Neuroeducation: A three-step process

By Michelle R. Ghoston & Thomas A. Field

In previous articles in this three-part series on neurological factors that affect child and adolescent development (and aligned counseling interventions), we have explored neural development and change during the child and adolescent period, and hypercortisolism and the metaplasticity hypothesis. More information about these concepts is provided in our book *Neuroscience-Informed Counseling With Children and Adolescents*, published by the American Counseling Association.

In this article, we will cover the three-step process for neuroeducation:

1) Explore and validate
2) Assess
3) Effectively deliver information to children, adolescents and families

This three-step process ensures that information about the brain is provided in a manner that empowers the client while increasing understanding.

Neuroeducation

Counselors often strive to educate their clients about "what" is happening to them and "why" it is happening to them. This educational process is often called *psychoeducation*. During this process, counselors may consider providing information to clients about the "what" and "why" of how the brain works. In 2016, Raissa Miller termed this *neuroeducation*. Although neuroeducation is similar to psychoeducation, as Miller explained, it is more technical in nature and can seem a bit intimidating.

When delivering this more technical information, we recommend using a three-step process meant to reduce the likelihood of invalidating or overwhelming children, adolescents and parents. We encourage professional counselors to decrease the possibility for confusion by always selecting information that is appropriate to the client's age and stage of development.

Step 1: Explore and validate

Children and adolescents may want neuroscience education for a number of reasons. *Exploring* what the client wants to know and ensuring that we understand the client's motivation for receiving neuroeducation is the first step. This involves taking time to investigate the nature of the client's questions and broadening discussions around what the child or adolescent is currently experiencing to get a better handle on why they are seeking neuroscience information.

For example, an adolescent might ask, "What happens in my brain when I get so angry that I can't contain myself and lose control?" The adolescent could be asking this question for several reasons. They may have a genuine curiosity about the brain and how it works. They may be asking because they feel frustrated that they seem unable to change their behavior. They may even have lost faith that they possess the agency to change their behavior and are seeking confirmation that change is not possible.

This is why understanding the motivation of the child or adolescent to receive neuroscience information and then working through any potential deeper issues (e.g., hopelessness of change occurring) should precede the provision of any information about the brain. The client who asks, "What is happening in my brain?" needs first to feel heard and validated. Attempting to respond too quickly or only with vague information can come across as invalidating and deflective in nature.

Take the case of Alex, for example. (Note: We are using the pronouns they/them/their for Alex.) Alex is 15 and in the 10th grade. Alex and family relocated to Virginia from New Orleans following Hurricane Katrina, when their home was destroyed and life as they knew it changed overnight. Alex recalls the family attempting to grab what they could carry in a backpack and having to escape the rushing waters of the storm. Alex desperately wanted to grab the family pet, Squirt, but was told by an older sibling to leave the dog behind. The thought of having left Squirt is unbearable to Alex, who still cannot talk about the incident.

Every year, Alex's parents notice that, starting in July, Alex becomes more agitated and restless and wants only to be at home. Prior to this time each year, Alex appears content to hang out with friends and to play sports. Whenever the family attempts to engage Alex in talking about what everyone lost and misses from New Orleans, Alex becomes depressed and withdraws to the bedroom, often lying awake for hours, tossing and turning and unable to sleep.

Alex's older sibling is preparing to leave for college in the fall. Alex cannot seem to focus on anything and feels that the family is being torn apart. Despite the family's attempts to reassure Alex that all will be well, nothing brings Alex comfort as their sibling packs up and talks about leaving.

Validating Alex is paramount to their feeling supported and understood. By further exploring and validating Alex's question of "What is happening in my brain?" the counselor learns that Alex is questioning why they are not feeling excited for their sibling to go off to college. Alex's lack of excitement makes no sense to them. Validating how Alex is experiencing life will allow them the space to explore their mixed feelings about their sibling leaving home to attend college.

Trying to describe technical information to Alex about what is happening with synapse formation and myelination, the autonomic nervous system and central nervous system, or epigenetics would likely be daunting for the counselor. It could

also potentially be overwhelming or possibly even scary for Alex. For this reason, the counselor chooses not to jump prematurely into educating Alex about topics such as epigenetics, the sleep-wake phase delay (often brought on by stress), or generalized and social anxiety (which typically occur during the adolescent years). Allowing Alex the proper time and space to explore how their responses might be connected to the devastating trauma of Hurricane Katrina and validating Alex's current feelings will assist the counselor in better understanding what information Alex is seeking.

Step 2: Assess

Assessing what the client already knows or understands about how the brain works is the next step in the process of delivering neuroscience information. Older adolescents and adults are likely to have heard some basic information about the brain. The counselor's role is to gather information to determine the client's interest, level of understanding, and ability to filter complex concepts. This is achieved simply by asking questions (no formal testing is necessary). This assessment should be brief in nature so as not to overwhelm the client.

