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Review Article

Career Decision-Making Attribution, Proactive Personality, and Career Decision Self-Efficacy in Gifted High-School Students

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Abstract

Studies shown that many gifted adolescents experienced career indecision. Among many factors, career decision self-efficacy (CDSE) is the factor found to positively influence many aspects of career development and reduce career indecision in adolescent. Based on the attribution theory, career decision-making attribution (CDMA) affects CDSE, and this effect could be enhanced with proactive personality in students. Therefore, this study examined the moderating role of proactive personality on the relationship between CDMA and CDSE in gifted students. Data were collected from 162 gifted students using the CDSE Scale Short-Form, Assessment of Attribution for Career Decision Making, and Proactive Personality Scale. Data analysis using regression analyses and Hayes' PROCESS simple moderation model showed that CDMA and proactive personality significantly influenced CDSE. However, proactive personality did not moderate the CDMA–CDSE relationship. The implication, limitations, and suggestion for future study are discussed.

Keywords: career decision-making attribution, career decision self-efficacy, gifted, high-school students, proactive personality

Introduction

Making career decisions is one of the most complex and difficult developmental tasks throughout life (Di Fabio, Palazzeschi, Asulin-Peretz, & Gati, 2013). There are many factors to consider in making career decisions, such as interests, abilities, oneself and others' expectations, and also the availability of employment. In the process, many adolescents who are in transition from high school to the world of work or further education report difficulties and confusion in making career decisions, including gifted adolescents (Di Fabio et al., 2013).

Many people believe that gifted students could pursue any career without special assistance required (Jung, 2017). However, studies have found that gifted students often experience career indecision, due to their wide range of abilities and interest and multipotentiality (Jung, 2013; Jung, 2017; Murratori & Smith, 2015). Moreover, study also reported that nearly half of gifted adolescent participating in the study had a low to moderate level of a factor that found to play an important role in reducing career indecision and in many aspects of career development, i.e. the career self-efficacy decisions (CDSE; Abidin, Amat, Mahmud, Bakar, & Bakar, 2019).

CDSE is individual's belief in their ability to complete the tasks necessary to make career-related decisions, i.e. the self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem-solving (Taylor & Betz, 1983). Self-appraisal is related to understanding one's abilities, interests, and lifestyle. Gathering occupational information can be done through searching jobs in the internet or discussing a potential career with current practitioners. Goal selection is related to being able to choose one among many career paths. Making plans for the future includes preparing a curriculum vitae or being well prepared for a job interview. Problem-solving is related to the decision to act if the chosen career is not suitable (Taylor & Betz, 1983).

CDSE enhances engagement in career actions, such as career exploration and planning, directly or indirectly through the intention to engage in career actions (Gushue, Scanlan, Pantzer, & Clarke, 2006; Lent, Ezeofor, Morrison, Penn, & Ireland, 2016; Lent & Brown, 2013). In the long run, CDSE also has positive effect on career development, such as career decidedness (Bullock-Yowell, Andrew, & Buzzetta, 2011; Guay, Sene´cal, Gauthier, & Fernet, 2003; Lent et al., 2016; Penn & Lent, 2016), and commitment to career choice (Ballout, 2009).

Based on the theory of self-efficacy, self-efficacy is influenced primarily by experiences of success or failure in related task (Bandura in Maddux & Kleiman, 2018). However, those influences are also depended on the belief people held about the cause of their success or failure (Bandura in Maddux & Kleiman, 2018). Hence, in the context of career development, this theory implies that CDSE is influenced by one's belief about the cause of success or failure experiences in career development. This belief is known as the career decision-making attribution (CDMA; Luzzo & Jenkins-Smith, 1998).

Furthermore, recent study has found that proactive personality significantly predicts CDSE (Hsieh & Huang, 2014). People with proactive personalities tend to persist until they can bring changes or achieve their goal (Bateman & Crant, 1993; Seibert, Crant, & Kraimer, 1999). This personality is similar with one of the main characteristics of gifted people: the task commitment (Bateman & Crant, 1993; Hsieh & Huang, 2014). Moreover, proactive personality activates the tendency to act proactively in the career decision making process, such as the initiation to gather for information about different career, so that they would have the knowledge or experiences of success and failure. Based on the rationalization, this study examined the moderating effect of proactive personality on the relationship between CDMA and CDSE in gifted students.

