Journal of Education and Learning; Vol. 9, No. 2; 2020
ISSN 1927-5250 E-ISSN 1927-5269
Published by Canadian Center of Science and Education

Are High-Probability Request Sequences as Low an Intensity Intervention as Portrayed?

John W. Maag[1]

[1] Department of Special Education and Communication Disorders, University of Nebraska-Lincoln, USA

Correspondence: John W. Maag, 202 Barkley Memorial Center, University of Nebraska-Lincoln, Lincoln, NE 68583-0732, U.S.A. E-mail: jmaag1@unl.edu

Received: December 29, 2019 Accepted: January 28, 2020 Online Published: February 5, 2020

doi:10.5539/jel.v9n2p1 URL: https://doi.org/10.5539/jel.v9n2p1

Abstract

High probability request (high-*p*) sequences, based on the momentum of behavior principle, have been an effective intervention for improving compliance and work completion for students who display challenging behaviors. They have been portrayed as a low-intensity intervention because of being perceived as simple, clear, and easy for any teacher to implement as compared to developing a token economy, behavioral contract, or conducting a functional behavioral assessment which are intensive and require expertise in applied behavior analysis. However, high-*p* request sequences may not be as low-intensity as has been depicted. There are several subtleties for implementing them effectively that teachers would not automatically understand. Also, an examination of the research may raise concerns how well this intervention translates into practice. The purpose of this articles is to provide foundational and theoretical information that is often overlooked when researching and implementing high-*p* request sequences, describe different techniques for building behavioral momentum, address issues translating research into practice, discuss problems in following published implementation steps, and offering an alternative approach for engendering student compliance.

Keywords: high-*p* request sequences, behavioral momentum, low-intensity intervention

1. Introduction

There has been an evolving and growing popularity of schools adopting multi-tiered systems of support (MTSS). Recent amendments to the Elementary and Secondary Education Act (ESSA) and reauthorization of the Individuals with Disabilities Education Act (IDEA) place emphasis on these approaches such as Response to Intervention (RtI) for academics and Positive Behavior Interventions and Supports (PBIS) to address students' challenging behaviors. MTSS are now recognized as part of a school's educational practices (Shogren, Wehmeyer, & Lane, 2016). They are based on a universal supports paradigm which addresses students who are struggling academically or behaviorally regardless of the presence or absence of a disability.

In the case of addressing students' challenging behaviors, PBIS is arranged in three tiers. Tier 1, primary prevention, focuses on school-wide systems for all students, staff, and settings. Tier 2, secondary prevention, provides specialized group systems. Tier 3, tertiary prevention, provides intensive individual interventions, typically based on the results of a functional behavioral assessment (FBA). Approximately 80% of students who display inappropriate behaviors respond to tier 1 interventions with another 15% requiring additional interventions to behave appropriately with the remaining 5% displaying the most challenging behaviors requiring the intensive individual interventions (Simonsen, Sugai, & Negron, 2008).

Individual intensive interventions are time consuming and require a fairly sophisticated skill set, especially because they are based on FBAs that also require expertise in applied behavior analysis. This recognition lead to the Institute of Educational Sciences (IES, 2014) forming a group to determine how evidence-based practices could be translated into simple and vibrant techniques that would lead to better behavioral outcomes for all students. Mooney and Ryan (2018) described interventions for practitioners meeting these goals as "low-intensity" because they are simple, clear, and easy to implement—those with high social validity. Examples of these interventions would be teachers using behavior-specific praise, precorrection practices, instructional choice and feedback, and high probability (high-*p*) request sequences. Consequently, these interventions could theoretically be used by any teacher at both Tier1 and Tier 2 levels of PBIS.

The last technique, high-*p* request sequences, is particularly interesting and has been the subject of much research. In this approach, a child is given several verbal directions that have a high probability of compliance (e.g., "get out a piece of paper and draw," "get a drink of water," "talk to a classmate"). The idea is to build compliance momentum before presenting the low probability (low-*p*) request (e.g., "get out a pencil for the spelling test," "open your math book to page 42," "begin writing answers"). There have been at least six reviews of the literature and two recent meta-analyses that have shown this approach to be effective with the body of studies reviewed being of relatively high quality (Common et al., 2019; Maag, 2019).

However, high-*p* request sequences may not be as low-intensity as has been touted for two reasons. First, there are several subtleties for implementing this intervention effectively that teachers would not automatically understand simply by following standard directions appearing in practitioner-oriented publications (e.g., Bross et al., 2019). Second, an examination of the research—especially from two current meta-analyses on this topic—may raise concerns just how well high-*p* request sequences translate into practice. The purpose of this articles is to provide foundational and theoretical information that is often overlooked when researching and implementing high-*p* request sequences, describe different techniques for building behavioral momentum, address issues translating research into practice, discuss problems in following published implementation steps, and offer recommendations for addressing these concerns.

