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A Mixed-Methods Exploration of Intentional Self Regulation and Youth Beliefs about the Chances of Achieving Future Aspirations

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Abstract: Using a mixed methods approach, the connection between Intentional Self Regulation (ISR) and feelings about the chances of achieving future aspirations among 94 Scottish youth (56% female) was examined. Regression analyses demonstrated ISR, as measured by the SOC 9-item scale, was predictive of youths' feelings about their chances of achieving future aspirations. Qualitative data collected from 26 interviews suggested the use of ISR skills among adolescents, even when those skills were not evident quantitatively. Results indicated the need to employ mixed methodologies when conducting research on ISR with young adolescents, and suggest the need for further testing and development of measures for both ISR and beliefs about the chances of achieving future aspirations. Potential programmatic implications for youth development and character education programs are also discussed.

This is a correction to the original article. For information about the changes made, please see the erratum

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Introduction

Adolescence is a time of rapid biological, emotional, and cognitive change. During adolescence, youth planning for their futures burgeons, as does making decisions informed by goals (Gestsdottir & Lerner, 2008). According to relational developmental systems (RDS) metatheory, development occurs through a bidirectional process whereby the individual and context impact each other (Overton, 2015). In RDS metatheory, there is a rejection of reductionist and split conceptions, and a focus on bidirectional exchanges between individuals and contexts (Overton,

2015). When such person ↔ context relations are mutually beneficial, they are considered adaptive (Brandtstädter, 1998). RDS also emphasizes the potential for systematic change, for relative plasticity, within the individual and context (Lerner, 1984). This potential is an asset for finding means, and making behavioral adjustments, in pursuing one's goals (Baltes, Lindenberger, & Staudinger, 2006).

Intentional Self Regulation

Intentional Self Regulation (ISR) is the utilization of active, goal directed behaviors to navigate available demands and resources (Gestsdottir & Lerner, 2008). ISR has been operationalized as involving three constructs: Selection (S), Optimization (O), and Compensation (C) (Freund & Baltes, 2002). Selection involves both elective selection (ES), or the process of identifying and managing goals, as well as loss based selection (LBS), the restructuring of goals in the face of barriers to goals or failure in goal attainment. Optimization (O) is the utilization of strategies and resources to enhance the likelihood of attaining selected goals. Compensation (C) involves behaviors directed toward adapting and minimizing negative impacts when a goal is not achieved (Freund & Baltes, 2002). Through the selection, optimization, and compensation process, youth may direct their own development. In addition to allowing adolescents to serve as active agents in their own development, effective goal setting may also contribute to feelings of purpose and provide a sense of meaning (Freund & Baltes, 2002).

Selection, Optimization, and Compensation have been identified as separate constructs in adults (Gestsdottir, Bowers, von Eye, Napolitano, & Lerner, 2010). While the SOC model is intended for use across the life span, support for a tripartite model of ISR (as indexed by the SOC model) has not been found among youth in Western cultures. An adolescence-specific single factor has been more robust, suggesting ISR may not be completely developed until later adolescence or early adulthood (Gestsdottir et al., 2015). For young adolescents, despite the presence of a global SOC structure, it appears that intentional self regulation may still play an important role in healthy functioning (Gestsdottir, Lewin-Bizan, von Eye, & Lerner, 2009). With young adolescents, a nine-item measure of global (undifferentiated) SOC has been found to be linked to indicators of positive youth development (Gestsdottir et al., 2015).

Additional research is needed to better understand the course of SOC development, from a global to a differentiated (tripartite) construct; qualitative methods may be useful to supplement extant knowledge about the role and development of ISR among young adolescents. Mixed methods that employ qualitative assessments used in conjunction with quantitative measures may provide a productive means for understanding the impact of ISR among young adolescents.

Chances of Achieving Future Aspirations

Possessing positive feelings about the future may moderate the use of ISR among youth (Schmid, Phelps, & Lerner, 2011; Nurmi, 2004). The set of attitudinal, cognitive, and motivational constructs, including one's ability to imagine the future, set goals, and hold aspirations, is referred to as future orientation (Green, Myerson, Lichtman, Rosen, & Fry, 1996; Nurmi, 1991; Steinberg et al., 2009). Being future oriented has been linked to better socioemotional well-being in school settings (Wyman, Cowan, Work, & Kerly, 1993).