Career Decision-Making Attribution (CDMA)

CDMA is defines as individual's belief about the cause of success or failure in the process of making career decision and the process of the career development in general along three dimensions: locus of causality (or causality), controllability, and stability (Luzzo & Jenkins-Smith, 1998). Causality is related to whether the perceived cause is internal factors (such as abilities, effort, talents, and skills) or external

factors (such as luck and destiny) (Schunk, Pintrich, & Meece, 2010). The control dimension is related to whether the perceived caused is controllable or uncontrollable to the individual (Schunk et al., 2010). Stability dimension is related to whether the perceived cause is stable and fixed (such as talent, ability, and task difficulty level) or unstable and can change from one situation and time to another (such as effort, skills, knowledge, opportunities, and luck) (Schunk et al., 2010).

People usually adopt one tendency to explain their success or failure that eventually becomes their cognitive characteristics. It is referred as the attributional style. In CDMA, there are two attributional styles: optimistic and pessimistic attributional styles (Luzzo & Jenkins-Smith, 1998). People with optimistic attributional style attributed their success and failure in the process of career decision making to controllable, internally caused, and unstable factors, whereas people with pessimistic attributional style attributed their success and failure to uncontrollable, externally caused, and cannot be changed factors (Luzzo & Jenkins-Smith, 1998). People with pessimistic attributional styles are at risk of having worse performance than people with optimistic attribution styles due to their negative future expectations (Schunk et al., 2010).

Research has found that attribution can significantly influenced CDSE. In details, by changing attribution from external to internal locus, the CDSE increased significantly (Luzzo, Funk, & Strange, 1996). When people belief that failure is caused by a factor that tends to stable or cannot change, such as lack of talent or aptitude, then there will be an expectation that failure will happen again, and therefore their self-efficacy to successfully perform the same behavior decreased.

Little is known about the CDMA in gifted high-school students. However, studies found that gifted students generally believe that the success or failure they experienced in school are caused mainly by internal factors, such as the lack of ability or effort (Rinn & Boazman, 2014; Tirri & Nokelainen, 2011; Valdés-Cuervo, Escobedo, & Valadez-Sierra, 2015). These results implicated that they adopt internal locus of causality. However, they tend to vary in stability and controllability dimensions. Some of these differences are found between gender, degree of giftedness, and countries (Tirri & Nekolainen, 2011).

Proactive Personality

Proactive personality is defined as a stable disposition toward proactive behavior (Seibert et al., 1999), with proactive behavior being a behavior that directly changes the environment. The basic assumption is that everyone has a different predisposition toward behaving proactively in their situation. Students with proactive personalities tend to show initiative, look for opportunities, and persevere until success is achieved (Bateman & Crant, 1993; Seibert et al., 1999). In the context of career decision-making, students with stronger proactive personality will take the necessary actions to make the appropriate career decision and will preserve until they achieve their goals.

Study from Hsieh and Huang (2014) found that CDSE is significantly predicted by proactive personality. Moreover, studies also shown that CDSE is predicted by certain personality constructs in the Five Factor Model (Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) that also correlated with proactive personality. Most of the research on the topic has found that CDSE is positively correlated with emotional stability (the opposite of neuroticism), extraversion, and conscientiousness (Bullock-Yowell et al., 2011; Hartman & Betz, 2007; Rogers & Creed, 2011; Wang, Jome, Haase, & Bruch, 2006). Similarly, proactive personality also found to be positively correlated with emotional stability, extraversion, and conscientiousness (Bateman & Crant, 1993; Major, Turner, & Fletcher, 2006; Fuller & Marler, 2009).

