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# Self-Regulation Assessment Based on Compliance and Noncompliance in Children

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REVIEW ARTICLE

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**Abstract**

In this paper, I reflect on the information that compliance and noncompliance behaviors provide about self-regulation development in children. I argue that these behaviors show differences in self-regulation, depending on the level of independence of the children, their motivation, and the emotional activation they express when disobeying. I further suggest methodologies to assess each of these factors. Specifically, I propose to differentiate several types of compliance and noncompliance behaviors, record children's behavior and type of parental control simultaneously, and analyze children's behavior in response to legitimate and illegitimate demands. These distinctions are important for a more thorough and accurate approach to studying self-regulation in children.

*Keywords:* compliance, noncompliance, self-regulation, children, measurement.

***Valoración de la Autorregulación con base en el Cumplimiento y el Incumplimiento en los Niños*****Resumen**

En este trabajo llevo a cabo una reflexión acerca de la información que los comportamientos de cumplimiento e incumplimiento nos brindan acerca del desarrollo de la autorregulación en los niños. Sostengo que las diferencias que estos comportamientos revelan en cuanto a la autorregulación dependen del nivel de autonomía de los niños, su motivación y la activación emocional que demuestran cuando desobedecen. Sugiero también algunas metodologías para valorar cada uno de estos factores. Específicamente, propongo diferenciar entre los distintos tipos de cumplimiento e incumplimiento, registrar de manera simultánea el comportamiento de los niños y el tipo de control ejercido por los padres y analizar el comportamiento con el que responden los niños a exigencias legítimas e ilegítimas. Estas distinciones son importantes para un abordaje más completo y preciso del estudio de la autorregulación en los niños.

*Palabras clave:* cumplimiento, incumplimiento, autorregulación, niños, medición.

***Avaliação da Autorregulação com base no Cumprimento e no Incumprimento em Crianças*****Resumo**

Neste trabalho, realizo uma reflexão sobre a informação que os comportamentos de cumprimento e incumprimento nos oferecem acerca do desenvolvimento da autorregulação em crianças. Sustento que as diferenças que esses comportamentos revelam quanto à autorregulação dependem do nível de autonomia das crianças, sua motivação e a ativação emocional que demonstram quando desobedecem. Sugiro também algumas metodologias para avaliar cada um desses fatores. Em específico, proponho diferenciar entre os tipos de cumprimento e incumprimento, registrar de maneira simultânea o comportamento das crianças e o tipo de controle exercido pelos pais, além de analisar o comportamento com o qual respondem as crianças a exigências legítimas e ilegítimas. Essas diferenciações são importantes para uma abordagem mais completa e precisa do estudo da autorregulação em crianças.

*Palavras-chave:* autorregulação, crianças, cumprimento, incumprimento, medição.

SELF-REGULATION CAN be defined as the voluntary modulation of behavior in circumstances in which there is a discrepancy between what individuals tend to do and what they need to do to adjust to their social context (Heikamp, Trommsdorff, & Fäsche, 2013; Lunkenheimer, Kemp, Lucas-Thompson, Cole, & Albrecht, 2016). Self-regulation depends on three components: (a) the comprehension of social standards to which the individual is expected to adjust his behavior, (b) the individual's motivation to behave according to those standards, and (c) the capacity to behave accordingly (Heikamp et al., 2013; Hofmann, Schmeichel, & Baddeley, 2012).

The development of self-regulation is of great importance because of its potential consequences with regard to individuals' wellbeing and socioeconomic inclusion. For example, self-regulation has been associated with better academic performance, better social competence, and higher income in adulthood (Allan, Hume, Allan, Farrington, & Lonigan, 2014; Mischel et al., 2011; Moffitt et al., 2011; Raver, Blackburn, Bancroft, & Torp, 1999; Skibbe, Phillips, Day, Brophy-Herb, & Connor, 2012). It has also been associated with a lower risk of externalizing behavioral problems, drug consumption, criminal behavior, and school dropout (Eiden, Edwards, & Leonard, 2007; Mischel et al., 2011; Moffitt et al., 2012; Webster-Stratton, Reid, & Stoolmiller, 2008). Considering that self-regulation develops at a relatively high rate during the first 5 years of life compared to other periods (Best & Miller, 2010; Montroy, Bowles, Skibbe, McClelland, & Morrison, 2016; Kochanska, Coy, & Murray, 2001), multiple studies of self-regulation development have focused on early childhood.

