terms of perceived benefit (Becker et al., 2015; Nock, Ferriter, & Holmberg, 2007), the process of CBT (e.g., exercises, roles and responsibilities), and the purpose and effectiveness of these processes, also can be assessed as indicators of engagement (e.g., Stewart, Steele, & Roberts, 2014).

Further, since CBT involves learning concepts and skills, clinicians can interview patients and other informants (e.g., family, teachers) to determine the extent to which patients engage in learning in other areas of life (e.g., class, extracurricular activities). For example, do patients advocate for themselves when they have questions? How do they react when someone tries to teach them something? Do they spend time reflecting on what they are learning? Also, while some patients may become highly engaged in a more informal, conversational approach, others may disengage when approached through verbal discussion for various reasons. This principle reminds clinicians to expect this variability and provides alternative strategies to engage patients in different ways. UDL offers three guidelines for engaging patients in learning: *recruiting interest*, *sustaining effort and persistence*, and *promoting self-regulation*.

Guideline I-1: Provide Options for Recruiting Interest

The first guideline to foster engagement is to recruit interest in the material patients are learning by making it meaningful and relevant to them (Meyer et al., 2014), which can help learners sustain attention (e.g., Gupta & Irwin, 2016). This guideline reminds clinicians to prepare for differences between learners, and even among learners over the course of time, in terms of what may spark interest. The following checkpoints provide examples of specific strategies that can recruit interest: *optimize individual choice and autonomy*; *optimize relevance, value, and authenticity*; and *minimize threats and distractions* (Meyer et al., 2014).

Clinicians could start employing this guideline by utilizing assessment tools like interviewing and questionnaires with patients and other informants to gain information about the patient’s life as a whole (e.g., their strengths, needs, values, interests, day-to-day experiences) (Becker et al., 2015). For more challenging or inhibited patients, clinicians can start with non-directive activities like drawing or using therapeutic games or computer activities. For example, a patient might show the clinician a picture of a famous athlete or celebrity they like, or identify a meaningful person in their own life, and the clinician could ask “What do you [or other people] admire in him/her?”, to get a sense of what the patient views as important in other people. Patient responses could be given verbally, through written means, enacted with play materials, or illustrated by drawings. In using these or any other adaptive strategies for youth, it is important for clinicians to also maintain fidelity to the therapeutic process, guiding any ensuing discussion toward therapeutic content. For

example, youth can complete an art project that identifies all that is important to them, to which clinicians can refer when formulating therapy goals.

Strategies to *optimize autonomy* include letting patients identify which problem area to focus on (Langer & Jensen-Doss, in press; Weisz et al., 2011). Clinicians also can give patients choices in how they label their problems, emotions, and situations (e.g., Kendall & Hedtke, 2006), referencing the words patients use to describe experiences (Jungbluth & Shirk, 2009), and being flexible with session agendas to either increase or decrease structure as preferred. Simple autonomy-supportive strategies include being responsive to patient-generated questions (Reeve & Jang, 2006), giving choice whenever possible (e.g., using white-board instead of paper), and giving patients control in the session. If patients resist suggestions, clinicians can offer strategies in an autonomy-supportive way (e.g., as an option or “experiment” to see what happens).

To *optimize relevance* during psychoeducation, clinicians could tie clinical material to personal experiences instead of talking in generalities (for a review, see Bergin, 1999). This could be particularly useful for patients who feel like clinicians do not understand them or their challenges. As an example, clinicians can connect a communication skill to what the patient has already tried to do: “I know when you have a problem that you cannot solve you yell to get your parents’ attention, which turns into an argument and an unsolved problem. I am going to help you tweak your approach a little, so that you can get your parents’ help without arguing.” Clinicians can also reference familiar others who share similar emotional experiences; to do so, clinicians can use photos/videos (Grills & Vaughn, 2016), as suggested above. For example, when teaching about mindfulness clinicians could reference relevant quotes from *Star Wars* movies (Kazanjian & Lucas, 1983) or show photos/videos of athletes using these practices (Grills & Vaughn, 2016). Connecting present cognitive and behavioral processes to past events can also help adolescent patients better understand how CBT concepts and skills are relevant to their life story (e.g., reminders of past criticism increases their current social anxiety and shame). Clinicians can also be cautious to resist teaching a skill before having a detailed conceptualization of all maintaining factors. For example, an adolescent patient taught relaxation strategies to cope with family conflict may resist the skill because they believe the *real* problem is that their parents need to communicate better with them.