Some short questions could be posed to adolescents, parents or family members. For instance, "Are you familiar with different parts of the brain and different brain structures (e.g., the hippocampus, the amygdala, the two hemispheres)? How much information do you know about what cortisol is?"

The responses to these questions will provide the counselor with basic information and a direction the counselor can take with the client. Let's apply this to the example of Alex:

Counselor: Are you familiar with different parts of the brain?

Alex: Brain structure? Well, I have learned a little in my basic biology class about how the brain starts developing before we are even born. Does that count? I know that we have hemispheres and lobes in the brain, but I don't remember much else.

Counselor: Alex, that is impressive. You were paying attention in your biology class.

Alex: I love science. I wish I could just figure out what is happening in my brain so that I don't keep feeling the way I do, especially during the summer months.

Alex possesses some basic knowledge that would allow the counselor to begin sharing more neuroeducational concepts. The decision to share with Alex would be based on:

1) Alex asking and being persistent in wanting to know what is happening in their brain

2) Alex possessing some general demonstrated knowledge

3) The counselor believing that sharing some additional information would help Alex make noticeable progress

Neuroeducation should be provided at a level that the client can understand and apply. If there is no demonstration of general knowledge or interest, then we recommend that counselors not share further information.

Step 3: Effective delivery

Delivering neuroeducational information to clients comes only after steps 1 and 2 have been completed. Once the counselor has gained clarity about what the client is asking, provided validation (which extends beyond the initial discussion), and assessed the client's ability to understand complex information, the delivery of that information can begin. In delivering effective neuroscience information, the counselor should do three things:

1) Connect the information to the problem

2) Distill without diluting the information

3) Facilitate optimism and hope

Connect the information to the problem: First, the counselor should connect the information to the presenting situation. In our case example, Alex mentioned having some information about the brain developing prior to birth, but to return to neurodevelopment in utero would be out of place. There is no need to share information with this client about the development of the nervous system. Instead, helping Alex understand how past traumas have impacted their brain and responses would be most pertinent.

Distill without diluting the information: Second, be selective about the concepts shared with the client so as not to overwhelm them. Provide the amount of detail necessary for the client to understand, giving consideration to the client's developmental age and cognitive abilities. It is also paramount for the counselor to explicitly make connections between the information being shared and the client's presenting situation.

In our case example, making Alex aware of how epigenetics affects responses to life situations would be important. The counselor can help Alex understand how their traumatic experiences associated with abandoning their home, family pet and everything familiar to them may have lasting consequences. As one example, Alex may experience an activated threat-detection system related to their sibling leaving for college because it recalls another loss experience and change to their living situation.

Counselors must also be careful about the depth to which they explore terminology. For example, a brief discussion of the hypothalamic-pituitary-adrenal (HPA) axis and the role of adrenaline and cortisol during heightened threat detection might be appropriate. However, elongated descriptions of the HPA axis, such as details about corticotropin-releasing factor and adrenocorticotropic hormone, would likely be unnecessary and even overwhelming for Alex.

Facilitate optimism and hope: Third, the counselor seeks to facilitate optimism and hope. This is important in all counseling situations, but facilitating optimism and hope in cases in which a child or adolescent has experienced traumatic situations is of utmost importance. As an example, the counselor can stress that the brain is adaptive and plastic, and therefore capable of change. This statement is likely to facilitate optimism and hope.

In contrast, other statements have the potential to discourage clients. Consider that children and adolescents often feel that they have limited control over their own lives. Sharing neuroeducation that appears to highlight their lack of control would do little to facilitate optimism and hope for making positive change.

Conclusion

Following the three-step process we have described can be useful when delivering neuroeducation to children, adolescents and families. The process can be used with many different theoretical perspectives, allowing for flexibility in counseling.

Providing neuroeducation about some of the more complex activities occurring in the brain can be empowering for children and adolescents as they face various obstacles in their development. Delivering complex information without overwhelming these clients is a skill that takes practice.

In our case example, exploring, validating and assessing Alex's interest and level of understanding were essential to providing optimal neuroeducation. Connecting brain information to Alex's traumatic experience of fleeing New Orleans may help to stabilize Alex and direct them toward appropriate treatment approaches for working through past trauma.

To learn more about how neuroscience can inform child and adolescent counseling, check out our new text, *Neuroscience-Informed Counseling With Children and Adolescents.* ❖

Michelle R. Ghoston is an assistant professor at Wake Forest University. She is a licensed clinical mental health counselor, licensed professional counselor and approved clinical supervisor. Contact her at *ghostonm@wfu.edu*.

Thomas A. Field is an assistant professor of psychiatry at the Boston University School of Medicine. He is a licensed mental health counselor, licensed professional counselor, national certified counselor, certified clinical mental health counselor and approved clinical supervisor. Contact him at *tfield@bu.edu*.