To study self-regulation development, appropriate assessment methods are needed. Some developmental psychologists have stated that compliance is a prototypic form of self-regulation (Keller et al., 2004; Kochanska et al., 2001). Several authors have used compliance and noncompliance to study self-regulation development (e.g., Bentley, 2012; Dennis, 2006; Denham, Warren-Khot, Bassett, Wyatt, &

Perna, 2012; Elias & Berk, 2002; Karreman, van Tuijl, van Aken, & Deković, 2006; Keller et al., 2004; Kim & Kochanska, 2012; Kochanska et al., 2001). However, as discussed in this paper, not all compliance behaviors reflect the same levels of self-regulation, and not all noncompliance behaviors involve their absence. Unfortunately, this distinction is not currently considered in the methodologies that evaluate compliance and noncompliance to assess self-regulation. The goal of this paper is to reflect on the implications that compliance and noncompliance have in terms of self-regulation in children. I also present some methodological considerations to achieve a more valid approach to study self-regulation development. Below I will define the concepts of compliance and noncompliance and their different types. Then I will analyze the factors that need to be considered to interpret compliance and noncompliance behaviors as proxies of self-regulation. The proposed approach will allow the determination of factors that need to be included in these methodologies to study self-regulation in children.

### **Compliance and Self-Regulation**

Compliance is defined as the change of behavior in response to a demand that is made by an authority figure (Forman, 2007; Kassin, Fein, & Markus, 2011). For children, these authority figures are initially their parents, caregivers, and teachers. Some authors have stated that compliance is a prototypical form of self-regulation in children (Keller et al., 2004; Kochanska et al., 2001). This is because children must modulate their behavior to appropriately adjust it to the demands of their caregivers; in several instances, however, those demands conflict with what the children prefer or are inclined to do (Kopp, 1982). For example, when parents ask a child not to touch another child's toy or to organize some toys, the child may prefer to continue playing rather than obeying the parents.

### **Types of Compliance**

Compliance can be differentiated according to the degree of external control and the motivation

of children when they obey. Some developmental psychologists classify compliance into two types: situational compliance and committed compliance. Situational compliance refers to episodes when children cooperate and follow their caregivers' instructions, but this is contingent on external control. That is, an adult needs to supervise the child and prompt the child to obey. Committed compliance refers to compliance behaviors characterized by high motivation. Although committed compliance is shown in the presence of the caregiver, the child does not need to be continuously encouraged to comply (Kochanska et al., 2001; Kochanska, Tjebkes, & Fortnan, 1998).

Internalization occurs when children follow their caregivers' instructions in their absence (Harden, Duncan, Morrison, Panlilio, & Clyman, 2015; Kochanska et al., 2001; Kochanska & Kim, 2013; Spinrad et al., 2012). Several authors have proposed that internalization reflects the ability of the child to recognize societal values that are transmitted through parental expectations. Thus, the children's behavior is guided by comprehending and internalizing what is socially expected and not by the anticipation of external consequences (Forman, 2007; Grusec, 2015; Grusec & Goodnow, 1994; Ryan, Deci, GroInick, & La Guardia, 2006).

Social psychology has also made contributions to the study of compliance, thus complementing our understanding of this phenomenon. For example, some authors have classified compliance as obedience to authority and obedience to power. The former refers to behaviors that comply with a leader's demands because of that leader's legitimacy. This means that compliance is based on social status, trust placed in that person's authority, and identification with the values of that person. Obedience to power refers to compliance that is motivated by fear of repercussions and potential punishment that is imposed by the leader (Morselli & Passini, 2011). Thus, obedience to power is understood as a surrender to external control, whereas obedience to authority is based on an intrinsic motivation (Morselli & Passini, 2011).