However, adolescents under the age of 16 consistently think less about the future (Steinberg et al., 2009). Possessing high future expectations in 7th grade leads to positive developmental outcomes through 9th grade, suggesting future hopefulness may lead to later ISR (Callina, Johnson, Buckingham, & Lerner, 2014; Schmid, et al., 2011). In addition, positivity about the future, even in early adolescence, can contribute to goal management and other positive developmental outcomes (Schmid et al., 2011).

To date, much of the literature on adolescents' beliefs about their futures has focused on their ability to think in generally positive ways about the future (Schmid et al., 2011; Green et al., 1996; Nurmi, 1991; Steinberg et al., 2009). Little is known about the process by which youth rationalize or assess the likelihood, of achieving their future aspirations. Eccles (2009) proposed that individuals are more likely to select tasks or roles for which they have high expectations of success. One way to formulate expectations of success would be through the envisioning of possible selves. The concept of possible selves involves youth looking at their own attributes and abilities and comparing those against what is required for future roles (Oyserman, Bybee, & Terry, 2004). This comparison allows youth to develop images of desired future selves and feared future selves. Expectations for achieving future aspirations can serve as a benefit, expanding the range of desired possible selves (Rose & Baird, 2013), or as a deficit, with beliefs about abilities constraining construction of future selves (Boxer, Goldstein, DeLorenzo, Savoy, & Mercado, 2011).

In short, research on future orientation, future mindedness, and future selves suggests that these constructs may be linked to how youth select goals. A young person's understanding of his or her ISR skills might be key in making judgments about what is, versus what is not, likely to happen in his or her future.

A stereotyped belief about youth is that, in general, they are shortsighted in regard to their futures (Steinberg et al., 2009). However, studies have confirmed that youth spend time thinking about their futures (Nurmi, 1991). Possessing hopefulness about one's future may promote positive behavior as youth transition to adulthood (Schmid et al., 2011). Accordingly, by capitalizing on data available in a study of Scottish youth, the present investigation explored the link between intentional self regulation and beliefs about the likelihood of achieving future aspirations among young adolescents.

The Present Study

We explored the relations between ISR and Scottish adolescent's beliefs about their chances of achieving future aspirations. We predicted a significant and positive quantitative relationship between ISR and beliefs about the chances of achieving future aspirations (Hypothesis 1). We also predicted that qualitative measures of ISR would be more sensitive to detecting ISR than quantitative measures alone (Hypothesis 2). Finally, we predicted that qualitative measures of beliefs about the chances of achieving future aspirations would be consistent with quantitative measures (Hypothesis 3).

Method

Data were derived from the first wave of a process evaluation of the Inspire>Aspire: Global Citizens in the Making program, implemented in Scottish schools in the 2014/2015 academic year. Inspire>Aspire is a character education program designed to help youth recognize their

personal strengths and areas in need of development, research an inspirational figure and reflect on the ways in which they are inspiring, and transform that inspiration into personal aspirations for the future.

Participants

Participants were 94 Scottish S2 pupils (the equivalent of U.S. 7th graders) who were preparing to participate in Inspire>Aspire. Only data from the first wave of the Inspire>Aspire process evaluation were available, although the project included a one-year, two-wave evaluation. Participants were drawn from five schools, with two classes participating from each school ($N = 10$ classes). All youth in participating classes were invited to complete a survey. The final sample included 94 pupils (60% response rate). The majority of the sample was White (96%), came from intact families (70% of parents were married), and had mothers who had completed high school (70%, 17% not sure of their mother's education status). Youth were between 12 and 14 years-old (mean age = 12.97 years; $SD = 0.34$) and about half (56%) identified as female.

Design and Procedures

Consent and assent were secured prior to data collection. Teachers administered surveys during class time. Approximately five pupils per class were randomly selected to participate in qualitative telephone interviews from the set of participants with completed assent forms, consent forms, and surveys. A subset of individual pupil interviews were conducted by trained research assistants in the Research on Evaluation and Developmental Systems Science (REDSS) Lab at Montclair State University. Research assistants participated in interview training, and completed practice interviews prior to conducting interviews. Interviews were recorded and transcribed for analysis.

Measures

All participants completed self-report surveys about demographics, ISR attributes, and chances of achieving future aspirations. A subset ($n = 26$) of participants completed telephone interviews that included questions related to ISR and the chances of achieving future aspirations.

