

Chapter 2

Intentional Self-Regulation in Youth: Applying Research Findings to Practice and Programs

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Self-regulation is a broad concept that encompasses a wide variety of emotional, cognitive, and social processes (McClelland, Geldhof, Cameron, & Wanless, 2015). Although the breadth of self-regulation has led to some disagreement about what, exactly, self-regulation comprises, the general consensus among scholars is that self-regulation refers to people's deliberate attempts to use, modify, or inhibit their own emotions, thoughts, and behaviors to reach their goals (McClelland, Ponitz, Messersmith, & Tominey, 2010; Shonkoff & Phillips, 2000).

Given the critical role self-regulation plays in promoting goal-directed actions, it is not surprising that research has consistently found a strong relationship between self-regulation skills and indicators of positive youth development (PYD). To date, however, many of these research findings have not been presented in a manner easily accessible to practitioners and policy makers. Therefore, in this chapter, we provide information about self-regulation and recommendations for youth development practitioners and policy makers who want to use research on self-regulation to promote thriving among youth. We first discuss various lessons that can be learned

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from previous research on self-regulation, emphasizing intentional self-regulation (ISR) as a facet of self-regulation that is especially important during adolescence. We then discuss the limitations of this research. Last, we recommend five priorities for improving youth policy and practice.

Lessons Learned from Research on Self-Regulation

Self-regulation helps people take advantage of the opportunities afforded by their contexts. For example, well-regulated individuals are better able to leverage resources in their contexts (e.g., schools, mentors, and out of school time activities) in ways that promote their own development and to strengthen the communities in which they live. Thus, self-regulation can foster the development of active and positively engaged citizens (Lerner, Lerner, Bowers, & Geldhof, 2015).

Taken as a whole, research on self-regulation suggests that it is a key strength which enables individuals to accomplish major developmental tasks. For example, self-regulatory skills have been strongly implicated in placing young people on positive developmental trajectories into adulthood. Research has shown a positive relation between self-regulation and the development of the Five Cs of PYD (competence, confidence, connection, character, and caring; Lerner et al., 2015); see also Chap. 9). Furthermore, when youth display the Five Cs of PYD, a sixth C of contribution emerges. Thriving youth contribute to their families, communities, and to society as a whole. In light of these relations, encouraging the development of self-regulatory skills may be one way of promoting youth thriving (Lerner et al., 2015). It is therefore critical that programs and policies designed to promote youth development consider ways to promote self-regulation.

In the last few decades, self-regulation has received enormous attention from scholars within developmental science—a research field focused on studying and promoting positive human development. To provide a better understanding of self-regulation, in the next section, we briefly discuss what, exactly, self-regulation comprises. We provide an overview of prior and current research on adolescent self-regulation and discuss how such research relates to studies of healthy functioning in childhood and adulthood.

What Is Self-Regulation?

Despite the growing interest of scholars, definitions of self-regulation still vary widely. One reason that self-regulation lacks conceptual agreement among researchers is that scientists use a wide array of self-regulation measures to assess similar skills and processes. One self-regulation researcher might measure an adolescent's ability to press buttons in response to a certain type of cue (but to not respond to other types of cues); a second researcher may ask college students about how well

they can stay on task while studying; and yet a third researcher might be interested in adolescents' ability to set and accomplish long-term goals. Although all three researchers are examining how youth direct or inhibit their behaviors or thoughts, they are far from studying the same thing.

Another reason for the various definitions of self-regulation is that such skills appear very different at different stages of the life span. In childhood, self-regulation skills are observed in children's increased capabilities to control their attention and inhibit behaviors, as well as the ability to control their emotions (McClelland et al., 2015; Shonkoff & Phillips, 2000). As such, research on early or middle childhood frequently focuses on executive functions, which represent how well a child can control his or her attention, inhibit behaviors and responses, and hold information in memory. Furthermore, having control over one's emotions is a major developmental task of childhood, and, accordingly, children's growing abilities to modulate their emotional states and reactions have also been a focus of much research (see, e.g., Eisenberg, Smith, Sadovsky, & Spinrad, 2004; Chap. 3). As children's self-regulation develops, children become more skilled at various behavioral, social, and cognitive tasks, such as interacting with peers without conflicts, sitting still and paying attention for longer periods of time, and inhibiting disruptive behaviors. As youth mature, these early skills continue to be important during adolescence.