These concepts from social psychology can be applied to child obedience when looking at parental control, in which the parents' behaviors are directed toward influencing the child's behavior (Kalb & Loeber, 2003). Parental control has been classified in several ways (e.g., Baumrind, 1966; Maccoby & Martin, 1983). One classification that has been frequently used—and guided the reflections that are discussed in the present paper—is the distinction between positive and negative parental control (Bugental & Grusec, 2006; Karreman et al., 2006). Positive control is characterized by directive behaviors that are accompanied by clear efforts to motivate and guide children's behavior. Parents also try to establish clear and consistent norms of behavior, explain the reasons for their demands, and establish a warm relationship with their children. Negative control is characterized by negative parental emotions that are expressed as anger and negative criticism, as well as excessive control and, generally, physical control (Bugental & Grusec, 2006; Karreman et al., 2006).

Positive control promotes the ability of children to internalize norms and parental values by explaining the reasons for their parents' demands, thus generating greater confidence between parents and children (Kalb & Loeber, 2003). In contrast, when parents employ negative control, they make it more difficult for the child to internalize parental values, and their behavior will be guided by external control and the motivation to avoid punishment. This is supported by evidence showing that negative control is positively associated with situational compliance, whereas positive control is positively associated with committed compliance and internalization (Bryce & Jahromi, 2013; Kim & Kochanska, 2012; Kochanska, 1995; Kochanska & Aksan, 1995; Kochanska & Kim, 2013).

Figure 1 compares the different types of compliance that are presented here. They can be classified into two categories: (a) compliance that depends on external control and (b) compliance that is motivated by the internalization of norms or social values. Category (a) includes obedience to power

and situational compliance. The difference between these two types of compliance is that the motivation for obedience to power is to avoid punishment, while situational compliance depends on continuous instigation by the caregiver and does not necessarily rest on the possible threat of punishment.

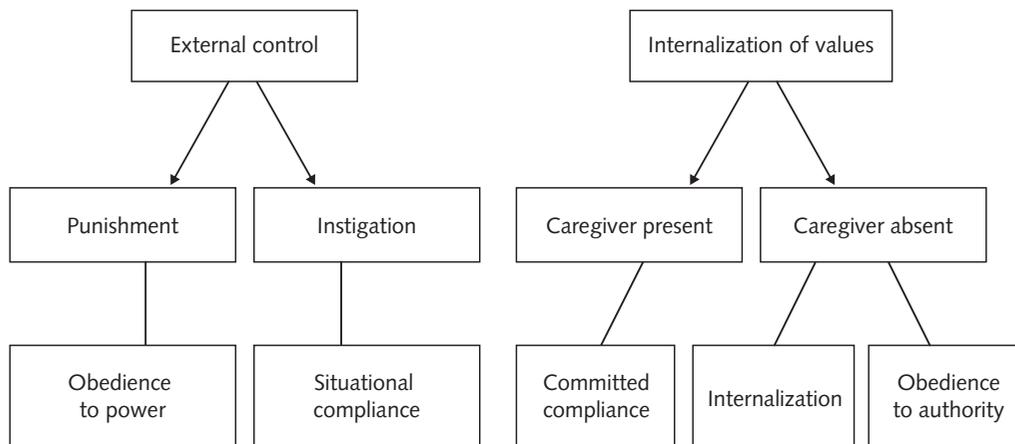
The types of compliance in category (b) are guided by the internalization of norms or social values. Committed compliance, internalization, and obedience to authority are in this group. Committed compliance requires less external control than situational compliance, so it has been suggested that it is an early form of internalization (Kochanska et al., 2001). However, committed compliance is observed in the presence of the caregiver. Although the child does not need continuous encouragement from the caregiver, this does not necessarily mean that when the caregiver is absent, the child will continue obeying. Obeying in the absence of the caregiver is described by the concepts of internalization and obedience to authority because they both suppose that adhering to demands is attributable to internalization of the authority figure's values.

In summary, different types of compliance reflect the capacity to obey with distinct levels of independence and different motivations. Both aspects provide valuable information about

self-regulation development, thus providing insights into the types of factors that should be considered to assess it. I will elaborate on both of these aspects below.