2. Foundational and Theoretical Precises

Noncompliance and failure to persist completing tasks are problems many children who display challenging behaviors depending on the context, academic content, and type of direction (Maag, 2014). High-*p* request sequences represent one way for teachers to improve students' compliance and persistence. It is based on the behavioral principle of *momentum of compliance* which describes two independent dimensions of behavior: (a) rate of responding established and maintained by contingencies of reinforcement and (b) resistance to change when responding is in some way challenged or disrupted. The goal is to have students consistently comply with several directions to perform desirable behaviors, and that momentum persists when a subsequent direction is changed to a perceived undesirable behavior. The process begins with "momentum" being a type of *discriminated operant* that follows a fairly classic A-B-C model (A=antecedent, B=identified response class, C=contingencies of reinforcement). It proceeds when a teacher uses multiple schedules of reinforcement to present two or more distinctive stimuli successively—either a high-*p* direction or a low-*p* direction in regular or irregular alterations for predetermined durations.

2.1 An Analogy to Physical Mass

Nevin (1996) first described behavior momentum as analogous to physical mass in which velocity and resistance to disruption (i.e., persistence) is related to behaviors with a high likelihood of enduring over time. Typical experimental analyses of resistance to disruption involved arranging different degrees of reinforcement using variable interval schedules in which acquired reinforcer rates are independent of response rates (Mace & Nevin, 2017). The goal was to improve response strength. A strong response is one with a high probability of being displayed under certain circumstances (Killeen & Nevin, 2018). Alternative reinforcement both interrupts target responding while simultaneously strengthening the target response through respondent conditioning (Fisher et al., 2018).

2.2 The Interplay of the Premack Principle

One way to think of high-*p* request sequences is through the Premack (1959) principle which states that a high-probability behavior can be contingent upon the occurrence of a low-probability behavior. A high-probability behavior is one that students have a greater likelihood of engaging in when they have free access to preferred activities or objects. For example, if children have free access to eat whatever they want, some foods have a higher probability of being consumed (e.g., ice cream, candy, chips, soda pop) than others (e.g., spinach, Brussel sprouts, lima beans, liver)—the latter of which would be considered low probability behaviors. Premack believed that the behaviors students engage in during free-access situations can become powerful reinforcers.

In 1963 Lloyd Homme and his colleagues were confronted with the task of controlling the behavior of three preschool-aged children without using punishment or tangible reinforcers such as candy or trinkets (Homme, DeBaca, Devine, Steinhorst & Rickert, 1963). The first child was screaming and running around the room, the second child was pushing a noisy chair across the floor, and the third child was playing with a puzzle. Homme simply made participation in these behaviors contingent on the children first doing a small amount of what he wanted them to do. The first request was for them to sit quietly in chairs and look at the blackboard. This direction was followed by the command, "Everybody run and scream now." This contingency, based on the Premack principle, gave him immediate control over the children's behavior. In a way it is the reverse of high-*p*

request sequences because instead of giving students high-*p* directions first as a way of building compliance momentum, directions that consist of low-*p* behavior must be performed first in order to have access to the high-*p* desired activity (i.e., positive reinforcement). One approach uses behavioral momentum to create persistence while the other uses high preference activities as reinforcers for increasing the occurrence of low preference behaviors.

3. Momentum of Compliance Techniques

There are three different types of techniques that fall under the momentum of compliance principle—the first two being quite low-intensity and easy for teachers to implement. First, the interspersal method involves embedding easier work material within an assignment or task. For example, Banda and Kubina (2006) increased compliance for a participant to complete three-digit by three-digit addition problems by having a stack of 10 cards in a sequence of two easy problems and one difficult problem. However, the request was the same, "Write the answer." The second approach involves a high-*p* "task" sequence. This approach is similar to the interspersal method except the high-*p* sequence typically appears before any low-*p* sequence. For example, Ewry and Fryling (2016) wanted to increase the acceptance of different food with an adolescent with autism by first giving him high-*p* foods followed by low-*p* foods, but the request was the same in each condition: "take a bite." The third approach is the only one that exclusively uses successively different high-*p* requests (i.e., directions) before the low-*p* request is presented and is much more difficult to implement effectively than is often portrayed in the literature. In this approach, a child is given several verbal directions that have a high probability of compliance (e.g., "get out a piece of paper and draw," "get a drink of water," "talk to a classmate"). The idea is to build compliance momentum before presenting the low-*p* request (e.g., "get out a pencil for the spelling test," "open your math book to page 42," "begin writing answers").

Arguably, the first study to appear in the literature was conducted by Mace et al. (1988) over 30 years ago. Participants were two men with a moderate intellectual disability and two men with a severe intellectual disability. Five experiments were conducted in which observers recorded compliance, compliance latency, and task duration during two 15-minute sessions. Participants received a command to engage in three or four high-*p* directions immediately followed by a low-*p* direction. All commands required participants to either "do" a behavior or "don't" engage in a behavior. Results indicted compliance to low-*p* directions increased, compliance latencies decreased, and duration engaging in tasks (specified in the low-*p* directions) increased.