Lastly, clinicians can increase engagement in the learning process by *minimizing perceived threats* (e.g., Taylor & Walton, 2011) and enhance retention by reducing distractions (e.g., Dietz & Henrich, 2014). Clinicians can seek to reduce the threat of shame, guilt, and stigma of psychotherapy by framing CBT in an empowering, non-stigmatizing way. For instance, therapy can be described as a personal journey of self-awareness and understanding that will serve the patient well throughout their lives, which is an opportunity that other people may not have due to various reasons (e.g., lack of resources or modeling of self-reflection). Further, when patients show vulnerability in sessions, clinicians can give reminders that they are not being judged or share anecdotes about other youth who experienced similar struggles. While teaching, clinicians can reduce patient self-consciousness by delivering feedback about maladaptive cognitive and behavioral patterns in a way that normalizes the process of learning about oneself from experience, mistakes, and unintended errors (Hattie

& Yates, 2014). Clinicians can also ask patients and their families about their beliefs as related to their problems and the process of therapy (Yeh, McCabe, Hough, Lau, Fakhry, & Garland, 2005). Clinicians might also refer to homework as “practice” or “Show that I can [STIC]” tasks to reduce the threat of perceiving therapy to be like school (Kendall & Hedtke, 2006). Distractions can also be minimized by changing the environment of the therapy room, such as putting away toys when working with an impulsive child.

Guideline I-2: Provide Options for Sustaining Effort and Persistence

The second guideline for enhancing engagement in learning is to provide options that will support persistence in efforts to learn (Meyer et al., 2014). This guideline can be important for youth with attention and impulsivity challenges, or any patient with motivation levels that ebb and flow while learning. It may also apply to patients coming to therapy after a long school day when attentional resources may be more vulnerable. The four checkpoints, or strategies, that help clinicians provide options for sustaining effort and persistence include: *heighten the salience of goals and objectives; vary demands and resources to optimize challenge; foster collaboration and communication; and increase mastery-oriented feedback.*

Clinicians can *heighten the salience of goals and objectives* by connecting what is taught in psychoeducation to patients’ long-term goals. This could be done in a concrete manner for younger children (Shirk, 1988) or for anyone with weaker abstract reasoning skills, by, for example, by creating a game-board with steps that connect skills to goals. Patients can also be oriented to natural consequences of learning concepts and skills (e.g., increased self-awareness, feeling understood by others) and how those consequences might impact their daily life (e.g., less interpersonal conflict).

To *vary demands and resources to optimize challenge*, clinicians can use activities that fit within patients’ therapeutic zone of proximal development, or the optimal level of challenge that is not too easy, nor too difficult (Hedegaard, 1996; Leiman & Stiles, 2001). Examples include starting with topics that are less emotionally intense, talking while drawing instead of engaging in face-to-face dialogue, or other creative expression exercises that are comfortable for the patient. Consistent with the guideline of fostering autonomy, patients may be offered choices in selecting the optimal level of challenge at any given moment.