**Compliance Independence and Self-Regulation Assessment**

Several authors have proposed that self-regulation development progresses from a behavior that is co-regulated or regulated by caregivers to a behavior that is regulated independently and in the absence of caregivers (Calkins & Hill 2007; Kochanska et al., 2001; Kopp, 1982 Lunkenheimer et al., 2016; Montroy et al., 2016). This process was described by Vygotsky (1996) in his “general genetic law of cultural development”. This law states that the higher psychological functions, including attention regulation, memory, thinking, and volition, develop from a social plane to an individual plane. This means that they appear first through social or shared activities with others, but then these functions are internalized and become private. It would be at this stage that children master these functions independently. Thus, children present greater self-regulation if they follow a demand without continuous control by their caregiver, even more so if they can do it when the caregiver is not with them



**Figure 1.** Classification of proposed types of obedience in developmental psychology and social psychology.

The concepts of situational compliance, committed compliance, and internalization may provide valuable information about this trajectory. Accordingly, committed compliance exhibits greater self-regulation than situational compliance, and internalization exhibits greater self-regulation than committed compliance, because these reflect increasingly higher levels of independence of the child. This developmental trajectory is supported by two facts. First, situational compliance is expressed earlier in life than committed compliance, and the latter predicts internalization (Kochanska et al., 2001). Second, young children that show committed compliance do so especially in less difficult tasks, such as inhibiting a response (e.g., when they are asked to not touch a toy); in contrast, they display situational compliance at higher rates than committed compliance in more difficult tasks, such as performing a response (e.g., when they are asked to organize some toys; Kochanska et al., 2001; Kochanska et al., 1998). Thus, because of the challenges that committed compliance implies, it can be primarily demonstrated in tasks that require few regulatory demands. Situational compliance does not require higher levels of self-regulation; it can, therefore, be observed even in the most demanding circumstances.

Conforming to paternal instructions in the absence of supervision (i.e., internalization) may impose higher regulatory demands than doing so in the presence of supervision. When supervision is absent, signs of immediate punishments are reduced, which can increase the tendency to carry out the preferred behavior and thus disobey. A study of 47 preschool foster children found that 72.3% showed committed compliance when they had to organize toys, but only 36.2% showed internalization when they had to inhibit the response of touching toys (Harden et al., 2015). These results may indicate that internalization is more difficult than committed compliance. This is more compelling, considering that inhibiting a response is less demanding than performing a response (Kochanska et al., 2001). Nonetheless,

few children inhibited a response in the absence of their caregiver.

These considerations may have implications for evaluating self-regulation development based on the children's obedience. A researcher who seeks to assess self-regulation based on obedience behaviors may benefit from assessing the following: situational compliance, committed compliance, and internalization. However, not all researchers who are interested in studying self-regulation development make differentiations among these facets in the methodologies they use. Some only observe whether the child obeys or disobeys (e.g., Bentley, 2012; Denham et al., 2012; Elias & Berk, 2002; Keller et al., 2004), and others differentiate some of these types of compliance but do not assess compliance behaviors in the absence of adult supervision (internalization; e.g., Spinrad et al., 2012).

There are coding systems that can be used to differentiate these behaviors. The most recognized coding system was developed by Kochanska (1999), and has been utilized in several studies (e.g., Braungart-Rieker, Garwood, & Stifter, 1997; Harden et al., 2015; Kochanska et al., 2001; Kochanska & Kim, 2013; Kok et al., 2012; Wachs, Gurkas, & Kontos, 2004). This system was originally used in the laboratory. The caregiver asks the child to perform an action (e.g., organize some toys) or inhibit a response (e.g., do not touch a toy; Kochanska et al., 2001). The child's behavior is then observed for periods of 30 seconds and classified as situational or committed compliance. A situational compliance behavior is codified when the child does what the caregiver asks him or her, but the child seems uninterested in performing the action. Furthermore, without the control of the caregiver, the child becomes distracted or performs a different action than the one that was requested. Situational compliance is also codified when the child stops doing an action if instructed to, but only if the caregiver constantly intervenes and reminds the child about the instructions, and when the time intervals of the child's attempts to perform

the forbidden action are short (Kochanska et al., 2001; Wachs et al., 2004). Committed compliance is codified when the child performs the action in a motivated manner or inhibits the requested action without the caregiver's intervention. For example, the child eagerly picks up some toys, moves autonomously to pick up different toys, observes a forbidden toy that he has been instructed not to touch and spontaneously turns away from it, or verbalizes the rule. Finally, a behavior is classified as internalization if after hearing the demand and the child is left alone for some minutes, the child follows the caregiver's instructions (Kochanska et al., 2001).