4. Identifying High-*p* Request Sequences: Lessons from Research

Examining results of previous systematic reviews indicates two primary ways researchers identify high-*p* requests. First, they define a high-*p* request based on the percentage of compliance displayed from children. For example, in the studies reviewed by Banda, Neisworth, and Lee (2003), most defined high-*p* requests as those children would follow 80% of the time. In one study, Romano and Roll (2000) used two criteria: medium requests (50–70% compliance) and high requests (75% and above compliance). Second, researchers would define a high-*p* request based on latencies. For example, Rortvedt and Miltenberger (1994) required children to respond immediately, whereas Singer, Singer, and Horner (1987) required children to respond in three seconds to be considered a high-*p* request.

Regardless of the method, there tends to be a capriciousness regarding the types of high-*p* requests researchers have used. Only three systematic reviews provided any of the high-*p* requests used in the identified studies. In their narrative, Banda et al. (2003) reported examples used in the studies repeating in rapid fire such directions as "give me the book" or "give me five" prior to a low-*p* request such as "clean your room." Only the Common et al. (2019) and Maag (2019) meta-analyses provided a table with each high-*p* request per study. Table 1 presents the high-*p* requests they listed. There were many redundancies so the same direction only appears once. A cursory examination of these high-*p* requests could lead one to believe the game of "Simon Says" was being used. However, there are more subtleties than that. The Common et al. (2019) review included studies using high-*p* "task" sequences. For example, a study by Hutchinson and Belfiore (1998) appearing in their review had as the high-*p* task being single-digit multiplication problems and the low-*p* task being multiple-digit multiplication problems. A high-*p* task (e.g., single-digit multiplication problems) is different than a high-*p* request (e.g., "get out a piece of paper and draw" followed by "write the answers to these math problems on the worksheet"). The reason is because the direction is typically the same for high-*p* tasks (e.g., "write the answers"). One of the differences between the Common et al. and Maag reviews is that the latter only included studies using high-*p* "requests" and not high-*p* "tasks".

Table 1. High-*p* and requests from the Common et al. (2019) and Maag (2019) meta-analyses

High-*p* Requests	
Touch your hair	Give me a hug
Pick up the toy	Cut the pizza
Point to the soda fountain	Shake your head
Clap your hands	Put your hands on the desk
Stomp your feet	Say your name
Put your name on your paper	Give the teacher a high five
Did you watch football yesterday	Put your hands on your shoulders
Pick up a writing utensil	Move your eyebrows
Touch your head	Push the chair
Take out a pencil	Put reading book in desk
Sit down	Pick up the marker

Not all high-*p* requests are of the "Simon Says" variety. For example, Wehby and Hollahan (2000) had high-*p* requests related to the low-*p* request ("get out a sheet of paper," "take out your pencil," "write your name on the paper," "begin independent seatwork"). However, these types of studies are the exception rather than the rule. More typical are studies that have a high-*p* request such as "clap your hands" unrelated to the low-*p* request such as "put the toys in the bucket" (e.g., Killu, Sainato, Davis, Ospelt, & Paul, 1998). Consequently, it is reasonable to assume a disconnect exists between research and practice that could negatively impact high-*p* request sequences being considered a low-intensity intervention.

5. Improving the Classroom Relevance of High-*p* Request Sequences

An important prerequisite for improving the classroom relevance of the high-*p* request sequence approach is identifying relevant high-*p* directions. As previously noted, most researchers simply use any direction that either occurs at a high percentage or is performed after a very short latency. In their article for practitioners, Bross et al. (2018) recommended teachers test each high-*p* request they generate by giving the student the request 10 times and obtaining 80% compliance. They also suggested asking the student to generate high-*p* behaviors; although variables such as a student's age, cognitive ability, and level of noncompliance can limit the usefulness and breadth of information obtained this way.

It is important to keep in mind the free access rule that states that the maximum amount of a reinforcer available to students should be less than that they would seek if they had free access to it (Maag, 2018). This rule presents a potential confound to identifying high-*p* behaviors by requesting students to perform them eight out of 10 times (i.e., 80%) consecutively as is the typical approach used in research and recommended in practice. For example, a practitioner may want to increase the number of blueberries a child eats (i.e., low-*p* behavior). The high-*p* request could be to eat a starburst, but what if the child's satiation point is after eating five starbursts? The last five requests required to reach 10 at 80% would be compromised because satiation would occur prior to the completion of the test, and the erroneous conclusion could be reached that starbursts were not really a high-*p* behavior and, therefore, would be a poor choice as a high-*p* request.