To *foster collaboration and communication*, clinicians can address those involved in treatment (e.g., family) as a “team” (Shirk & Karver, 2011) and make slight alterations in language to embrace collaboration, such as shifting from “me” and “you,” to “we” and “us.” (Shirk & Karver, 2011). They can also encourage patients to teach others what they have learned, such as their parents at the end of each session (e.g., Chorpita & Weisz, 2011), family members, or friends. Lastly, to *increase mastery-oriented feedback* clinicians can focus on the process of learning (Dweck, 2006), such as praising patients for asking insightful questions or making thoughtful comments about CBT. Clinicians can also offer labeled praise for the use of specific strategies patients have learned (e.g., “Good job thinking through the five pieces of evidence against that worry”) instead of just the outcome of the skill they are using (e.g., “Good job restructuring”).

Guideline I-3: Provide options for self-regulation

Another guideline for sustaining patients' engagement in learning is to provide options that will help them to self-regulate their motivation and engagement in learning (Meyer et al., 2014). Doing so can potentially lead to increased engagement between sessions.

Checkpoints (strategies) for utilizing this guideline include: *promote expectations and beliefs (about CBT) that optimize motivation; facilitate personal coping skills and strategies within the learning context; and develop self-assessment and reflection.*

To *promote positive expectations*, clinicians can acknowledge research support for CBT and past clinical anecdotes where CBT led to improvements in youth's lives. They can also discuss the patient's own psychotherapy experiences to identify why they were or were not helpful and then use this information to foster positive expectations about what they will learn and gain in treatment. To *facilitate personal coping skills for learning* clinicians can collaborate with patients to feel comfortable asking questions, expressing confusion, or reporting intense feelings (e.g., use a "code word" or non-verbal signal to convey increasing distress). If patients have trouble sustaining attention, clinicians can provide options to improve concentration (e.g., doodling, fidget toys) and monitor whether these approaches increase engagement.

To *develop self-assessment and reflection* clinicians can use tools like a graphic organizer (e.g., sticker, mood, activity charts) or a rubric of learning outcomes that can guide reflection on learning (Kyriakides, Christoforou, & Charalambous, 2013). Depending on patients' meta-cognitive capacities, clinicians can help patients reflect on an explanation for why and how CBT concepts and skills can facilitate change in given situations instead of explaining it didactically (Chi, DeLeeuw, Chiu, & LaVancher, 1994; Fonesca & Chi, 2010). For example, after a patient successfully copes with a situation, the clinician can debrief by asking, "What did you do differently that helped the situation turn out better? Why did it work?" Likewise, clinicians can invite the patient to acknowledge how and why what they do in therapy (e.g., experience and process an emotion) is part of their healing and growth through therapy. This strategy aligns with the CBT practice of helping patients to attribute their therapeutic gains to themselves and the work they put into treatment (Beck, 2011).

Principle II: Provide Multiple Means of Representation

The second principle of UDL is to provide multiple means of representation due to differences in how children perceive and understand presented material (Meyer et al., 2014). Additionally, presenting information in different ways may be beneficial for all patients since "the more ways something is learned, the more memory pathways are built" (Willis, 2007, p. 311). Clinicians can assess the need for providing perceptual options a number of ways. Neuropsychological or psychoeducational testing can provide information about learning or memory disabilities or perceptual impairments. When formal testing is not available, clinicians can ask themselves what they want the patient to specifically comprehend about a concept or skill by the end of a session (Wiggins & McTighe, 2005), and then check to see if the patient understands the terms and concepts being communicated. For instance, sometimes therapeutic language can be interpreted as "psychobabble" that is either dismissed or misunderstood. Patients may also misunderstand key points.

Furthermore, some patients and/or their caregivers may be limited in language development or proficiency in English. The clinician can perform a check of understanding by having the patient provide a summary of the session and/or key concepts and terms discussed, either to the clinician alone or with their family present, or by using a checklist or definition matching game with the client, and then try another way of presenting the information to see if it improves understanding.