Self-regulation looks quite different during adolescence. Despite that fact that most teenagers have mastered basic self-regulatory skills, such as sitting still and avoiding temper tantrums, self-regulation continues to undergo important changes until youth are in their early- to mid-20s. In particular, the advanced, adultlike self-regulation (e.g., the ability to regulate behavior in accordance with long-term goals), which is very limited during childhood, grows during adolescence and early adulthood (Brandtstädter, 2006; Demetriou, 2000; Geldhof, Little, & Colombo, 2010).

Such advanced cognitive self-regulation skills have been defined as intentional self-regulation (ISR), which involves actions that are actively aimed toward harmonizing demands in the person's social and physical context with a person's resources in order to attain better functioning and enhance self-development (Gestsdóttir & Lerner, 2008). ISR skills help individuals set goals, create plans to achieve goals, and change their plans if goals cannot be reached according to the original plan. As such, ISR enables individuals to select and execute goal-directed behaviors (Brandtstädter, 2006).

ISR skills continue to develop in adolescence and acquire increased significance for healthy functioning. For example, ISR can help youth deal with the changes and transitions that are characteristic of this period of life such as transitions from middle to high school or transitions from high school to college, work, or military service (Lerner & Steinberg, 2009). Nevertheless, as we have noted, there is a lack of comprehensive theories and measures that describe and capture ISR during adolescence. In the absence of established theories that are specific to adolescent self-regulation, theories of adult self-regulation have often informed studies of adolescent self-regulation, as described below.

What Have We Learned from Recent Studies of Adolescent Self-Regulation?

A growing number of studies have demonstrated links between children's and adolescents' self-regulation skills and various indicators of healthy development. Specifically, higher levels of self-regulation are related to greater social and emotional competences, higher levels of school readiness, and academic success. For example, Duckworth, Tsukayama, and May (2010) showed that self-control (a component of self-regulation) predicted changes in early adolescents' subsequent grade point averages (GPAs), such that high self-control predicted high GPA. This finding highlights the importance of self-regulation for promoting positive youth outcomes.

These findings mirror research in other fields that underscores the importance of self-regulation skills for adaptive development. For instance, Heckman and Kautz (2012) note that goal pursuit strategies, such as self-regulation skills, often predict positive developmental outcomes as strongly as other abilities (e.g., performance on achievement tests). They even suggest that self-regulatory skills may help explain why high school dropouts who earn a GED display more negative outcomes (e.g., divorce, exiting employment, and going to jail) than high school completers who display similar scores on achievement tests. It may be that high school is an important setting for honing ISR skills. Lindqvist and Vestman (2011) similarly found that skills such as self-regulation during late adolescence and early adulthood predicted later unemployment more strongly than did other abilities, highlighting the fact that adolescent self-regulation skills are important for employment outcomes later in life. Thus, self-regulation skills are at least equally important predictors of adult functioning compared to other abilities.

Self-regulation has not only been linked to various positive outcomes (as observed by Heckman & Kautz, 2012), but it has also been related to lower levels of problematic development, such as delinquent behavior, depression, and substance use. For instance, Brody and Ge (2001) found that higher youth self-regulation was associated with lower levels of depressive symptoms, hostility, and alcohol use and with higher levels of self-esteem, compared to youth with lower levels of self-regulation. Using data collected from a sample of college students, Quinn and Fromme (2010) similarly found that self-regulation was a protective factor against episodes of heavy drinking, alcohol-related problems, and unprotected sex. These studies provide evidence that, in addition to directly promoting positive development, self-regulation can also protect individuals from problematic development during adolescence and early adulthood.