5.1 Revisiting the Premack Principal

The Premack principle would be much more valid and valuable method to identify high-*p* behaviors that could be converted into high-*p* requests rather than risking satiation from overexposure or only asking students what they like. Teachers using the Premack principle described previously would simply observe what behaviors students like to engage in when they have free access to do whatever they want, within reason. This suggestion is more difficult for teachers to implement than it would seem because they seldom consider minor problematic behaviors something that can be used either as high-*p* requests or reinforcers for compliance. Rather, they think of them as behaviors to eliminate. For example, a student who talks to a peer, walks around the room, draws on the back of a math worksheet, or writes a note during a lesson could potentially be high-*p* behaviors and, consequently, turned into high-*p* requests but only if they are perceived by a teacher as useful in that fashion and not just untoward behaviors to remove.

Another problematic situation may arise depending on the type of high-*p* request because some of the high-*p* behaviors would be more intrinsically reinforcing to a student than others. For example, a teacher could tell a student to touch his head 20 times in rapid succession and he could comply before being told to write answers on a worksheet, but there is nothing intrinsically reinforcing about performing that behavior 20 times. Conversely, high-*p* requests such as talking to a peer, walking around the room, or drawing are likely to be more intrinsically

reinforcing than reinforcement-neutral behaviors. This situation raises the issue of which type of high-*p* behavior would translate into the best high-*p* request. If the goal is to build the most persistent level of behavioral momentum, then behaviors that are intrinsically reinforcing should become more effective high-*p* requests than behaviors that are not intrinsically reinforcing but just easy and benign for a student to perform (e.g., "touch your head"). The reason is because building behavioral momentum involves rate of responding established and maintained by reinforcement in order to resist changing from compliance to noncompliance when the request is altered from high-*p* to low-*p*.

5.2 Similarities Between High-p and Low-p Requests

One of the important recommendations provided by Bross et al. (2018) related to high-*p* requests is that they should be topographically similar to the desired low-*p* behavior. For example, if the low-*p* request involves movement (e.g., "walk over to your cubby and get your math assignment") the then high-*p* request should also involve movement (e.g., "get a drink of water"). Sometimes establishing a similar response class (e.g., movement) is easy. However, not all high-*p* behaviors are similar to the targeted low-*p* behavior and then it would involve teachers using the behavioral principle of shaping (i.e., successive approximations) to move the student in the requested direction. For example, perhaps walking around the room was found to be the most desired high-*p* behavior, but the target low-*p* behavior is writing answers on a math worksheet while seated at a desk. Now the teacher must have some experience in shaping behaviors or developing stimulus-response chains and those require some expertise in, or at a minimum exposure to, principles of applied behavior analysis. In this case, the teacher would need to link a chain of high-*p* "walking" requests with the low-*p* request of sitting and writing answers in which the latter is very topographically different from the former.

5.3 Subtleties Delivering High-p Request Sequences

This shaping process is not impossible but does require some knowledge and time to develop those sequences. Here is one example using walking (high-*p*) and writing answers at a desk (low-*p*). "Walk over and get a drink of water" → "walk to the table and pick up anything you want or nothing at all" → "walk over to the window and look at something interesting or just stare out" → "walk over and stand by your desk" → "draw a picture on the paper I put there while standing" → "turn the paper over and write one answer" → "sit down and write one answer …" There are two aspects of this high-*p* sequence—the second one being very subtle and requires knowledge most teachers would not have unless they were proficient in managing resistance from a strategic intervention paradigm.

First, most of the directions required walking and toward the end standing and writing answers before finally sitting down. The direction after drawing was to write the answer to one problem while standing with the next direction to write one answer sitting down. Parenthetically, it could be argued that having the student write all the answers while standing was a sufficient end goal because the work was being completed without interfering with other students. However, some rigid teachers have low tolerance levels that often exacerbate problems by demanding the student sit down like everyone else, but that perspective takes their eyes off the prize—obtaining compliance, in this case writing correct answers.

The second issue is a more subtle and involves two directions given previously: → "walk to the table and pick up anything you want or nothing at all" → "walk over to the window and look at something interesting or just stare out." A casual read of these two directions may seem innocuous. However, they add a sophisticated, but subtle, component to build compliance momentum: They are both directions that contain a double-bind. A double-bind direction is a type of paradoxical injunction in which the student is being complaint regardless of what he does (Maag, 2001). The first double-bind direction was "walk to the table and pick up anything you want or nothing at all." This direction, irrespective of when it occurs in the sequence, requires the student to be compliant regardless of what he does. The same can be seen from examining the subsequent direction in which the student is directed to either look at something interesting or just stare out the window, hence also having no choice but to be compliant. The use of double-bind directions is an effective way to engender compliance momentum either used separately or in conjunction with high-*p* request sequences, yet is unlikely teachers would possess this information.

All these issues, caveats, and considerations begin to nudge the perceived low-intensity nature of high-*p* request sequence interventions to a higher intensity level. Information appearing in the next section propels this process further in that direction.