Further, misconceptions are common when being introduced to new material (for a review, see Taylor & Kowalski, 2014) and should be clarified during psychoeducation (Martinez et al., 2015). Patients may have created their own language or mental representations, some of which may be analogous to CBT terminology but may prevent psychoeducation from resonating. Also, patients may have internalized beliefs in the helpfulness of certain behaviors or coping strategies that are inconsistent with the theoretical framework of CBT or the clinician's case conceptualization. Clinicians can observe patients' reactions (e.g., appearing confused or skeptical) to determine if another modality of explaining and representing CBT concepts and skills is needed. Generally, clinicians should err on the side of using multimodal means of presenting information given that it may be beneficial for all learners (Mayer & Gallini, 1990; Fadel & Lemke, 2008). The three guidelines for using multiple means of content representation – provide options for *perception*, *language and symbols*, and *comprehension* – are outlined below and followed by corresponding checkpoints.

Guideline II-1: Provide options for perception

This guideline is meant to ensure that patients can easily access the material being presented to them (Meyer et al., 2014). Although the validity of tailoring instruction to learning *styles* (e.g., visual versus verbal) has been largely debunked (Pashler, McDaniel, Rohrer, & Bjor, 2008; Rogowski, Calhoun, & Tallal, 2015), utilizing multimodal learning, such as matching text with illustrations, has been shown to improve retention (Fadel & Lemke, 2008; Fiorella & Mayer, 2015; Mayer & Gallini, 1990;). Checkpoints (strategies) for doing so include: *offer ways of customizing the display of information*; and *offer alternatives for auditory and visual processing*.

To *offer ways of customizing the display of information*, clinicians can provide options for text-heavy (e.g., paragraphs), illustrative (e.g., pictures), and diagrammatic (e.g., flow charts) displays of information. Patients may have their own creative ways of illustrating concepts (e.g., mouse trap or quicksand representing thinking traps) or need concepts to be simplified. Clinicians can also utilize alternative learning materials, including websites that provide video and other online resources (e.g., <http://youth.anxietybc.com/>) or newsletters, blogs, or relevant books. Digital versions of material (e.g., e-books, audiobooks, electronic documents) could also be offered. For patients who have difficulty accessing visually presented information, text-to-speech, which can transmit spoken language into readable text (Meyer et al., 2014), captions under illustrations, and/or visual analogues to what would be emphasized verbally (e.g., feeling thermometers; Chorpita & Weisz, 2011) can be considered to augment learning. Another strategy is for clinicians to fill out CBT diagrams

while talking through their thought process, and to have patients do the same (Fiorella & Mayer, 2015).

Guideline II-2: Provide options for language and symbols

The language used in therapy may or may not resonate, be understood, or be committed to long-term memory by particular patients. This guideline reminds clinicians to provide options in the language and symbols used to convey information (Meyer et al., 2014). A checkpoint (strategy) for utilizing this guideline is to *clarify vocabulary and symbols*. Clinicians can adapt to patients' semantic background or familiarity (e.g., "strengthen" as a substitute for "reinforce;" "bad guesses" as a replacement for "thinking traps") or allow the patient to come up with their own terminology based on how they have made sense of their internal and external emotional experiences. Metaphors can facilitate skill acquisition (Heffner, Greco, & Eifert, 2003), such as equating the anxiety "alarm system" to a barking watch-dog, negative thoughts to colors of a traffic light, or the "wave" of emotion (Chorpita & Weisz, 2009; Pincus, Ehrenreich & Mattis, 2008). Clinicians may also work with patients to create their own word key with specific terminology.

Guideline II-3: Provide options for comprehension

This guideline reminds clinicians to ensure that patients are able to process and assimilate new information in order to ultimately make the information useable (Meyer et al., 2014). Comprehension is crucial in CBT because the end-goal is for patients to use the skills independently (Szigethy, Weisz, & Findling, 2012). Checkpoints (strategies) to utilize this guideline include: *activate or supply background knowledge; highlight patterns, critical features, big ideas, and relationships; and maximize transfer and generalizability*.