CDSE, CDMA, and Proactive Personality

In this study, proactive personality was assumed to moderate the relationship between CDMA and CDSE. When students believe that career decision is a dynamic process (unstable) and should be made and controlled mainly by themselves (optimistic attributional style), then they will be more motivated to exert effort and not rely on the external factors to reach a decision (Weiner, 2018). With these belief, gifted students will take actions that facilitate their career decision-making processes, such as gathering information about the different types of careers that match their interests or take internship in the jobs they want. As explained earlier, experience is one of the strongest sources of self-efficacy (Bandura in Maddux & Kleiman, 2018). In this case, proactive personality will encourage the behavior will be performed (including the necessary amount of effort) (Bateman & Crant, 1993), so then the gifted students have the experience or knowledge needed to improve their CDSE.

Based on those previous studies and theories, this study has three hypotheses:

H1: CDMA significantly influence CDSE in gifted high-school students

H2: Proactive personality significantly influence CDSE in gifted high-school students

H3: Proactive personality moderate the influence of CDMA on CDSE in gifted high-school student

Research Methodology

Participants and Procedures

The participants in this study were 162 gifted adolescents (47.5% females and 52.5% males) from three high schools in Jakarta. Participant's age ranged from 14 to 17 years old (M = 16.20, SD = 0.66), with 49 participants from grade 11 (30.2%) and 113 from grade 12 (69.8%).

All the three schools have granted permission to undertake this research, allowing the data to be collected only at schools and at appointed times. From 1049 high-school students from 11th and 12th grades that tested using an intelligence test, a creativity test, a task-commitment test, only 162 students showed the criteria for gifted students. The criteria are IQ above 120 as obtained by the Intelligence Structure Test (IST), high level of creativity (≥110 on *Tes Kreativitas Figural*), and high level of commitment (≥132 on the task-commitment test), or an IQ above 130 from the IST. The tests were administrated by licensed psychologists and took about three hours.

Measurements

CDSE Scale Short-Form (CDSES-SF)

The CDSES-SF used in this study was constructed by Betz, Klein, and Taylor (1996) and has been adapted into Bahasa by Sawitri in 2009. CDSES-SF that measures CDSE consists of five dimensions: self-appraisal, gathering occupational information, goal selection, planning, and problem-solving. Each dimension consists of five items assessed on a six-point scale ranging from "very unconfident" (1) to "very confident" (6), with higher scores indicating higher CDSE. Validity test using confirmatory factor analysis (CFA) and corrected item-total correlation (Crit) found that 21 of the 25 items were valid

(factor loadings ranging from 0.42 to 0.75, *t* value > 1.96 and Crit scores ranging from 0.41 to 0.63). CDSES-SF in this study showed a good reliability with a Cronbach's alpha of 0.90.

Assessment of Attribution for Career Decision Making (AACDM)

The AACDM used in this study was constructed by Luzzo and Jenkins-Smith (1998) and was adapted into Bahasa. AACDM that measure CDMA has 23 items in three dimensions: controllability, stability, and causality. Response was assessed on a six-point Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"). Higher scores indicates optimistic attributional style and lower scores indicates pessimistic attributional style. The adaptation of AACDM was tested for validity using CFA and item-total correlation, from which it was found that 11 items were valid to measure AACDM dimensions (controllability: factor loading = 0.54–0.86, *t* value > 1.96, crit score = 0.509–0.567; stability: factor loading = 0.58–0.88, *t* value > 1.96, crit score = 0.371–0.720; causality: factor loading = 0.55–1.14, *t* value > 1.96, crit score = 0.509–0.623). The 11 items of AACDM had high internal consistency with Cronbach's alpha ranging from 0.71 – 0.81. Therefore, the AACDM is a valid and reliable test.

Proactive Personality Scale (PPS)

PPS was constructed by Seibert et al. (1999) to measure proactive personality. PPS has 10 items with six-point Likert type scale from 1 ("strongly disagree") to 6 ("strongly agree"). Higher scores indicates a stronger proactive personality. The validity test confirmed that 7 of 10 PPS items were valid with CFA factor loadings between 0.53 to 0.75, *t* values > 1.96, and Crit score ranged from 0.370 to 0.583. The PPS in this study also showed high internal consistency with Cronbach's alpha 0.762.