6. How Low-Intensity Are High-*p* Request Sequences?

In a recent article appearing in the practitioner journal *Beyond Behavior*, Bross et al. (2018) described seven

steps teachers can take to implement high-*p* request sequences: (1) identifying and operationally defining target behaviors, (2) generating lists of high-*p* behaviors similar to the desired low-*p* behavior, (3) testing the behaviors by administering them 10 times, (4) administering high-*p* requests in succession followed by praise, (5) delivering low-*p* request, (6) praising the low-*p* behavior displayed, (7) offering stakeholders an opportunity to provide feedback to the process. Several of their steps have been addressed previously in this article such as testing behaviors by administering them 10 times. They also provided implementation resources at the following website: http://www.ci3t.org/pl. These resources include, but are not limited to, a PowerPoint presentation, classroom examples, intervention grid, implementation checklist, and a variety of student and adult forms. The intent here is not to repeat the practitioner-friendly implementation steps appearing in their article and website, but rather to illustrate using two of their steps not addressed previously that high-*p* request sequences may not be as low-intensity as they are portrayed in both the practitioner and research literature, and to offer a novel, but perhaps more effective alternative.

6.1 Caveats of Operationally Defining Behavior

The first step Bross et al. (2018) provided was for teachers to identify and operationally define the target behavior for which consistent compliance is desired. However, it is not an easy task to teach teachers how to objectively (versus subjectively) operationally define a target behavior and, once learned, even more difficult for them to engage in that practice consistently (Maag, 2018). The literature is replete with examples of the difficulties teachers have operationally defining behavior whether it is writing objective IEP goals for behavior, participating in the FBA process, or writing behavior intervention plans (e.g., Blood & Neel, 2007; Burstein, Sears, Wilcoxen, Cabello, & Spagna, 2004; Rowland, Quinn, & Steiner, 2015).

Maag (2018) described some additional problems teachers have that makes it difficult for them effectively operationally define a behavior using objective terms. First, teachers confuse cognitive states and overt behaviors. For example, a teacher who gives the direction, “Read your book,” has no idea if the student is engaging in that cognitive activity unless the direction was to read aloud. Another example would be a teacher who gives the direction, “Pay attention” because, like reading, attention is a cognitive state. Another problem is when teachers give a direction for a final product instead of the behavior required to accomplish it. For example, a teacher who gives the direction “Complete your math assignment,” is one without any operationally defined behavior. The correct direction would be “Write all the answers on your math worksheet.” That direction contains the specific objective behavior “write” with the final product being a “completed” worksheet. The last mistake teachers make is thinking “on-task” and “off-task” are behaviors when they actually refer to one’s status (e.g., at the beach, on an airplane, in a movie theater). Here is a typical example of answers teachers give when asked what is the student’s problem. “Not following direction.” The mistake here is that behavior is what we do not what we do not do. The next question can then be asked why is the student not following directions and a teacher may respond “Because he doesn’t pay attention,” which is a cognitive state as discussed previously. A follow up question can be how the teacher knows the student is not paying attention and a common answer is “Because he’s off-task.” The circularity of this example could go on ad nauseam. The point is that it is not easy for teachers to use overt, objective words consistently to describe behavior—perhaps because it is much less work than using subjective terms such as simply saying “off-task” or that the student is being “oppositional.”

Another aspect of any intervention—low intensity or not—is for teachers to collect at least rudimentary data which typically takes the form of frequency counts. Any behavior for which frequency tallies are made should be operationally defined with a movement cycle (i.e., specific beginning and ending). For example, hand raising would seem to be a simple behavior to operationally define with a movement cycle: The behavior begins when the student’s hand goes over her head and ends when it comes down below her chin. But what if the student raises and lowers her hand in rapid succession? It would lead to misleading data. Or, what if another student is called on, would the movement cycle continue if the target student still had her hand raised, or would the movement cycle end after the peer was initially acknowledged? What if the student kept her hand in the air for an inordinately amount of time until the teacher demand that she lower it? Another example can be given for increasing the speed with which a student follows directions. The movement cycle begins when the teacher says the last word of the direction and ends when the student begins the behavior specified in the direction. But what if the student never begins the behavior specified in the direction or takes an extraordinary amount of time to comply? A ceiling would need to be established in which that direction sequence is stopped. What if the teacher repeats the direction multiple times? Does the movement cycle begin when the teacher says the last word the first time the direction is given or the last word from the last time the same direction is given? Those two latencies would be very different. The point is that it is fairly easy to operationally define when a movement cycle begins but that there could be multiple components that encompass the end of a movement cycle that

teachers may not consider.