To *activate or supply background knowledge*, clinicians can start with sharing a relevant story or elicit a personal story from the patient (e.g., an argument they had with someone) that can be connected to what will be taught. Clinicians can also use a concept map to visually depict relationships and connections between prior and new knowledge (Ambrose et al., 2010; Hattie, 2009; Novak, 1998). This is done by drawing a circle in the middle of a paper with a concept written in the circle (e.g., anger), which is subsequently connected to all other associated concepts known to the child. Through such an exercise, clinicians can build upon pre-existing emotional knowledge, with reference to media exposure (e.g., movies like *Inside Out* (Rivera, Docter, & del Carmen, 2015) that depict emotions in particular ways and school-based social-emotional program (e.g., Brackett, Rivers, Reyes, & Salovey, 2012). It also is important for clinicians to identify faulty preconceptions of how patients think about presented concepts so that these ideas can be acknowledged, and if necessary challenged and collaboratively replaced (Bransford, Brown, & Cocking, 1999).

To *highlight patterns, critical features, big ideas, and relationships* clinicians can choose a few big ideas that are most important for the patient to understand (Wiggins & McTighe, 2011). Patients can be presented with essential questions that will be answered over the course of the session, such as, "What are examples of thinking traps?" and "How can I figure out if I am stuck in a thinking trap?" Another strategy is to connect what is presently being discussed to a larger concept (Wiggins & McTighe, 2011). Cues and prompts can be

used to highlight connections, such as “This is important. You just recognized that you tend to catastrophize; how does this affect your emotions?” Clinicians can also create flow charts or graphic organizers to outline ideas, make connections between concepts and skills, and illustrate a functional representation of factors that lead one to respond to situations in a particular manner.

Lastly, to *maximize transfer and generalizability* clinicians can identify opportunities for patients to recognize concepts as they emerge in their day-to-day lives. For instance, a clinician can ask “How does this concept of catastrophizing relate to when your friend told you he could not hang out?” or “How does your history of being criticized relate to your fear of trying something new?” Clinicians can also accompany patients at novel settings (e.g., malls, stores) to learn about thinking traps. For example, in restaurants, anxious patients can make predictions and then observe what really happens when a customer (or the clinician) changes their order.

Principle III: Provide Multiple Means of Action & Expression

In the field of education, frequent testing of acquired knowledge and skill (e.g., progress monitoring) is considered an effective strategy to promote learning (Hattie, 2006; for a review, see Roediger & Karpicke, 2006). Analogously in CBT, it is important to periodically give patients the opportunity to demonstrate what they have learned throughout treatment. This is done to ensure the quality with which the patient independently uses CBT skills (Hundt, Mignogna, Underhill, & Cully, 2013), with the ultimate goal of supporting patients in “becoming their own therapists.” Importantly, coping efficacy, or one’s belief that they have mastery of skill use, has been shown to play a role in treatment gains (Kendall, Cummings, Villabø, Narayanan, Treadwell, Birmaher, et al., 2016). This UDL principle reminds clinicians to provide multiple means of action and expression, which allows patients to demonstrate and use what they know in different ways (Meyer et al., 2014).

Patients may learn concepts and skills, but struggle to express and use what they have learned. For instance, a patient who is highly socially anxious may struggle to share their homework successes when asked directly, but open up while drawing or playing a game. A response of “I don’t know” may be an indicator that patients may need another way to express themselves. In terms of applying what patients have learned, patients may struggle to transfer what they learn and do in therapy into their day-to-day lives. A thorough review of patient’s homework can help clinicians determine the need to address this guideline in treatment by assessing the ability and fluency with which patients can practice skills. Clinicians can work to determine barriers that get in the way of patients’ homework completion and practice of skills, such as a lack of opportunities to practice (e.g., difficulties leaving the home to build relationships) or poor executive functioning skills (e.g., losing worksheets, forgetting). The three guidelines, followed by corresponding checkpoints are *providing options for physical action, expression, and executive function*.