In addition to examining outcomes associated with self-regulation, researchers have investigated gender differences in the self-regulation skills of youth. Studies of early childhood have frequently demonstrated that girls outperform boys on measures of self-regulation (e.g., Kochanska, Coy, & Murray, 2001). However, there is no consensus that adolescent girls have better self-regulation than boys or that self-regulation functions differently across the two genders during adolescence. Studies with adolescents frequently report no or minor mean differences on

measures of self-regulation and find that good self-regulatory skills are important for the healthy functioning of both adolescent boys and girls (see, e.g., Moilanen, Rasmussen, & Padilla-Walker, 2014).

Major longitudinal research also supports the importance of self-regulation for youth development. For instance, research from the 4-H Study of Positive Youth Development (see Chap. 1) has identified ISR as a central characteristic that places young people on positive developmental trajectories. Consequently, the 4-H Study has documented how ISR develops across adolescence and its role in healthy youth development and, as such, has provided considerable insight of any study into the issue of adolescent ISR.

Researchers in the 4-H Study have used the selection, optimization, and compensation (SOC) model, developed by Freund, Baltes, and colleagues (e.g., Freund & Baltes, 2002) to conceptualize and measure ISR. The SOC model was initially developed with adult populations in mind and describes three distinct processes. Selection describes how people set, prioritize, and commit to a set of goals they want to achieve. Optimization explains how individuals use internal and external resources (such as persistence or help from others) to go about reaching their selected goals. Compensation describes how individuals cope when their goals are not being reached according to their initial plan.

Research from the 4-H Study has provided information on how the SOC theory can be used to understand adolescents' ISR and how the SOC skills contribute to healthy functioning. However, unlike research with adult populations that has found three unique components of SOC, research using adolescent samples has found that adolescents do not discriminate between the processes of selecting goals, using optimization strategies to accomplish goals, and compensating in the event of failures or losses. Instead, a single SOC process represents global ISR and has consistently predicted higher levels of positive development (e.g., the Five Cs of PYD; see Chap. 9) and lower levels of problem behaviors (e.g., depression, delinquency, and risk behaviors) across different periods of adolescence (e.g., Zimmerman, Phelps, & Lerner, 2007). For example, Zimmerman and colleagues (2007) found that overall SOC scores at fifth grade positively predicted participants' seventh grade scores on PYD and negatively predicted their scores on depressive symptoms, delinquency, and risk behaviors.

Applying these findings from the 4-H Study, researchers conducted Project GPS, whereby they developed measurement rubrics based on the SOC model of ISR as tools to be used in high-quality mentoring programs (see Chap. 6). The project title, "GPS," is a metaphor for a navigational system used to provide directions, such that goal selection, pursuit of strategies, and shifting gears to overcome obstacles are represented by the components of the acronym GPS, respectively (Bowers et al., 2013). Specifically, these skills coincide with SOC model of ISR, such that goal selection, pursuit of strategies, and shifting gears coincide with selection, optimization, and compensation skills, respectively. Project GPS aimed to help mentors promote the development of self-regulatory skills among youth and provided an opportunity for researchers to examine various aspects of how self-regulation develops (Napolitano, Bowers, Gestsdóttir, & Chase, 2011).

For example, Bowers and colleagues (2013) examined the reliability and validity of the GPS rubrics with 152 pairs of mentors and mentees. Their results supported the reliability of the rubrics (the consistency of the responses) and the validity of the rubrics (that the GPS tool is in fact a measure of self-regulation) and found positive relations between self-regulation and the outcomes of PYD and youth contribution. In addition, the measurement properties of the rubrics represented one process describing global ISR, suggesting the rubrics provide a similar measurement of ISR compared to the SOC measure previously described above (Napolitano et al., 2014). Furthermore, results indicate that the mentor–mentee relationship influences youth ISR skills, suggesting that mentors may play a key role in promoting the development of youth ISR (Bowers, Wang, Tirrell, & Lerner, *in press*). Taken together, these findings suggest that the GPS rubrics provide tools that researchers can use to gain a better understanding of the types of youth, mentor, and programming characteristics that support and promote ISR skills.