Intentional Self Regulation (ISR). Participants completed the abbreviated 9-item Selection (S), Optimization (O), and Compensation (C; SOC) scale (Gestsdottir et al., 2014) which includes three subscales: S (2 items), O (4 items), and C (3 items; Cronbach's $\alpha = .64$). Participants were presented with two statements that include examples of two different ways people might behave: one describes use of SOC skills, and the other does not. A sample item involved the two statements such as "I am always working on several goals at once" (which is not indicative of selection) or "I always focus on the one most important goal at a given time" (which is indicative of selection). After reading the two statements the pupil must select the statement that best describes him or her. A total score is created by summing the nine items from the three subscales (possible range is 0 to 9). In the present study, scores ranged from 1 to 9 ($M = 6.33$, $SD = 2.03$).

Seventeen interview questions were devised to reflect SOC skills, including hopes and fears, and students' activities and goals (Oyserman & Markus, 1990). Sample questions included, "What is one thing that you expect to be like or that you expect to be doing next year?" followed up

with, "Are you currently working on that goal or doing something about that expectation?" and "What are you doing this year to attain or reach that goal?"

Chances of Achieving Future Aspirations. Chances of achieving future aspirations was operationalized using the "Chances Of" dimension of the Aspiration Index (Kasser & Ryan, 1993). Convergent validity data supporting the use of the Aspiration Index have been found with measures such as guiding principles and personal strivings (Kasser & Ryan, 1993; Sheldon & Kasser, 1995). The measure consists of four subscales: self-acceptance (SA), affiliation (AF), community feeling (CF), and financial success (FS). Participants were presented with 21 future states or items to be ranked on a 5-point Likert-type scale; with 0 = very low chances of attainment and 4 = very high chances of attainment. Sample subscale items include: "You will know and accept who you really are" for self-acceptance, "You will know people that you can have fun with" for affiliation, "You will help people in need" for community feeling and "You will have a job with high social status" for financial success. An additional interview question also addressed chances of achieving future aspirations: "How likely do you think it is that you will be successful in this kind of job?" a follow-up question to "If you can have any job as an adult, what would it be?" Means were calculated across each of the four domains: SA ($M = 2.99$, $SD = .70$), AF ($M = 3.15$, $SD = .68$), CF ($M = 2.70$, $SD = .69$), and FS ($M = 2.40$, $SD = .77$). The measure demonstrated adequate reliability (self-acceptance $\alpha = .70$, affiliation $\alpha = .81$, community feeling $\alpha = .83$, and financial success $\alpha = .80$). Overall scores for future aspirations were calculated by averaging across the four domains to obtain a grand mean ($M = 2.80$, $SD = .52$).

Analysis Plan

Data analysis consisted of three steps: 1. regression analysis of the relationship between ISR and beliefs about the chances of achieving future aspirations (to address Hypothesis 1); 2. coding of qualitative interviews; and 3. synthesis of quantitative and qualitative findings (to address Hypotheses 2 and 3). Regression analyses were conducted using SPSS 21 to assess the relationship between ISR and chances of achieving future aspirations, controlling for background characteristics (participant sex and parental marital status).

Missing Data. The majority of youth (86%) had complete data on quantitative measures with 94% of demographic data complete, 95% of ISR data complete, and 97% of chances of achieving future aspirations complete. Despite low levels of missingness, multiple imputation was selected over listwise deletion or mean replacement (Jelicic, Phelps, & Lerner, 2009). Multiple imputation takes into account data patterns within a dataset to make a probability judgment and impute the missing values. The Multiple Imputation feature in SPSS 21 was used to impute missing values. The data went through five imputations, pooling the data in a single set per "Rubin's rules" (Rubin, 2005).