Guideline III-1: Provide options for physical action

Some patients experience barriers to practicing their skills due to environmental or physical limitations. For example, a child with social anxiety may have limited opportunities to

practice socializing with others in certain environments (e.g., farmland, dangerous urban setting) and under certain conditions (e.g., demanding work schedule), thus requiring an alternative approach to building relationships (e.g., making phone calls/social media, after-school programs). Further, some children have problems that are nuanced to the context in which they occur, such as a bullying in school or a fear of being alone in a particular setting, and so the skill cannot be practiced during sessions in the same way as it occurs in the naturalistic setting. Clinicians can use this guideline to utilize creative ways of helping patients practice their skills. The checkpoint (strategy) to utilize this guideline is to *vary the methods for response and navigation and optimize access to tools and assistive technologies*.

Clinicians can adjust to limitations in the physical surroundings by *varying the way in which patients navigate their environments* to utilize their skills. For example, a socially anxious or shame-filled patient can plan their practice of social exposures in the context of phone calls (e.g., gather information from a store), sending text messages (e.g., send a typo, make plans), sending a letter or email (e.g., a thank you letter/email, asking for help), or simply making a post online (Peterman et al., 2015). Clinicians can utilize role-playing when clinically appropriate (e.g., soliciting and receiving critical feedback), which may require the enlistment of professional colleagues. Visualization may also be used to help patients apply what they have learned. Clinicians and patients can also find other opportunities to practice skills, such as specific times during school (e.g., during lunchtime) or at holiday gatherings.

Guideline III-2: Provide options for expression and communication

Patients' cognitive profiles vary, making certain forms of expression more difficult for some and easier for others (Meyer et al., 2014). For instance, some patients may find it easy to verbally explain what they are thinking or respond to open-ended questions, while others (for instance due to attentional difficulties or anxiety) may require highly structured worksheets or more guided questions to organize their thoughts and express themselves. The ability to role-play and take the perspective of others may also be challenging for younger children or patients with difficulties in this social domain (Frankel, Gallerani, & Garber, 2012). Thus, patients may require alternative methods for expressing and communicating their knowledge and skills. Checkpoints (strategies) for addressing this guideline are: *use multiple media for communication*; and *build fluencies with graduated levels of support for practice and performance*.

To *use multiple media for communication* clinicians can experiment with varied modalities of expression, including face-to-face verbal conversation, talking while drawing or playing a game, using puppets, dolls, or action figures, role-playing, and written forms (e.g., worksheets, journaling). Clinicians can consider artistic options, such as song, poetry, stories, diary entries, filmed monologues or "commercials" advertising CBT, or other forms of expression, to which patients may already be drawn. Patients can also use computer programs, such as Wikis, to create a slideshow or animation of what they have learned and how it can be used. Patients can also use dramatic approaches, such as the 'courtroom technique,' in which they role-play a court hearing about their responsibility for bad things happening (Vos, Huibers, & Artanz, 2012).

To *build fluencies* of CBT concepts and skills, clinicians can guide patients to use their skills and understanding of CBT concepts in varied, less predictable, and unstructured environments, to promote generalizability, such as moving from structured practice in the clinic to real-world scenarios in the community that require the patient to use skills in flexible ways. Clinicians can also pretend to be an individual with a similar problem as the patient and coach the patient to take on the role of the therapist to help.

Guideline III-3: Provide options for executive functions

Not all patients are equally self-regulated in their capacity to sustain effort and attention on treatment tasks in session. Difficulties with self-regulation may also be a barrier given that much of the “work” of CBT takes place between sessions. This guideline reminds clinicians to support executive functioning needs of patients, such as planning, organizing, and monitoring, in order to help patients effectively practice new skills. For example, patients may struggle to recognize and effectively choose which skill to use in a particular situation. Checkpoints (strategies) to help clinicians address this guideline are: *guide appropriate goal-setting; support planning and strategy development; facilitate managing information and resources; and enhance capacity for monitoring progress.*