The findings from Project GPS are important, but many questions remain unanswered. One question is whether the Project GPS findings apply to diverse youth due to the relatively small number of youth and mentors who participated in the project. Furthermore, other questions relate to how the mentoring relationship plays a role in promoting the development of self-regulatory skills, and which characteristics of the relationships are most important to self-regulatory skills. Nevertheless, this research provides one example of an applied project that can expand the understanding of self-regulatory skills in a practical setting.

The consistent links that have been demonstrated between ISR skills and various positive outcomes have also been used to inform school-related interventions. Traditionally, intervention efforts that aim to support youth's academic achievement or positive development have focused on narrowly defined learning-related skills, such as IQ. As emphasized by Cunha and Heckman's (2010) model of skill development, the importance of self-regulation for a wide range of functioning, as well as the malleability of self-regulation during adolescence, makes self-regulation an important area for practitioners to consider. Later investments, such as during adolescence, can improve skills, like self-regulation, more strongly than they can improve skills that may be less malleable, such as IQ. Thus, it is critical that programs and policies designed to promote youth development consider ways to promote youth self-regulation.

Limitations of Research on Adolescent Self-Regulation and Implications for Practice

We have described advances that recent studies have made toward a fuller understanding about adolescent self-regulation. However, our discussion also suggests that the field's understanding of adolescent self-regulation is incomplete. In this section, we describe some of the limitations of the self-regulation literature and the implications that these limitations have for future research and practice.

As previously mentioned, several definitions of adolescent self-regulation exist in the research literature. The lack of precise definitions of, and theories about, adolescent self-regulation limits the implementation of effective policies and programs in at least two ways. First, the lack of precise definitions makes it difficult to design policies and programs that effectively promote adolescent self-regulation. Ambiguously defined concepts can only be promoted ambiguously. Second, imprecise definitions make self-regulation difficult to measure. Depending on one's definition, self-regulation can be defined so broadly that it encompasses any conscious or nonconscious action that moves an individual closer to a goal. This definition can include a very wide range of behaviors, both automatic and intentional, that people use to regulate their interactions with their environment. As such, self-regulation can refer to behaviors ranging from resisting the temptation to eat an extra slice of cake to pursuing complex, longitudinal goals, such as graduating from college. With such broad definitions, how can practitioners consistently evaluate their programs' effectiveness in promoting self-regulation? For self-regulation to become a meaningful aspect of youth development programs and policies, researchers must produce measures of self-regulation based on widely agreed-on definitions and make those measures *easily* accessible to program and policy evaluators. The 4-H Study has contributed to such an advance by adapting a widely used theory and measure of adult self-regulation—the SOC model—to define and index one type of adolescent self-regulation, ISR.

Furthermore, additional research is needed to determine how different aspects of self-regulation may impact functioning in different domains (e.g., social vs. academic). Relatedly, we do not know if self-regulation skills in one domain are transferrable to functioning in other domains. For example, if a young person's ISR skills are supported in one area of functioning (e.g., in relation to the pursuit of academic goals), will such skills lead to better functioning in other contexts (e.g., employment)? Furthermore, our discussion in this chapter has mostly focused on advances in understanding the cognitive and behavioral aspects of self-regulation during adolescence. Although advances in understanding self-regulation of emotions in adolescence may be less dramatic than during childhood, adolescents' abilities to control their emotional states are important for their own well-being and for positive interactions with other people (see, e.g., Silk, Steinberg, & Morris, 2003). There is a need to create a better understanding of how emotional self-regulation overlaps, and interacts, with other aspects of adolescent self-regulation, as highlighted in this chapter (McClelland et al., 2010).

In addition to limitations in our knowledge of different aspects of ISR, limitations in the measurement of ISR also exist. Past research has frequently relied on self-reported levels of adolescent self-regulation, and this research would benefit from additional assessment strategies (e.g., direct observations of self-regulated behavior). Such research would inform whether the self-regulation skills that adolescents report using are reflected in their actual behavior. In addition, because self-regulation is a rapidly developing area of study across all ages of life span, there is a need for more tools to measure self-regulation at all ages. Specifically, there are few measures of self-regulation that are appropriate for use with youth.