Wachs et al. (2004) adapted the situational and committed compliance coding system to a more ecological context (i.e., the classroom). Authors performed naturalistic observations, so they codified children's behavior as it occurred naturally in the classroom, without any intervention. They observed this behavior in two moments of the day, during cleanup time (when children had to organize the toys they had been playing with) and during pedagogical activities carried out with the whole group. Situational compliance was codified when the child obeyed, but this obedience relied on the teacher's control, or the child did not perform the action in a motivated way. For example, the child may begin to organize some toys but soon stops, or he/she participates in a group activity but occasionally becomes distracted or starts engaging in a different action (e.g., talking with friends). Committed compliance was codified when the child obeyed for most of the 30-second time segment (i.e.,  $\geq 25$  seconds), without any additional directive. For example, when the teacher gives instructions and the child looks at her attentively. Another example is when the child participates in a reading activity and answers the teacher's questions or when the child picks up one group of toys and continues picking up another group of toys without further instructions from the teacher (Wachs & Gurkas, *s.f.*; Wachs et al., 2004).

### **Compliance Motivation and Self-Regulation Assessment**

In addition to independence from external control, another aspect that is fundamental to understanding self-regulation development is the children's motivation when they obey. As mentioned above, the first two steps for children to self-regulate are understanding the social standards to which they must adjust their behavior and having the motivation to meet those standards (Hoffman et al., 2012). The social psychology concepts of obedience to power and obedience to authority emphasize the individuals' motivation when they comply. This occurs when they do it to avoid punishment or because they have internalized the authority figure's values. If a child's motivation to obey reflects a desire to avoid punishment, then this can cause the child to stop performing the regulated behavior as soon as the caregiver is absent. In contrast, when the child's motivation is based on the internalization of parental values, the child is expected to express the regulated behavior under various circumstances, even in the absence of the caregiver.

Although not studied in depth, compulsive compliance is a clear example of why it is important to know the motivation behind compliance. This concept is similar to obedience to power, which has been used to describe behavior in physically abused children. These children are very attentive to parental demands, respond very quickly, and return to a state of alertness so they can minimize negative interactions with their caregivers (Crittenden & DiLalla, 1988). Because this type of obedience is based on fear, it is unlikely that it may evolve to internalization (Forman, 2007; Koenig, Cicchetti, & Rogosch, 2000; Ryan, Deci, & Grolnick, 1995). In this case, it is important to know the child's motivation to obey; otherwise, this behavior may be confused with committed compliance, which can result in very different conclusions about self-regulation development in these children.

For these reasons, it is important to analyze not just the degree of independence of the children when they obey but also the motivation that guides this behavior. Situational compliance, committed compliance, and internalization inform about the degree of independence of the children when they obey and may provide information about their motivation. Committed compliance and internalization present a higher level of internalization of parental values (Kochanska et al., 2001). However, to obtain more evidence of the children's motivation to obey (e.g., to avoid punishment or to follow internalized values), it may be necessary to codify not only the children's behavior, but also the parents' behavior. Thus, if the children show situational or committed compliance and their parents apply negative control, then one may infer that the children's motivation to obey is guided by the avoidance of punishment (obedience to power). However, if the children's behavior is categorized as committed compliance and their parents display positive control, then this may demonstrate that their behavior is guided by the internalization of their parents' values. Finally, if the children obey in the absence of their caregiver, then this may indicate that the children's motivation is based on identification with their parents' values.