To *guide appropriate goal-setting* and *support planning and strategy development* clinicians can provide patients with problem-solving and goal-setting templates that turn identified goals and values into concrete steps. For example, instead of expecting the patient to master a skill (e.g., cognitive restructuring) after one session, clinicians can help the patient to plan out the steps that will help them master the skill, such as when and how they can practice it. To help patients plan how they will utilize their skills, clinicians can visually illustrate (e.g., using a comic strip, avatar, or other visual tool) or talk through expectations to plan patient responses in challenging situations. This may be particularly important for patients who quickly forget their skills when emotionally activated. This may also be helpful in predicting and planning for unrelated stressors (e.g., demands in schedule) that may interfere with homework completion. A scheduling system can also be developed, such as an electronic reminder, or coordination of plans with family (e.g., daily monitoring worksheet review after dinner) to ensure use of skills.

To *facilitate managing information and resources* patients can use a binder or digital system to organize materials and develop their own “toolbox” (Chorpita & Weisz, 2009) of strategies and skills for responding to challenging situations, such as personalized worksheets, checklists, strategy/coping cards, or other materials. Visual reminders, like coping cards, a reminder tool (e.g., a ring, bracelet, stone, or other small object), or mobile resources, can also be used to prompt a patient to recognize when and how particular skills can be helpful.

To *enhance capacity for monitoring progress* clinicians can use electronic systems like a clinical dashboard (www.practicewise.com) to track what is learned and practiced during sessions as it relates to clinical outcomes, and see what types of learning activities correspond with clinical progress (Wiggins, 2012). Clinicians can also measure target mechanisms (mediators) of change throughout treatment, such as coping efficacy (Kendall et

al., 2016), in order to demonstrate how symptom reduction and/or functional improvement coincides with learning and implementation of skills.

Conclusion

This paper describes the practice and utility of integrating pedagogical principles into youth CBT treatment to optimize CBT delivery, using UDL as a framework through which clinicians can systematically evaluate how they are helping patients access and engage in new learning, and utilize skills presented in treatment. As illustrated from the numerous examples provided throughout this paper, the UDL framework can guide clinicians to predict and respond to barriers to learning that can take place over the course of treatment. However, the integration of viewing learning in CBT through a UDL lens has not been formally studied and is a critical area for future investigation. Exploring formalized approaches for assessing the need for each of the UDL guidelines within CBT is also warranted. As much of the work integrating UDL with other fields remains in its infancy, exploration and research on the application of these principles, perhaps starting with case studies, would represent an important step toward increasing CBT accessibility. Future research can also explore the potential moderating role of micro- and macro-level characteristics that create barriers to learning and if they can be addressed utilizing a UDL framework. In youth CBT, it is important that the patient, patient's caregivers, and clinician collaborate to have a compatible understanding and language for such ubiquitous concepts as cognitive errors, reinforcing behaviors, and new coping techniques, among others. The clinician and patient work together as a team, and in large part, the purpose of psychoeducation and the UDL principles discussed in this paper are the foundation of building that collaborative relationship and engagement in the treatment process. Furthermore, careful attention to learning principles may help clinicians convey more complex concepts to provide clinicians with a shared language and understanding with their patients and patients' caregivers.

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Table 1

Summary of the UDL principles and corresponding guidelines

	Affective Networks		Recognition Networks		Strategic Networks	
UDL Principle	I. Provide multiple means of engagement		II. Provide multiple means of recognition		III. Provide multiple means of action and expression	
Purpose of Principle	To help learners be motivated and emotionally engaged in learning		To help learners be able to perceive, comprehend, and construct knowledge from presented content and material		To help learners express what they know and apply acquired knowledge	
UDL Guidelines Provide options for...	1	Recruiting interest	1	Perception	1	Physical action
	2	Sustaining effort and persistence	2	Language, expressions, and symbols	2	Expression and communication
	3	Self-regulation	3	Comprehension	3	Executive function

Source: Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice*. Wakefield, MA: CAST Professional Publishing, pp. 90–108.