We have described how researchers working within the 4-H Study have used the SOC measure with adolescents, and we recommend this measure for use in future research. However, the SOC measure may not capture all of the self-regulatory skills that are specific to the adolescent period, especially emotion regulation. As such, although the SOC measure has been used successfully in various research projects and continues to be developed for use with adolescent samples, it may be premature to use this measure in relation to the development, implementation, or evaluation of youth development programs.

Future research must also recognize the uniqueness of the adolescent period and how it may shape adolescent ISR and how such skills function. Although research has demonstrated that youth seem to acquire certain aspects of adultlike ISR skills during adolescence, ISR is not fully developed in adolescence and may not relate to adolescent functioning in the same way as it does for adults. For example, the selection of goals may look somewhat different in adolescence and adulthood. Adults must decide which of their desired goals should take priority, so that high-priority goals can be given the most resources. In adolescence, however, youth are still exploring multiple pathways to adulthood. Having flexible goal priorities may be particularly adaptive during adolescence (Gestsdóttir, Lewin-Bizan, von Eye, Lerner, & Lerner, 2009; Napolitano et al., 2011).

Although adolescent ISR skills may not be identical to adult ISR, research based on the 4-H Study, as well as other studies, has consistently related adolescent self-regulation to positive and negative developmental outcomes in the expected directions. These outcomes include broad indicators of PYD, community contributions, depression, and risk behaviors (see, e.g., Bowers et al., 2011). In addition, ISR is more clearly related to indicators of positive development than to indicators of risk and depression (see, e.g., Bowers et al., 2011; Gestsdottir et al., 2009), and the strength of these relations increases with age. ISR may therefore gain increased relevance for healthy functioning as youth move through adolescence. In addition, when looking at patterns of positive and negative behaviors across time, high ISR scores are related to following the most adaptive developmental patterns of behavior (Zimmerman, Phelps, & Lerner, 2008). Specifically, youth with high ISR scores were more likely to exhibit higher levels of PYD and contribution and lower levels of depressive symptoms and risk/problem behaviors compared with youth with lower ISR scores.

Implications for Youth Policy and Practice

Although research on the nature, development, and role of adolescent self-regulation for healthy functioning is still evolving, self-regulation has been consistently related to positive youth development and young people's contributions to their families and communities. We are confident, then, in recommending that supporting ISR skills will be a fruitful way to support thriving among youth. In other words, increasing young people's ISR skills will support their positive development. We also expect that strong self-regulation skills will help youth navigate away from

Table 2.1 Priorities for policies and practice

• Improved ISR should become a benchmark for evaluating programs and policies
• Adolescent ISR should become a funding priority
• Promote ISR across the life span
• Promote the idea that ISR takes a village
• Improving ISR is only part of a successful intervention

problematic behaviors. However, in light of weaker relations between self-regulation and negative developmental outcomes, we encourage the pursuit of other approaches to deter problem behaviors among youth.

As summarized in Table 2.1, we have distilled research on self-regulation into five concrete priorities for practice. These priorities represent only the “tip of the iceberg” in regard to how self-regulation research can inform applied work, but these priorities are broad and flexible enough that they can be practically implemented. As such, we believe that addressing these priorities will serve as the first step in a paradigm shift that places a premium within youth policy and practice on the promotion of self-regulation skills.

Priority 1: Improved ISR Skills Become a Benchmark for Evaluation

Improved self-regulation skills should become a benchmark for evaluating the effectiveness of programs and policies. The well-known importance of self-regulation for healthy youth development is at odds with currently prevailing ideals that emphasize improved scores on achievement tests (see also Heckman & Kautz, 2012; Heckman & Rubinstein, 2001). The kind of knowledge reflected by mathematics and reading achievement tests is certainly important for individual thriving, but achievement tests can only tell part of the story. Skills like self-regulation predict tangible developmental outcomes (e.g., earnings, educational attainment). As Heckman and Kautz (2012) note, evidence supporting the importance of self-regulation and related skills “should give pause to analysts and policy makers who rely solely on achievement tests...” (p. 462).