Some authors have used methodologies to analyze the behavior of dyads when studying compliance and self-regulation in children. One example is the study by Lunkenheimer et al. (2016). They asked a group of children to put together a puzzle in a restricted period of time with their mother's help. The researchers codified the mother's behavior in real time in nine categories, including teaching, directive, positive reinforcement, emotional support, and negative discipline, among others. The children's behaviors were codified in seven categories, including compliance, non-compliance, persistence, and tantrums, among others. Finally, the authors constructed a 9x7 matrix, resulting in 63 possible descriptions of the mothers' and children's behaviors (e.g., when the mother was directive while the child was obeying).

Zaidman-Zait, Marshall, Young, and Hertzman (2014) employed a similar methodology using a situation in which the children had to organize toys. In this study, the authors codified the mothers' and children's behaviors during 5-second time segments. The mothers' behaviors were classified into six categories (e.g., negotiating, encouraging, acknowledgment, etc.), and the children's behaviors were classified into five categories (e.g., rejecting collaboration, engaging in clean up, observing the mother's actions, etc.). They also categorized the dyad's behavior by crossing the mother's and child's behaviors in a matrix.

Therefore, to obtain more complete information about the children's motivation when obeying and their levels of self-regulation, a similar approach to that applied in these studies can be employed. Researchers can codify in specific segments of time (e.g., 30 seconds) the children's behavior as situational compliance, committed compliance, and internalization, and parental behavior can be codified as positive or negative control. This would result in a 3x2 matrix for a total of six categories (Table 1). If the child obeys in the absence of the caregiver, then this may be strong evidence of high levels of self-regulation. If the child shows committed compliance only in the presence of a caregiver, and the latter demonstrates positive control, this can show us moderated levels of self-regulation. If the parents present positive control and the child presents situational compliance, then this may suggest low levels of self-regulation. Finally, if the child's behavior is classified as situational or committed compliance and the parents present negative control, then this would suggest compliance that is motivated by fear and, therefore, low levels of self-regulation. Table 1 presents this matrix, including different levels of self-regulation and operational definitions of each of the categories mentioned above. The definitions of the types of compliance are based on the work of Kochanska et al. (2001) and Wachs et al. (2004). The definitions of the types of parental control are based on Karreman et al. (2006).

**Table 1**  
*Self-Regulation Matrix by Types of Compliance and Types of Parental Control*

| Type of compliance   | Type of control  |   |
|--|--|---|
|  | <b>Positive control:</b> The caregiver establishes limits, makes clear efforts to motivate and guide the child's behavior, clarifies and explains the reasons for behavioral rules, and is warm, aware, and responsive to the child's needs. | <b>Negative control:</b> The caregiver engages in coercive behaviors, is hostile and critical with the child, is excessively controlling or intrusive, and uses physical control. |
| <b>Situational compliance:</b> The child does what the caregiver asks him/her to do but seems uninterested in doing the action. Without the control of the caregiver, the child becomes distracted or does a different action than the one that was requested. If the child is asked not to do something, then he/she stops doing the demanded action, but only if the caregiver is constantly intervening and reminding him/her about the instructions. The time intervals of the child's attempts to perform the forbidden action are short.                   | Low self-regulation.   | Low self-regulation.  |
| <b>Committed compliance:</b> In the presence of the caregiver, the child complies in a continuous way without additional directives from the caregiver (e.g., eagerly picks up the toys, moves autonomously to pick up different toys, and completes the task without becoming distracted for more than 5 seconds within a 30-second time segment). When the child is asked not to touch an object, he/she avoids contact with the forbidden object without intervention from the caregiver; instead, he/she may observe the object and spontaneously turn away. | Moderate self-regulation.  | Low self-regulation.  |
| <b>Internalization:</b> The child follows parental demands (e.g., organizing toys or not touching an object) in the absence of the caregiver.  | High self-regulation.  | High self-regulation.   |

### **Noncompliance and Self-Regulation**

Like obedience behaviors, disobedience behaviors can also provide important information about self-regulation development in children. To reflect on different types of obedience, their motivation, and their implications in terms of self-regulation, I introduce some concepts from social psychology. Passini and Morselli (2009a, 2009b) differentiated types of disobedience by considering the legitimacy or illegitimacy of the demands that are made.