6.2 High-Intensity Reinforcement Within a Low-Intensity Intervention

As illustrated previously, the first step in implementing high-*p* request sequences, operationally defining the target behavior, is more difficult than it may first appear. Implementation step 6 that Bross et al. (2018) described is praising the student for engaging in the low-*p* behavior. One of the teaching tips they provided for this step was to consider that reinforcement is individual-specific—which is curious because not all students find verbal praise positively reinforcing as stated (i.e., praise) at the beginning of their step 6. Nevertheless, one of the other types of reinforcement they suggested is using a token economy system. Technically, a token economy is not a "different" type of reinforcement. Rather, it is one of several techniques for delivering positive reinforcement. Nevertheless, token economies are very difficult to develop and implement and require a fairly good grasp of principles of applied behavior analysis and would rarely be used for only one behavior because the cost-benefit ratio would be so small (Maag, 2018). In fact, entire books have been written solely on this topic. Probably the most seminal book on this procedure is *The Token Economy* (Kazdin, 1977) which is over 300 pages long with the first edition being published over 40 years ago. Here is the irony: A purportedly low-intensity technique (i.e., high-*p* request sequences) has embedded in it an extremely high-intensity reinforcement delivery system (i.e., token economy). Of course, there are simpler ways positive reinforcement can be delivered (e.g., chart moves) but the point is that suggesting the use of a token economy would not be one of them.

7. Embedding Instructions as a Peculiar Alternative

The purpose of using high-*p* request sequences is to build compliance momentum. The idea is that the probability of a student following a direction increases when the direction contains a behavior a student wants to perform. However, there is still a chance a student does not want to engage in the behavior specified in the high-*p* direction—there is only a "high probability," but no guarantee. One reason may be that a student has satiated on what was a previously effective high-*p* behavior. Another reason is simply because students' reinforcement preferences change depending on a myriad of variables. For example, the request "line up for recess" may not have been a high-*p* request for a certain student because he did not have any peers to socialize with or the games peers were playing were not to his liking. However, he may have the chance to work with a peer in class and strike up a friendship and now at recess he has someone with whom to socialize. Consequently, the direction to "line for recess" becomes a high-*p* request because it carries with it previously unavailable reinforcement.

The main point is that just because a request contains a high-*p* behavior does not always mean it will be displayed for a variety of reasons. However, there is a technique that would guarantee the first request would always be followed by the student, no exceptions, 100% compliance. The approach is called embedding instructions (Maag, 2001). It is little known or used by educators because it is based on a psychotherapy paradigm called strategic therapy. It is a type of therapy in which a therapist initiates what happens during a session and designs a particular approach for each problem based on the client's displayed verbal and nonverbal behavior (Haley, 2004). It is important to note, before describing the technique and its implementation, that embedding instructions is not currently considered an evidence-based practice (EBP)—certainly not in education. This fact does not apply to high-*p* request sequences because a large body of literature and meta-analyses have demonstrated it to be evidence based, but in some ways not especially practitioner friendly. However, Cook and Cook (2011) pointed out that just because a practice is evidence-based does not mean it will work for everyone and EBPs are not the only consideration in intervention decision-making. They also stated that EBPs should not take precedence over practical wisdom and common sense when making intervention decisions. Further, embedding instructions does have some similarities with high-*p* request sequences.

The way that the technique of embedding instructions guarantees the first request will always be followed is because is directs the student to continue doing whatever behavior she is currently displaying. Embedding involves interspersing (or "inserting") a new direction for the low-*p* behavior the student is not already performing in between directions for the student to do what she is already doing. For example, a teacher wants a student named Mary to open her math book to page 18 (i.e., low-*p* behavior). Currently, Mary is engaged in two behaviors that she finds enjoyable but that are inappropriate and distracting: shuffling her papers and talking to her classmate, Levi (i.e., high-*p* behavior). Her teacher would then say, "Mary, I'd like you to shuffle your papers while you open your math book to page 18 and talk to Levi." Mary is more likely to comply with this request because it does not require her to give up the behaviors she is currently performing and finds enjoyable. Although she may not like opening her book, the direction seems less objectionable when it is part of a sequence that includes continuing to do behaviors she enjoys.

Embedding instructions in this way also makes noncompliance more difficult. Even if Mary ignores the new instruction (to open her book) and continues to do what she had been doing all along (shuffling papers and talking to Levi) after receiving the embedded instructions, she will end up being partially compliant because she will be doing two of the three things that were asked of her and now the behavior is under the teacher's control. Further, there now is some measure of compliance momentum upon which the teacher can build. Additionally, the teacher's statement sounds like one direction, but in reality it is three separate directions strung together. Mary would have to micro-analyze which parts of the direction she is and is not going to follow which takes more cognitive effort and, in turn, is a deterrent to student resistance (Maag, 2014). Embedding also has a paradoxical component. For example, Mary may think the teacher is trying to manipulate her and responds by saying "You are trying to trick me and it won't work." The paradoxical aspect is that in order for Mary to respond in such a way requires her to stop shuffling her papers and talking to Levi and is now making eye contact with the teacher.