Coding of qualitative data. NVivo 10 was used to code interview data using the a priori codes of Elective selection, Loss-based selection, Optimization, and Compensation. All qualitative coding was done independently of the quantitative analysis. Two research assistants worked to identify and modify code definitions as necessary throughout the coding process. Three rounds (Round 1, $n = 6$; Round 2, $n = 12$; Round 3, $n = 22$) of intercoder comparison queries were conducted. Cohen's kappas obtained from the first round of coding were between .40 and .70. Additional intercoder comparisons were conducted until an acceptable level of

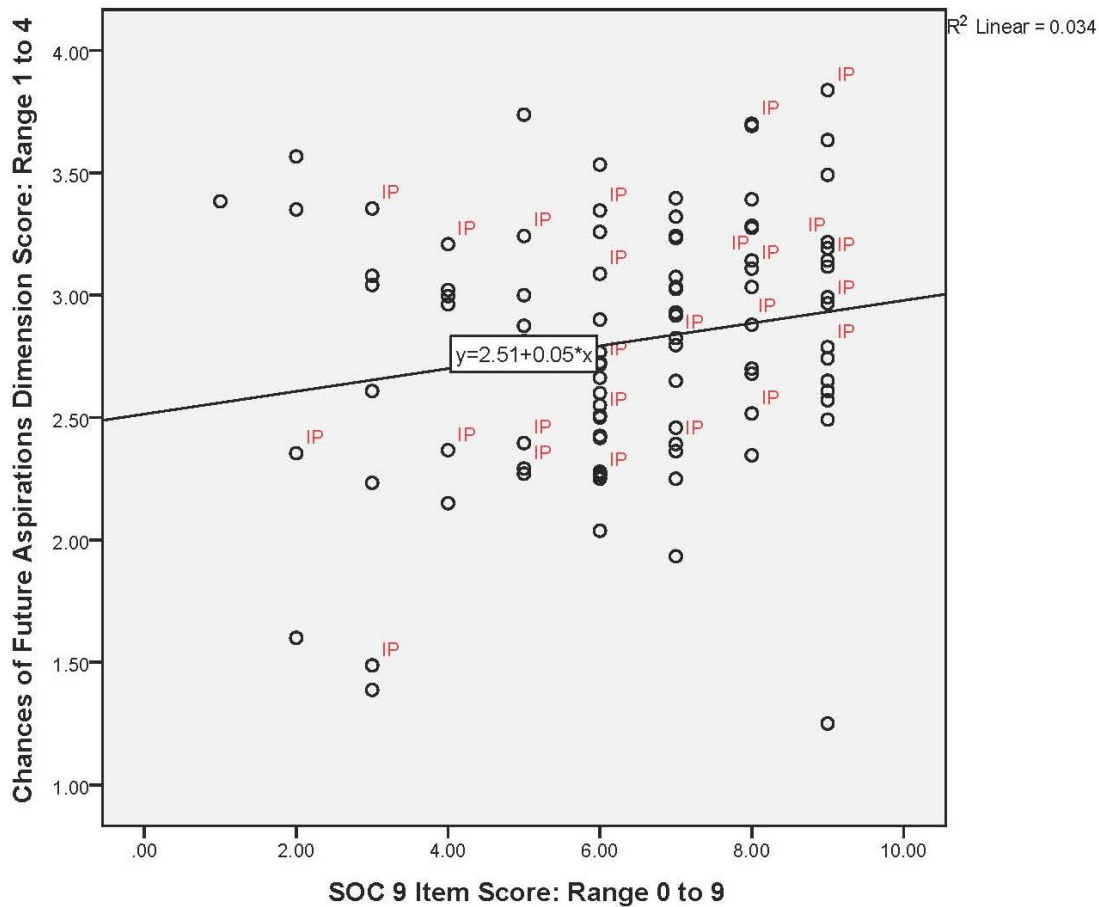
intercoder reliability was reached (>0.70), arriving at 100% agreement between the two coders in the third round of comparisons. The remaining interviews were coded independently.

Two researchers examined patterns in responses to the interview question related to chances of achieving future aspirations, looking for common, unique or unusual ways in which pupils may have responded to the question. In a second phase of analysis, pupils' responses about the likelihood of future employment aspirations were placed into three "buckets": low, medium, or high likelihood. The low bucket included responses such as "Not very" or "Not much, really." Medium responses included those referencing a lack of confidence or uncertainty, for example "It's like 50/50" or "In the middle." High responses suggested a strong likelihood that pupils would be able to achieve their goals, such as "I think it is quite likely that I would be able to," or "I think I would be quite successful as long as I keep doing, trying my best, I think I can do it."

Mixed Method Analysis

The mixed methods analysis followed the process outlined by Urban and colleagues (Urban, Burgermaster, Archibald, & Byrne, 2015). A significant quantitative relationship found in support of Hypothesis 1 prompted further analysis within the qualitative interviews to address Hypotheses 2 and 3. Figure 1 presents a visual depiction of the regression, with the sub-set of interviewees identified and randomly dispersed across the regression line.