Data Analysis

Data was analyzed in two steps: preliminary analysis and main analysis. Preliminary analysis showed the descriptive statistics (mean and standard deviation) and correlation between variables, while main analysis showed the results of the hypothesis testing. Hypothesis 1 and 2 were tested using the simple regression analysis. To test hypothesis 3, multiple regression analysis was conducted using the Hayes' macro PROCESS, and the conditional effect of CDMA on CDSE was assessed using the Johnson–Neyman technique (Hayes, 2013). The interaction between CDMA and proactive personality was obtained from mean-centered data; that is, the mean score for each respondent was transformed into to a deviation score, where the mean score was equivalent to zero, as recommended by Hayes (2013). This mean-centering process was done to eliminate any multicollinearity problems with the interactions from the scale being used as well as to produce more meaningful, interpretable data.

Results

Preliminary Analysis

Table 1 presents the descriptive statistics and the correlations of the study variables. As shown in Table 1, CDSE was significantly correlated to both proactive personality ($r = 0.55$, $p = 0.00$) and CDMA ($r = 0.23$, $p = 0.00$). This result indicated that the stronger proactive personality and more optimistic attributional style in gifted adolescents, the higher their CDSE level. However, proactive personality has stronger correlation to CDSE, and this might indicate that proactive personality would has stronger influence on CDSE, compared to CDMA influence on CDSE. However, CDMA was not correlated with proactive personality ($r = 0.03$, $p = 0.657$).

Main Analysis

Table 2 presents the regression analysis results. As shown in Table 2, regression analysis result showed that CDMA ($R^2 = 0.051$, $b = 0.226$, $p = 0.004$) and proactive personality ($R^2 = 0.304$, $t = 8.354$, $p = 0.000$) significantly influenced CDSE. This result indicated that higher CDMA or proactive personality lead to higher CDSE in gifted high-school students. In addition, consistent with the correlation result, proactive personality showed stronger influence than CDMA on CDSE. Based on these results, hypothesis 1 and 2 in this study were supported.

To examine the moderating role of a proactive personality on the relationship between CDMA and CDSE (Hypothesis 3), a mean-centered score for CDMA and proactive personality was used, as suggested by Hayes (2013). It was found that the interaction between a proactive personality and CDMA had no significant influence on CDSE ($R^2 = 0.347$, $b = -0.036$, $p = 0.730$), indicating that the effect of CDMA on CDSE did not depend on proactive personality in gifted high-school students. However, from the Johnson–Neyman technique, it was known that proactive personality moderated the influence of CDMA on CDSE when its mean score ranged between 3.909 and 5.186 (in a scale from 1 to 6). Based on these results, therefore, hypothesis 3 was not supported.

Discussion

This study examined the relationships among CDMA, proactive personality, and CDSE. The results confirmed findings from previous study that attribution positively affects CDSE. The belief that success or failure in choosing a career is determined by internal factors has been found to support student self-efficacy when making career decisions (Luzzo et al., 1996). From this result, it can be concluded

Table 1. Descriptive Statistics and Correlation Matrix of Study Variables

Variable	*M*	*SD*	1	2	3
CDSE	4.66	0.46	-		
PP	4.58	0.48	0.55**	-	
CDMA	4.35	0.60	0.23**	0.03	-

Note: $N = 162$; CDSE = career decision self-efficacy; CDMA = career decision-making attribution; PP = proactive personality; ** $p < 0.01$

Table 2. Regression Analysis Results

Variables	*R*	R^2	*b*	*F*	*t*
CDMA	0.226	0.051	0.174	8.615	2.935**
PP	0.551	0.304	0.525	69.788	8.354***
CDMA	0.589	0.346	0.159	42.146	3.225**
PP			0.518		8.477***
CDMA x PP		0.347	−0.036	0.120	−0.346

Note: CDMA = career decision-making attribution; PP = proactive personality; ** $p < 0.01$ *** $p < 0.001$

that the more optimistic they are, the more they believe in their career decision-making ability. In other words, gifted students with optimistic attribution styles have more confidence in their ability to gather career information, solve work-related problems, conduct self-appraisals, select career goals, and make future plans.