Specifically, they differentiated constructive from destructive disobedience. Destructive disobedience refers to occasions in which an individual disobeys a legitimate demand. Constructive disobedience refers to occasions in which the individual disobeys an illegitimate demand (Passini & Morselli, 2009a). Although this distinction was made within a social psychology framework and is based on studies with adults (Passini & Morselli, 2010), it allows us to reflect on what disobedience behaviors tell us about self-regulation in children, for example,

by analyzing differences in noncompliance according to the ways in which children perceive their parents' demands (i.e., legitimate or illegitimate).

From the perspective of developmental psychology, the legitimacy of demands has been analyzed based on the child's perception of whether it is correct or not for their caregivers to interfere with or impose limits on specific areas of their lives (Darling, Cumsille, & Peña-Alampay, 2005). Multiple studies have shown that children as young as 3 years of age may be able to differentiate three domains into which parental demands can be classified: personal, conventional and moral. (Ardila-Rey & Killen, 2001; Darling et al., 2005; Grusec & Goodnow, 1994; Helwig, 2006; Nucci, 2006). The personal domain refers to the privacy, preferences and personal choices of the individual (e.g., choice of friends, personal appearance, what to do during free time, etc.). The conventional domain refers to issues related to arbitrary norms (e.g., how to behave at the table, how to speak to adults, to follow the house rules, etc.). Finally, the moral domain refers to aspects related to others' wellbeing and justice, so it does not depend on a social rule but on the intrinsic effects of the act (e.g., hurting others, stealing, damaging someone's property, etc.). According to Nucci (2009), the differentiation among these domains is learned from everyday experiences and the social interactions children have, as people tend to interact differently with children depending on the specific domain of the issue in question. For example, people tend to react to a moral transgression with higher levels of emotions, and focusing on the hurtful effects of that transgression. Interactions involving violating a convention tend to involve a weaker emotional reaction, accompanied by allusions to the social norm that was transgressed. Finally, the interactions involved in the personal domain are more often characterized by caregivers giving the child the opportunity to choose or negotiate what they prefer.

Children consider interference with aspects of the personal domain to be less appropriate

than interference with the moral or conventional domains. The control over the personal domain arises from the children's needs to establish a limit between them and others, and it facilitates the development of identity and autonomy (Nucci, 2006). The distinction among these domains has been observed in diverse cultures, from Western to Eastern countries and from Latin-American to Anglo-Saxon countries (Helwig, 2006; Nucci, 2009). Thus, beginning at a very young age and in a universal manner, children start to differentiate legitimate and illegitimate demands of their caregivers.

Behaving autonomously has been described as an innate and universal need in humans (Ryan & Deci, 2000). Thus, disobeying an illegitimate demand of parents can help children satisfy their need for autonomy (Dix, Stewart, Gershoff, & Day, 2007; Keefer, 2005; Kukzysnsi & Kochanska, 1990), which does not necessarily imply that the child lacks self-regulation. If the demand is legitimate, then the child's autonomy will not be threatened because the child will more easily accept the demand, and such behavior will be perceived as caused by the child and not by pressure from the authority figure. If the child behaves similarly in response to legitimate and illegitimate demands, then this may reflect an inability of the child to self-regulate, either because the child lacks the motivation to adjust his or her behavior to the parental expectation or because he or she lacks the capability to do so.

For these reasons, when studying self-regulation development based on noncompliance behaviors, it is important to evaluate whether these behaviors occur under any circumstance (e.g., when caregivers make legitimate or illegitimate demands) or whether the child only disobeys when the demand is illegitimate. To accomplish this, researchers can analyze the child's behavior when they receive demands that interfere with different aspects of autonomy, or demands that pertain to different domains, such as personal, moral, or conventional.