8. Conclusion

High-*p* request sequences are designed to build behavioral momentum. The idea is that once compliance is obtained for several high-*p* directions that momentum will carry over to a low-*p* direction. Two recent meta-analyses have concluded that high-*p* request sequences are an effective method for improving student compliance (Common et al., 2019; Maag, 2019). High-*p* request sequences have also been proffered as being a low-intensity intervention that is easy for teachers to learn and implement to build behavioral momentum. However, the level of intervention intensity (versus purported low-intensity) depends on the type of approach used. Certainly, a high-*p* task sequence is easy: A teacher can have a worksheet with five one-digit multiplication problems followed by three two-digit multiplication problems and give the instruction, "write the answers to the problems on the worksheet." The interspersal technique is also easy. The teacher would take the worksheet and spread two-digit and three-digit multiplication problems throughout the page. However, high-*p* "request" (i.e., giving sequentially different high probability directions) sequences require a greater teacher skill level. The caveats and considerations teachers must address to successfully implement this intervention were addressed in this article and recommendations provided to improve the request sequences.

Embedding instructions was presented as a viable, similar alternative to the high-*p* request sequence intervention. The common component with both approaches is to build behavioral momentum for students to comply with directions that contain behavior they otherwise would find objectionable. They are different in that high-*p* request sequences require a student to engage in a behavior not previously displayed whereas embedding instructions generates immediately compliance by directing students to engage in the behavior currently being displayed, thereby potentially having a higher level of success. However, an important ethical consideration when using the embedding instruction technique is that it would always be counterindicated to direct students to continue engaging in behaviors that are dangerous to self or others, severely compromise the integrity of an instructional lesson, or in other ways destructive. In those instances, using high-*p* request sequences would be more appropriate evidence-based approach, although not as low an intensity intervention as previously portrayed.

References

Banda, D. R., & Kubina, R. M. Jr. (2006). The effects of a high-probability request sequencing technique in enhancing transition behaviors. *Education and Treatment of Children*, *29*, 507–516.

Banda, D. R., Neisworth, J. T., & Lee, D. (2003). High-probability request sequences and young children: Enhancing compliance. *Child and Family Behavior Therapy*, *25*, 17–29. https://doi.org/10.1300/J019v25n02_02

Blood, E., & Neel, R. S. (2007). From FBA to implementation: A look at what is actually-being delivered. *Education and Treatment of Children*, *30*(4), 67–80. https://doi.org/10.1353/etc.2007.0021

Bross, L. A., Common, E. A., Oakes, W. P., Lane, K. L., Menzies, H. M., & Parks, E. R. (2018). High-probability request sequence: An effective, efficient low-intensity strategy to support student success. *Beyond Behavior*, *27*, 140–145. https://doi.org/10.1177/1074295618798615

Burstein, N., Sears, S., Wilcoxen, A., Cabello, B., & Spagna, M. (2004). Moving toward inclusive practices. *Remedial and Special Education*, *25*, 104–116. https://doi.org/10.1177/07419325040250020501

Common, E. A., Bross, L. A., Oakes, W. P., Cantwell, E. D., Lane, K. L., & Germer, K. A. (2019). Systematic review of high probability requests in K–12 settings: Examining the evidence base. *Behavioral Disorders*, *45*, 3–21. https://doi.org/10.1177/0198742918800029

Cook, B. G., & Cook, S. C. (2011). Unraveling evidence-based practices in special education. *The Journal of*

Special Education, *47*, 71–82. https://doi.org/10.1177/0022466911420877

Ewry, D. M., & Fryling, M. J. (2016). Evaluating the high-probability instructional sequence to increase the acceptance of foods with an adolescent with autism. *Behavior Analysis Practice*, *9*, 380–383. https://doi.org/10.1007/s40617-015-0098-4

Fisher, W. W., Greer, B. D., Craig, A. R., Retzlaff, B. J., Fuhrman, A. M., Lichtblau, K. R., & Saini, V. (2018). On the predictive validity of behavioral momentum theory for mitigating resurgence of problem behavior. *Journal of the Experimental Analysis of Behavior*, *109*, 281–290. https://doi.org/10.1002/jeab.303

Haley, J. (2004). *The art of strategic therapy*. New York, NY: Routledge. https://doi.org/10.4324/9780203008881

Homme, L. E., DeBaca, P. C., Devine, J. V., Steinhorst, R., & Rickert, E. J. (1963). Use of the Premack principle in controlling the behavior of nursery school children. *Journal of the Experimental Analysis of Behavior*, *6*, 544. https://doi.org/10.1901/jeab.1963.6-544

Hutchinson, J. M., & Belfiore, P. J. (1998). Adding a sequence of high-preference mathematics problems to increase low-preference mathematics problems performance. *Proven Practice*, *1*, 12–16.