Figure 1



Relationship between SOC 9-item scores and the “Chances of Achieving Future Aspirations dimension” of the Aspiration Index. Points labeled *IP* indicate the pupil participated in a qualitative interview.

Qualitative findings were plotted along quantitative data points on the regression line. The research team analyzed interview responses related to the linear regression, looking for both consistencies and disconnects between the quantitative and qualitative data. Special attention was paid to whether participant interview responses echoed the quantitative data, particularly if participants falling on similar locations on the regression line possessed similarities in their interview responses.

Prior studies have suggested that ISR in early adolescence may exist as a single factor construct, rather than three separate factors (Gestsdottir et al., 2014). However, using the Elective selection, Loss-based selection, Optimization, and Compensation codes from pupil

interviews, we were able to observe the degree to which all factors were evident compared to the quantitative results.

Results

Findings as they pertain to proposed hypotheses are presented below. Initial quantitative findings are provided, followed by the consistencies and disconnects observed through the mixed-methods analytical process.

Hypothesis 1

For Hypothesis 1, we predicted a significant and positive relationship between ISR and beliefs about the chances of achieving future aspirations. A linear regression analysis was conducted with beliefs about the chances of achieving future aspirations regressed on SOC. Parental marital status and gender were controlled (ethnicity was not controlled due to the high proportion of white adolescents). A significant linear relationship was found, $F(3, 86) = 1.92, p < .05$, supporting Hypothesis 1. This finding suggests that predicted feelings about the chances of achieving future aspirations increase as SOC scores increase.

Hypothesis 2

In Hypothesis 2, we predicted that qualitative measures would be more sensitive to detecting ISR than quantitative measures alone. For the purposes of this analysis, consistency refers to agreement between the qualitative and quantitative findings. A disconnect refers to inconsistency between the qualitative and quantitative findings.

Consistencies. Previous research about the SOC model has found that in young adolescents, SOC is best represented as an undifferentiated factor (Gestsdottir et al., 2015). Consistent with this finding, results from the present study indicated that compensation and optimization were always coded at the same location within interview transcripts (the same quote was simultaneously coded for both optimization and compensation). An Optimization code was used if a student indicated intent to engage or current plans to do something to achieve goals. A Compensation code was used if the student indicated a process that would substitute or counteract a perceived barrier. For example in one interview a student said, “. . . I used to get in trouble a lot in school so I’ve tried to not get in trouble as much as I used to and that’s working out pretty well for me.” The student identified a barrier (behavior issues at school), and made a plan [Optimization] to counteract the perceived barrier [Compensation]. In another example a student said, “. . . what I’ve thought is if I get on with my work and don’t listen to other people in the class that are trying to distract me, then I will focus on my work and won’t be able to get as excitable,” the student identified the barrier (distraction), and made a plan, focusing [Optimization], to counteract the barrier [Compensation].” Interestingly, elective selection was not typically coded at the same location within interview transcripts as optimization and compensation, suggesting that, perhaps, elective selection may be the first construct in the SOC model to differentiate from a global structure.

Disconnects. Qualitative interview findings suggest that many youth, including those with below average quantitative SOC 9-item scores ($M = 6.33; SD = 2.03$), still had qualitative evidence of Selection, Optimization, and Compensation. Analysis of qualitative transcripts indicated that many pupils were planning to, or actively doing something to, achieve their goals.

Of the 26 interviews, 19 interviewees indicated Elective Selection skills, four noted the use, or potential use, of Loss-based Selection skills, 20 interviewees discussed ways in which goals could or would be Optimized, and 10 interviewees demonstrated plans to Compensate for barriers or deficits.

Hypothesis 3

In Hypothesis 3, we predicted that qualitative measures of beliefs about the chances of achieving future aspirations would be consistent with the quantitative measures employed. Consistencies and disconnects observed through the mixed-methods analytical process were noted.

Consistencies. Participants coded as expressing low likelihood ($n = 3$) of achieving their future aspirations generally fell below the mean on the quantitative measure of chances of achieving future aspirations ($M = 2.80$, $SD = .52$). If a participant had a low quantitative score on the Chances Of domain of the Aspiration Index, their qualitative data reflected those findings.