Researchers can also observe the type of behavior when the child disobeys. Some developmental psychologists have categorized four types of noncompliance behaviors: (a) defiance (i.e., the child does not follow instructions, is unable to control his or her anger, and shows obvious signs of frustration), (b) passive noncompliance (i.e., the child ignores the caregiver and the caregiver's demands), (c) refusal (i.e., the child explicitly refuses to obey but does not show signs of anger or negative affect), and (d) bargains (i.e., in addition to refusing without signs of negative emotions, the child proposes alternatives, such as negotiating with the caregiver to follow the instruction at another time; Kuczynski & Kochanska, 1990; Wachs et al., 2004). One of the main factors that differentiates these forms of noncompliance is the degree to which children regulate their emotions when disobeying.

There are some reasons to differentiate these forms of noncompliance when studying self-regulation. First, a behavior is considered self-regulated when it is expressed according to social standards. There are many cultures in which the expression of negative emotions is not socially acceptable, although this is stronger in some cultures than others (Trommsdorff, 2009). Thus, some types of disobedience are adjusted to social standards to a greater degree than others. Although this paper focuses on behavioral self-regulation, emotions and emotional regulation play fundamental roles in self-regulating behavior (Blair, 2013). Behavioral self-regulation has been proposed as based on the capacity to regulate emotions (Calkins & Marcovitch, 2009). Thus, one step toward behavioral self-regulation is the control of emotions and these types of disobedience reflect the capacity to regulate emotions (e.g., defiance disobedience presents very low control of emotions).

Dix et al. (2007) stated that defiance behaviors are to be expected at early ages (i.e., less than three years old) because children have not learned how to regulate their emotions. Young children engage in such behaviors in an attempt to express their

need for autonomy and develop it (Dix et al., 2007; Kuczynski & Kochanska, 1990). When children learn to regulate their emotions, they can use more mature forms to ratify their autonomy, such as bargaining (Dix et al., 2007). This is consistent with the results of a study that found that defiance behaviors diminished between the first and fifth years of life as bargaining increased (Kuczynski & Kochanska, 1990).

However, as in the case of compliance, not all researchers who study self-regulation on the basis of noncompliance differentiate among these forms of disobedience. Noncompliance behaviors may differ in the motivation that underlies such behaviors or the levels of emotional regulation. These distinctions can provide valuable information about self-regulation development. Therefore, differentiating specific types of noncompliance when developing methodologies to study self-regulation development can be very useful.

### **Concluding Remarks**

Several authors have used compliance and noncompliance behaviors to assess self-regulation in children, but few researchers have discussed the ways in which these behaviors impose different self-regulation demands in children. Compliance can be classified as situational compliance, committed compliance, internalization, obedience to power, and obedience to authority. This distinction considers differences in comprehending and internalizing parental expectations, the motivation of children to adjust their behavior to these expectations, and the children's ability to adjust their behavior with different degrees of independence. All of these are key elements in the self-regulation process, thus providing valuable information about self-regulation development in children.

The motivation to disobey can also differ, which also provides information about self-regulation. If children only disobey illegitimate demands, then this behavior may reflect the children's need for independence and autonomy instead of a lack of self-regulation. However, if children disobey any

kind of demand, then such behaviors may reflect deficits in self-regulation. Besides, disobedience can be differentiated according to the ability of children to regulate their emotions.

Despite the distinct implications that the aforementioned factors have in terms of self-regulation, not all researchers who study self-regulation based on compliance and noncompliance differentiate the types of obedience and disobedience. Furthermore, they do not analyze the motivation behind these behaviors. Therefore, I propose the following methodological recommendations: (a) to codify compliance as situational, committed, or internalized, (b) to simultaneously codify the type of control of the caregivers (e.g., positive or negative) in order to obtain information about the child's motivation when obeying (e.g., to avoid punishment), (c) to observe children's behavior in response to demands that interfere with their autonomy to a greater or lesser degree, or demands from different domains (e.g., personal, conventional, or moral), and (d) to classify disobedience as passive disobedience, defiance, refusal, or bargains.

Although some studies have utilized some of these recommendations in their methodologies, I suggest addressing the study of self-regulation development more fully. It is important to design and validate methodologies that incorporate most or all of these suggestions. Such studies will increase our understanding of compliance and noncompliance in children and will expand the tools that are available to analyze self-regulation development in children on the basis of on compliance and noncompliance behaviors.

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