As compared to the knowledge reflected in achievement tests, self-regulation may be especially important for young people who are at the greatest risk for maladaptive outcomes. Economists have found that abilities like self-regulation help individuals with the fewest resources avoid failure, whereas other abilities promote thriving among individuals with more resources. More specifically, abilities like IQ predicted wages better than did other skills such as self-regulation, especially among individuals in the upper half of the income distribution. In turn, abilities like self-regulation were more strongly associated with avoiding unemployment than IQ-like abilities (Heckman & Kautz, 2012).

Priority 2: Adolescent ISR Becomes a Funding Priority

Understanding how self-regulation develops during adolescence must become a funding priority for governmental agencies and private foundations. The 4-H Study of PYD consistently found that adolescents do not readily distinguish between the processes of selecting goals, optimizing their goals, and compensating for failures and losses. This lack of differentiation was expected among younger adolescents, but developmental theories hypothesized that older adolescents would readily distinguish among the three processes. In this case, the data obviously did not support the theory.

A great deal of research describes the development of self-regulation skills in early childhood, but research on adolescent and adult self-regulation is incomplete at best. Despite this limitation, the evidence that does exist provides support for the critical role that self-regulation plays during adolescence. However, the field lacks integrative theories that comprehensively describe adolescent self-regulation and link its growth to the development that occurs during other periods of the life span (e.g., childhood and adulthood). Making ISR a funding priority is necessary to allow researchers to explore these unanswered questions.

Priority 3: Promote ISR Across the Life Span

Shifting to a paradigm that acknowledges the importance of self-regulation must involve recognizing that ISR skills can be enhanced at any stage of the life span. It is well known that earlier interventions produce larger impacts (e.g., Heckman & Kautz, 2012), and improving children's self-regulation has already become a cornerstone of promoting children's school readiness (Tominey & McClelland, 2011).

However, self-regulation skills develop and can be meaningfully impacted during any stage of the life span, especially during adolescence. It is certainly worth investing in young children's self-regulation skills, but the dividends from such efforts can be substantially improved by continuing to invest in these skills at least through the end of adolescence. The value of these efforts in adolescent self-regulation is such that even investing in youth who did not receive early interventions will likely produce a positive return on investment (Cunha & Heckman, 2010).

Priority 4: Promoting ISR "Takes a Village"

Promoting youth self-regulation "takes a village." Limited-scope programs such as those that assign mentors to at-risk youth can provide young people with well-regulated exemplars whom they can emulate and go to for help. Furthermore, young people thrive when they can take advantage of the resources available in their contexts. Providing multiple resources and exemplars will lead to better-regulated,

thriving youth. As such, programs and policies designed to improve youth self-regulation must be multifaceted (Maniar & Zaff, 2011). Such interventions should not only provide youth with useful information (e.g., tips for improving important components of self-regulation such as study skills) but must also impact the people with whom youth interact. Programs can provide mentors, teachers, or other important nonparental adults whom young people can emulate (See Chap. 6). Parenting education courses can empower caregivers to strengthen young people's ISR, and peers should be encouraged to help each other.

The fact that interventions can improve all people's ISR skills (including those of adults) means that multifaceted interventions have the added benefit of improving the lives of adults in a community. If adults are to model and teach successful self-regulation strategies to young people, those adults must learn to use the strategies themselves (Maniar & Zaff, 2011). Self-regulation has several economic and social benefits during adulthood, and improving adults' self-regulation will not only impact youth directly (e.g., by making those adults better models) but will also increase the number of resources adults can access and can therefore provide to young people. As an example, improved self-regulation can help parents maintain employment, and the resulting economic stability will improve the resources families can access.