Institute of Education Sciences. (2014). *Practitioner perspectives on emerging research needs and improving relevance in education research—Technical working group summary*. Retrieved from https://ies.ed.gov/ncer/whatsnew/techworkinggroup/pdf/PractitionerTWG.pdf

Kazdin, A. E. (1977). *The token economy: A review and evaluation* (1st ed.). New York, NY: Plenum. https://doi.org/10.1007/978-1-4613-4121-5_8

Killeen, P. R., & Nevin, J. A. (2018). The basis of behavioral momentum in the nonlinearity of strength. *Journal of the Experimental Analysis of Behavior*, *109*, 4–32. https://doi.org/10.1002/jeab.304

Killu, K., Sainato, D. M., Davis, C. A., Ospelt, H., & Paul, J. N. (1998). Effects of high-probability request sequences on preschoolers' compliance and disruptive behavior. *Journal of Behavioral Education*, *8*, 347–368. https://doi.org/10.1023/A:1022875331474

Maag, J. W. (2001). *Powerful struggles: Managing resistance, building rapport*. Longmont, CO: Sopris West.

Maag, J. W. (2014). *Challenging classroom behaviors: Overcoming resistance through uniquely audacious interventions*. Port Chester, NY: Dude.

Maag, J. W. (2018). *Behavior management: From theoretical implications to practical applications* (3rd ed.). Boston MA: Cengage Learning.

Maag, J. W. (2019). A meta-analysis and quality of high probability request sequence studies for improving youth compliance and persistence. *Journal of Psychology and Behavioral Science*, *7*, 17–30. https://doi.org/10.15640/jpbs.v7n1a3

Mace, F. C., Hock, M. L., Lalli, J. S., West, B. J., Belfiore, P., Pinter, E., & Brown, D. K. (1988). Behavioral momentum in the treatment of noncompliance. *Journal of Applied Behavior Analysis*, *21*, 123–141. https://doi.org/10.1901/jaba.1988.21-123

Mace, F. C., & Nevin, J. A. (2017). Maintenance, generalization, and treatment relapse: A behavioral momentum analysis. *Education and Treatment of Children*, *40*, 27–42. https://doi.org/10.1353/etc.2017.0001

Mooney, P., & Ryan, J. B. (2018). Supporting professionals in becoming skilled classroom managers of behavior. *Beyond Behavior*, *27*, 127. https://doi.org/10.1177/1074295618804525

Nevin, J. A. (1996). The momentum of compliance. *Journal of Applied Behavior Analysis*, *29*, 535–547. https://doi.org/10.1901/jaba.1996.29-535

Premack, D. (1959). Toward empirical behavior laws: I. Positive reinforcement. *Psychological Review*, *66*, 219–233. https://doi.org/10.1037/h0040891

Romano, J. P., & Roll, D. (2000). Expanding the utility of behavioral momentum for youth with developmental disabilities. *Behavioral Interventions*, *15*, 99–111. https://doi.org/10.1002/(SICI)1099-078X(200004/06)15:2<99::AID-BIN48>3.0.CO;2-K

Rortvedt, A. K., & Miltenberger, R. G. (1994). Analysis of a high-probability instructional sequence and time-out in the treatment of child noncompliance. *Journal of Applied Behavior Analysis*, *27*, 327–330. https://doi.org/10.1901/jaba.1994.27-327

Rowland, C. M., Quinn, E. D., & Steiner, S. A. M. (2015). Beyond legal: Crafting high-quality IEPs for children with complex communication needs. *Communication Disorders Quarterly*, *37*, 53–62. https://doi.org/10.1177/1525740114551632

Shogren, K. A., Wehmeyer, M. L., & Lane, K. L. (2016). Embedding interventions to promote self-determination within multitiered systems of supports. *Exceptionality*, *24*, 213–224. https://doi.org/10.1080/09362835.2015.1064421

Simonsen, B., Sugai, G., & Negron, M. (2008). Schoolwide positive behavior support: Primary systems and practices. *Teaching Exceptional Children*, *40*(6), 32–40. https://doi.org/10.1177/004005990804000604

Singer, G. H. S., Singer, J., & Horner, R. H. (1987). Using pretask requests to increase the probability of compliance for students with severe disabilities. *Journal of the Association for Persons with Severe Handicaps*, *12*, 287–291. https://doi.org/10.1177/154079698701200405

Wehby, J. H., & Hollahan, M. S. (2000). Effects of high-probability requests on the latency to initiate academic tasks. *Journal of Applied Behavior Analysis*, *33*, 259–262. https://doi.org/10.1901/jaba.2000.33-259

Whitney, T., Longo, A. S., Cooper, J., & Karp, K. (2017). Effects of shared story reading in mathematics for students with academic difficulty and challenging behaviors. *Remedial and Special Education*, *38*, 284–296. https://doi.org/10.1177/0741932517698964