Disconnects. Discrepancies between the quantitative and qualitative data became more apparent when the qualitative data were further parsed. More than half of the youth interviewed indicated a medium ($n = 13$) or high likelihood ($n = 10$) of achieving their aspirations, with responses such as "I feel like it is pretty likely because I do always study, and it is quite a hard job to get, but I feel like if I work hard enough at it I will get it," and "Actually I'm quite sure that I will, because I'm going to study a lot to get my qualifications and stuff, and I really want to be a midwife so I'll try my best." Participants specifying a medium or high likelihood of achieving future aspirations were randomly dispersed along the regression line. Participants with low scores on the Chances Of dimension of the Aspiration Index still demonstrated medium or high beliefs about the chances of achieving their future aspirations in their interviews ($M = 2.80$, $SD = .52$).

Discussion

This study assessed the relations between ISR and beliefs about achieving future aspirations among Scottish youth. ISR appeared to be manifested among young adolescents in ways that quantitative measures alone cannot detect. This finding supports our second Hypothesis, that quantitative measures by themselves may not be able to adequately detect the nature of ISR in young adolescents. Whereas the lack of differentiation between Optimization and Compensation observed within the qualitative interviews supports prior research about the global structure of SOC in young adolescents (Gestsdottir et al., 2015), there are questions as to how effectively the SOC 9-item scale can detect these processes among such youth. Associations between Elective Selection and positive youth outcomes have been weak or lacking for young adolescents (Gestsdottir et al., 2009, 2010). This finding has been attributed to ISR not being fully developed (or at least differentiated) until later adolescence or early adulthood (Gestsdottir et al., 2015). However, in the present study, Elective Selection was observable through qualitative methods. As we have noted repeatedly, prior studies have suggested that SOC skills among young adolescents exist as a single factor structure, rather than a tripartite model (Gestsdottir et al., 2015). Our qualitative findings support previous studies positing that Selection may be the first of the three SOC model factors to differentiate from the global structure (Gestsdottir et al., 2015) and, more specifically, Elective selection as a distinct construct from general ISR (Geldhof et al., 2015). These results support the need to employ

mixed-methodologies when working with young adolescents to fully capture more subtle changes that may not be detected by survey measures alone.

Although the qualitative findings for low likelihood of achieving future aspirations matched the quantitative findings, there appeared to be no relationship between the qualitative and quantitative data for those youth who indicated a medium or high likelihood of achieving future aspirations within their interviews. The lack of consistency between our quantitative and qualitative findings does not support our third Hypothesis, that qualitative measures on the chances of achieving future aspirations would match the quantitative findings.

The likelihood of achieving future aspirations has been a relatively underexamined area among young adolescents. Despite a perhaps common stereotype, that youth are shortsighted about their futures, and do not spend time thinking about this topic (Steinberg et al., 2009), all of the participants interviewed were able to discuss their futures and expressed varied beliefs on the likelihood of achieving their future aspirations. This observation supports the notion that the ability to think about one's future is indeed a feature of young adolescents' lives (Callina et al., 2014, 2011; Nurmi, 1992).

Limitations

This study employed a small and homogeneous sample. A larger and more diverse sample is needed to further test these initial findings. Importantly, this study did not provide information about the *development* of ISR and beliefs about future aspirations. Since the data for this study come from the pre-test of a character education program, in the future we can examine whether ISR and beliefs about future aspirations change as a result of program participation.

Applications

Consistent with ideas from RDS metatheory, the predictive relationship between SOC and the chances of achieving one's future aspirations suggests a process that is malleable. Goal achievement can have implications for future goal setting behaviors, and youth's conceptions of themselves and their abilities (Brandtstädter, 1998; Lerner, Freund, De Stefanis, & Habermas 2001). Devoting programmatic means to enhance the development of self-regulatory skills in early adolescence, with a focus on setting appropriate and achievable goals, not only provides youth with capacities to succeed, but will help them continue to positively develop through continued goal setting (Napolitano et al., 2014).

Future Directions

The results of this study indicated the importance of using mixed-methodologies. Current quantitative measures of ISR may not be able to adequately detect ISR among young adolescents. Qualitative methods demonstrated increased sensitivity but, in the future, behavioral measures may be even more robust. The developmental study of ISR and beliefs about the chances of achieving future aspirations, as well as the development and testing of behavioral measures is needed to enhance both theory and applications of it.

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