Priority 5: Improving ISR Is Only Part of a Successful Intervention

Promoting interventions that specify self-regulation is only one part of a larger solution. For instance, self-regulation skills tend to correlate with indicators of positive development more strongly than with indicators of problematic development. As with any strength-based intervention, we recommend that policies and programs designed to improve adolescent self-regulation should complement, not replace, interventions meant to reduce problem behaviors. For instance, simply improving bullies' self-regulation skills will not make them stop bullying. In fact, cool, calculating, well-regulated bullies may be a worse problem than poorly regulated bullies. Similarly, improving a substance user's ISR skills without altering the motivations that underlie his or her substance use might inadvertently help the user hide an addiction from friends and family.

Even interventions designed to both improve self-regulation and prevent problem behaviors are inadequate, however. Youth who are told what not to do and given the self-regulation skills needed to improve their own lives must also learn what they *should* do to place themselves on positive developmental trajectories. Positive development is not the same as an absence of problem behaviors. As previously mentioned and also noted by Geldhof and colleagues (Chap. 9), one influential model of positive youth development specifies that young people thrive when they exhibit Five Cs (see also Lerner et al., 2015), which, in turn, give rise to a sixth C

of contribution. In order to promote such positive outcomes, youth must be given the skills (ISR), as well as direction, e.g., by providing them with a hopeful future and exposing them to positive role models (see also Chap. 5).

As such, we recommend that the effectiveness of programs and policies be judged according to how they impact (a) personal skills such as self-regulation, (b) indicators of positive development such as the Five Cs, and (c) indicators of negative development such as depression, substance use, and delinquency. Thriving can only be promoted when all three of these aspects are addressed simultaneously.

Conclusions

Self-regulation is a broad term that encompasses a wide range of definitions and behaviors that have been studied by researchers across different periods of development. Across the life span, self-regulatory strategies help individuals manage and utilize resources within their contexts and themselves to accomplish developmentally appropriate tasks. As a result, these skills enhance the ability of youth to thrive and to become contributing and engaged adults. Because of the important link between self-regulation strategies and positive outcomes, it is critical that programs and policies designed to promote youth development encourage the growth of young people's self-regulation skills.

In order to accomplish this goal, we have outlined priorities to improve applied work and for researchers to broaden their understanding of self-regulation. Self-regulation can be used as a benchmark of evaluating and assessing the impact of youth development programs, and it is important to encourage and develop this skill among all youth. One way to encourage self-regulatory skills is through adults' modeling of these behaviors (e.g., monitoring and reflecting on progress toward achieving goals), which would require developing self-regulation skills among adults. The benefits of fostering these skills among adults are twofold: adults would be able to provide a model for youth to learn, and developing these skills may also improve the lives and functioning of the adults themselves. However, self-regulation on its own is not enough. Although self-regulation is especially important for promoting positive outcomes, it should not replace interventions that target reducing problematic and risky behaviors.

Previous research is limited, and there is a need for more research on the different aspects and domains of self-regulation and a lack of self-report measures appropriate for youth. In order to fill in these gaps, ISR should become a funding priority so that researchers can obtain funding for studies that advance their understanding of ISR. Furthermore, research is needed to identify the optimal ways to encourage the development of ISR skills and the most effective ways to apply this knowledge in settings that promote youth development (e.g., youth development programs).

Despite these limitations, however, present research provides promising evidence that self-regulatory skills are a key strength and tool for youth; these skills enable youth to thrive and to become contributing adults who are engaged in their communities and society. If researchers can continue to explore the development of

self-regulatory strategies across all phases of the life span, they will be better able to create tools that practitioners can implement in applied settings to promote self-regulation strategies. ISR is a valuable skill and should be invested in by researchers, policy makers, and practitioners.

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Recommended Additional Resources

Duckworth, A. L. (2013, April). *The key to success? Grit* [Video File]. Retrieved from http://www.ted.com/talks/angela_lee_duckworth_the_key_to_success_grit

In this TED talk, Angela Duckworth describes her work studying grit (i.e., passion and perseverance for long-term goals) among children and adults, highlighting the importance of grit as a key predictor of educational and occupational success. This video clip is useful for individuals hoping to learn more about grit and the current state of this field of research.