The results of this study also showed that proactive personalities positively influenced CDSE in gifted students, which suggests that gifted students with stronger proactive personality have more confidence in their ability to make career decisions. These results are consistent with the Social Cognitive Career Theory and the previous studies finding that personality plays a role in self-efficacy (Hsieh & Huang, 2014). This is likely because students who have stronger proactive personality will do something to change their situation, and they also persevere in reaching their goal to make the right career decisions. Therefore, the greater the proactive personality, the greater the CDSE.

However, it was also found that the proactive personality did not moderate the relationship between CDMA and CDSE, as the interaction did not significantly contribute to CDSE. In this study, the assumption is that proactive personality would activate the emergence of behavior necessary to enhance CDSE, so that knowledge or experience of success or failure is formed. However, in attribution theory, the dimension of causality can have direct consequences on self-efficacy (Graham & Taylor, 2016). This means that the influence of CDMA is not necessarily or always through the experience of success or failure which only occur after career-related actions are taken. In addition, the theory of self-efficacy also reveals that self-efficacy can be influenced not only from experience but can also be influenced by modeling, verbal persuasion, and psychological emotional state (Bandura in Maddux & Kleiman, 2018). Therefore, CDMA did not depend on proactive personality to influence CDSE in gifted students.

The contribution of proactive personality was found to be greater than CDMA on CDSE, which may be because a proactive personality is a stable disposition that allows gifted students to take the necessary actions to build their self-efficacy for career decision making (Bateman & Crant, 1993). Moreover, as stated before, the concept of proactive personality appears to have a relationship with the concept of task-commitment. Task-commitment has also been described as being in line with perseverance and self-confidence or the belief in the ability to complete important work (Hawadi, 2002). In other words, task-commitment is closely related to self-efficacy; therefore, proactive personality has greater effect on CDSE. Meanwhile, CDMA is a cognitive process that people used to explain the career decision-making process (Luzzo & Jenkins-Smith, 1998), and it is more likely to be changed in some ways (Luzzo et al., 1996) or differ according to the situations or other factors. This might be the reason behind the smaller effect of CDMA on CDSE compared to proactive personality.

Implications

This study found that having a proactive personality has a significant effect on CDSE in gifted students. People with proactive personalities tend to take the initiative and persevere in making changes to their current situation (Bateman & Crant, 1993). As mentioned, because gifted students often experience career indecision, having a proactive personality is important in resolving problems related to career indecision. Parents and schools can encourage gifted students to take the initiative in school or other environment and to preserve in reaching their goal before they reach adolescence. This might include encouraging gifted students to seek help when they encounter some obstacles or difficulties. Therefore, proactive personality can be formed and assist them in the process of career decision-making in the future.

This study showed that CDMA influenced CDSE. Gifted students who believe that their career decisions and career futures are beyond their control can experience a decrease in their CDSE, which could ultimately affect their career development. Therefore, parents and schools can assist these students to change their beliefs (attribution) about their future careers to be more optimistic to support CDSE and their future career development. This could be done by complimenting their effort in school rather than their ability or that every situations can change.

Limitations and Conclusion

This study has several limitations. First, this study only considered individual factors affecting CDSE. Several studies have examined the external factors that can affect CDSE, such as parental influence, socioeconomics, and the role of the school (Hsieh & Huang, 2014; Sovet & Metz, 2014); therefore, it is suggested to examine the role of external factors on CDSE. The second limitation was some of the data were collected in the afternoon (1 p.m.) and some were collected in the morning (7 a.m.). Students whose data were collected in the afternoon tended to leave more parts of the questionnaire unfilled. This may have been because they were tired or not in top condition; future research should take account of the time data are collected, especially if data collection takes a long time.

In conclusion, the results of this study indicated that gifted high-school student's CDSE could be increased by CDMA and proactive personality. However, the influence of CDMA on CDSE did not depend on proactive personality. Parents and schools could assist gifted students to have a more optimistic attributional style and be more proactive, or to take the initiative, to help them overcome their career indecision problems and to enhance their confidence in reaching decision about their career.

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