Geldhof, G. J., Weiner, M. B., Agans, J. P., Mueller, M. K., & Lerner, R. M. (2013). Understanding entrepreneurial intent in late adolescence: The role of intentional self-regulation and innovation. *Journal of Youth and Adolescence*, 43(1), 81–91.

This paper describes self-regulation, as measured by the Entrepreneurial Intentional Self-Regulation Questionnaire, as an important factor for predicting entrepreneurial intent among young adults. This article is useful for individuals seeking information about the importance of self-regulatory skills in the domain of entrepreneurship.

Gerstein, J. (2014, August 24). *Self-regulation: The other 21st century skills*. [Website]. Retrieved from <http://usergeneratededucation.wordpress.com/2014/08/24/self-regulation-the-other-21st-century-skills/>

This website provides a description of self-regulation and describes ways educators can foster the development of self-regulation skills among youth. This resource is valuable for individuals interested in promoting self-regulation skills among children and adolescence.

Gestsdottir, S., & Lerner, R. M. (2008). Positive development in adolescence: The development and role of intentional self-regulation. *Human Development*, 51(3), 202–224. doi:[10.1159/000135757](https://doi.org/10.1159/000135757).

This article describes the development of intentional self-regulation in adolescence. The authors emphasize a model of selection, optimization, and compensation and explore the relations between intentional self-regulation and positive youth development. This article is useful for practitioners and policy makers who

would like to learn more about what intentional self-regulation comprises and its relation to positive youth development.

Lerner, R. M., Lerner, J. V., Bowers, E. P., Lewin-Bizan, S., Gestsdottir, S., & Brown Urban, J. (Eds.) (2011). *Thriving in childhood and adolescence: The role of self-regulation processes* (Number 133, New Directions for Child and Adolescent Development). New York: Wiley.

This volume integrates research from scholars who have focused on different age-specific aspects of self-regulation to enhance the understanding of the importance of self-regulation for human development. This publication is useful for individuals who would like to learn more about the development of self-regulation across the life span.

Maniar, S., & Zaff, J. F. (2011). A life-span, relational, public health model of self-regulation: Impact on individual and community health. In R. M. Lerner, J. V. Lerner, E. P. Bowers, S. Lewin-Bizan, S. Gestsdottir, & J. B. Urban (Eds.), *Thriving in childhood and adolescence: The role of self-regulation processes* (Number 133, New Directions for Child and Adolescent Development, pp. 77–86). New York: Wiley.

This chapter highlights the importance of self-regulation in the transitions between childhood to adulthood as a key process for promoting individual and community health. This chapter is useful for individuals who want to understand how supporting individuals' self-regulation promotes positive health outcomes for individuals and communities.

Napolitano, C. M., Bowers, E. P., Arbeit, M. R., Chase, P., Geldhof, G. J., Lerner, J. V., et al. (2014). The GPS to success growth grids: Measurement properties of a tool to promote intentional self-regulation in mentoring programs. *Applied Developmental Science*, 18(1), 46–58.

This article provides details of the measurement properties of the “GPS to Success Growth Grids,” a tool that may be useful for mentors in promoting intentional self-regulation. This article is useful to individuals looking for a validated tool that mentors can use with mentees to promote the development of self-regulation skills.

Zimmerman, S. M., Phelps, E., & Lerner, R. M. (2008). Positive and negative developmental trajectories in U.S. adolescents: Where the positive youth perspective meets the deficit model. *Research in Human Development*, 5(3), 153–165.

This article examines the different paths (trajectories) of the Five Cs of Positive Youth Development (competence, confidence, connection, character, and caring), contribution, and risk behaviors that youth follow across early adolescence. The article is based on data from grades 5 to 8 of the 4-H Study. Results showed that youth with higher intentional self-regulation scores were more likely to be in the most favorable trajectory compared to the other possible trajectories for each outcome variable.

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Promoting Positive Youth Development

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